Oracle® Retail Integration Cloud Service

Hospital Administration Guide

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ORACLE

Oracle Retail Integration Cloud Service Hospital Administration Guide, Release 23.1.201.0

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Contents

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Preface

1 Introduction

The RIB Hospital 1-1
RIB Hospital Dependence Check 1-1
RIB Hospital Insert 1-2
RIB Hospital Tables 1-2
RIB Hospital Retry 1-3
- PUB Retry Adapter 1-4
- Hospital Attempt (Retry) Count 1-6
- JMS Delivery Count 1-6

2 Navigation and Help

Log in to RIHA 2-1
Search for a Hospital Record 2-2
- Basic Search 2-2
- Advanced Search 2-3

Delete a Message 2-3
Stop a Message 2-4
Retry a Message 2-4
View and Edit a Message 2-5
Save a Message Locally 2-5
Import a New Hospital Record to Hospital Tables 2-5
Update an Existing Hospital Record 2-6
View Hospital Record Details 2-7
View the Error History of a Message 2-8
View the Hospital Reference Information of a Message 2-8

View the Routing Information of a Message 2-9

A Glossary

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Preface

The Oracle Retail Integration Bus Hospital Administration Guide describes the application user interface and how to navigate through it.

Audience

This document is intended for the users and administrators of Oracle RIB HospitalAdministration. This may include merchandisers, buyers, and business analysts.

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The Oracle Retail Analytics Platform Cloud Services are hosted in the Oracle Cloud with the security features inherent to Oracle technology and a robust data center classification, providing significant uptime. The Oracle Cloud team is responsible for installing, monitoring, patching, and upgrading retail software.

Included in the service is continuous technical support, access to software feature enhancements, hardware upgrades, and disaster recovery. The Cloud Service model helps to free customer IT resources from the need to perform these tasks, giving retailers greater business agility to respond to changing technologies and to perform more value-added tasks focused on business processes and innovation.

Oracle Retail Software Cloud Service is acquired exclusively through a subscription service (SaaS) model. This shifts funding from a capital investment in software to an operational expense. Subscription-based pricing for retail applications offers flexibility and cost effectiveness.

1 Introduction

Oracle Retail Integration Bus Hospital Administration or RIB Hospital Administration (RIHA) is a tool to manage RIB messages in the RIB hospital error tables.

Using RIHA you can search for hospital records, stop a message from being retried, retry a message for which maximum system-set retries have been tried, and delete a message from the tables. You can insert new records into hospital tables. You can also update existing hospital records and message payloads.

RIHA should be installed only after core RIB components have been installed and verified.

Using RIHA is the recommended way to perform all RIB Hospital error table operations.

The RIB Hospital

The RIB Hospital is a collective term for a set of Java Classes and database tables whose purpose is to provide a mechanism to handle system and business-related errors while meeting the fundamental RIB requirements:

- Guaranteed once-and-only-once successful delivery.
- Preservation of publication sequence (even in case of failures).

When a message is processed, the adapter checks to see whether the RIB Hospital contains any messages associated with the same businessObjectId as the current message. If so, then the adapter places the current message in the hospital as well. This is to ensure messages are always processed in the proper sequence. If proper sequencing is not maintained, then the subscribing application's data may become corrupted.

If an error occurs during message processing, the subscribing adapter notes this internally and rolls back all work associated with the message. When the message is re-processed (since it is yet to be processed successfully), the adapter now recognizes this message is problematic and checks it into the hospital.

For Publication, there are some RMS publishers that return an 'H' status to denote a problem creating a new message for a specific business object. This status may be due to database locks being held by on-line users of an Oracle Forms application or it could also be due to some data incompatibility found in the GETNXT() procedure. Whenever a publisher recognizes that a message for a business object cannot be published due to one of these conditions, the message must go into the RIB Hospital.

After a message is checked into the RIB Hospital, a retry adapter extracts the message from the hospital and tries to re-publish it to the integration bus.

RIB Hospital Dependence Check

The RIB Hospital dependency check logic assumes that each message family has a single, unique businessObjectId for all business object entities its messages are associated with.

This businessObjectId must be the same for the same business entity across all message types within the message family. If any message for a specific business entity is placed into the RIB Hospital, then the RIB Hospital dependency check logic automatically inserts any subsequent messages for the same business object. This is to preserve the message sequence and guarantees messages are processed exactly once. Otherwise, multiple update messages for a business object may be processed in an incorrect order, creating incompatibilities between applications.

If the businessObjectId is not set, then there is no dependency check. Not all message families set the businessObjectId or it is not set on all message types. See the Oracle Retail application documentation (for example, "Message Publication and Subscription Designs" in the Oracle Retail Merchandising Operations Guide Volume 2).

RIB Hospital Insert

In the event of failure during message subscription, the error is flagged within the RIB Hospital software, resulting in rollback of the work done in the retail application. The adapter returns a failure so that the database transaction is rolled back as well, and the message is kept on the Integration Bus topic. This is because subscribing adapters are executed within the context of a distributed transaction, using the XA two-phase commit protocol. This transaction is controlled by the Java EE Application Server. Immediately after the roll back, JMS re-delivers the message back to the subscribing adapter and, this time, the RIB Hospital software detects the previously flagged message and inserts the message in to the RIB Hospital tables. The message is then removed from the JMS topic.

When the initial failure occurs while processing the message, the error is flagged within the RIB Hospital software, the adapter returns a failure so that the database transaction is rolled back, and the message is kept on the integration bus topic.

> **Note:**
>
> The XA interface is a standard protocol between a transaction manager and a database or resource manager. Both the JMS topic connection and the database connection must support the XA protocol
> For more information regarding the XA standard, see the URL
>
> http://www.opengroup.org

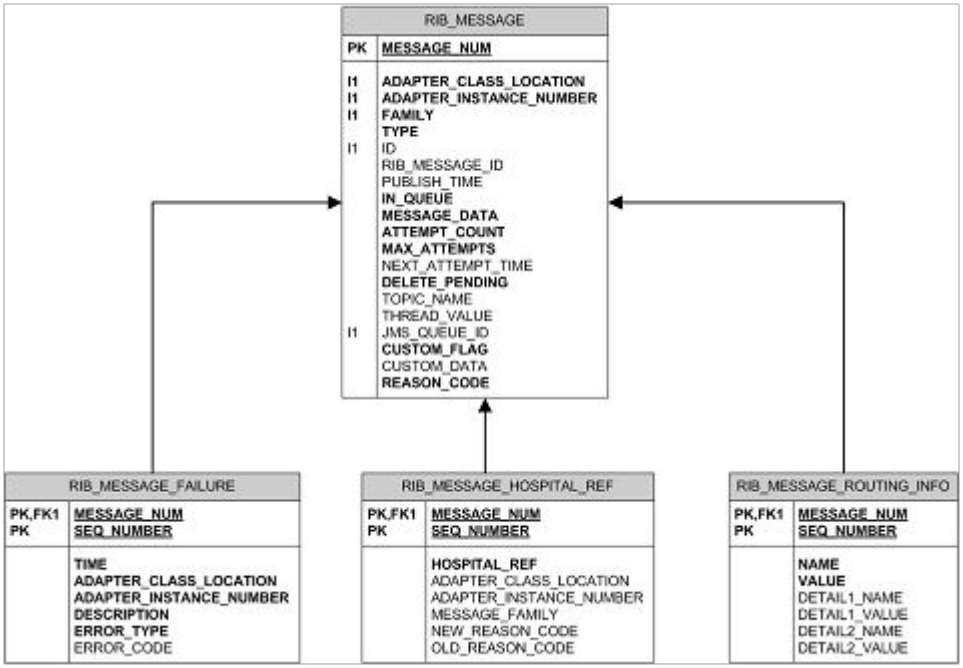
RIB Hospital Tables

The RIB Hospital tables are:

- RIB_MESSAGE - contains the message payload, all single-field envelope information, and a concatenated string made from <id> tags. It also contains a unique hospital ID identifying this record within the hospital.
- RIB_MESSAGE_FAILURE - contains all failure information for each time the message was processed.
- RIB_MESSAGE_ROUTING_INFO - contains all of the routing element information found in the message envelope.

- RIB_MESSAGE_HOSPITAL_REF - contains all of the hospital reference information found in the message envelope.

A database sequence, RIB_MESSAGE_SEQ, is used to maintain a unique message number associated with each message placed into the RIB Hospital.



These tables will have been created during the database portion of the Oracle Retail application installation (for example, RWMS, SIM, RPM, AIP, RFM, OMS, or RMS). The RIB Hospital tables are internal system tables that maintain the RIB runtime state of the system. The entries in these tables must not be manipulated by non-RIB tools when the RIB is running.

RIB Hospital Retry

After a message is inserted into the RIB Hospital, the hospital retry adapter is used to re-post the message to the JMS in order to retry its processing. The assumption is that the error is a transitory one; records locked or there is an external dependency that has not been met. The number of times a message is retried is configurable.

The hospital retry is responsible for maintaining state information for hospital records or what has happened to the record or message information. Each time the message is reprocessed, a record is kept of the event along with the results. The design is to provide a means to halt processing for messages that cause errors while allowing continued processing for the good messages.

One element of this information is whether the message has been queued to the JMS topic for re-try processing. So, manually deleting messages from the hospital database using SQL directly may produce severe processing problems. Also, deleting messages directly from the JMS provider may result in a message that is never retried again, as the logic in the retry assumes the message is queued within the JMS.

There are three kinds of hospital retry adapters:

- Sub Retry Adapter
- JMS Retry Adapter
- Pub Retry Adapter

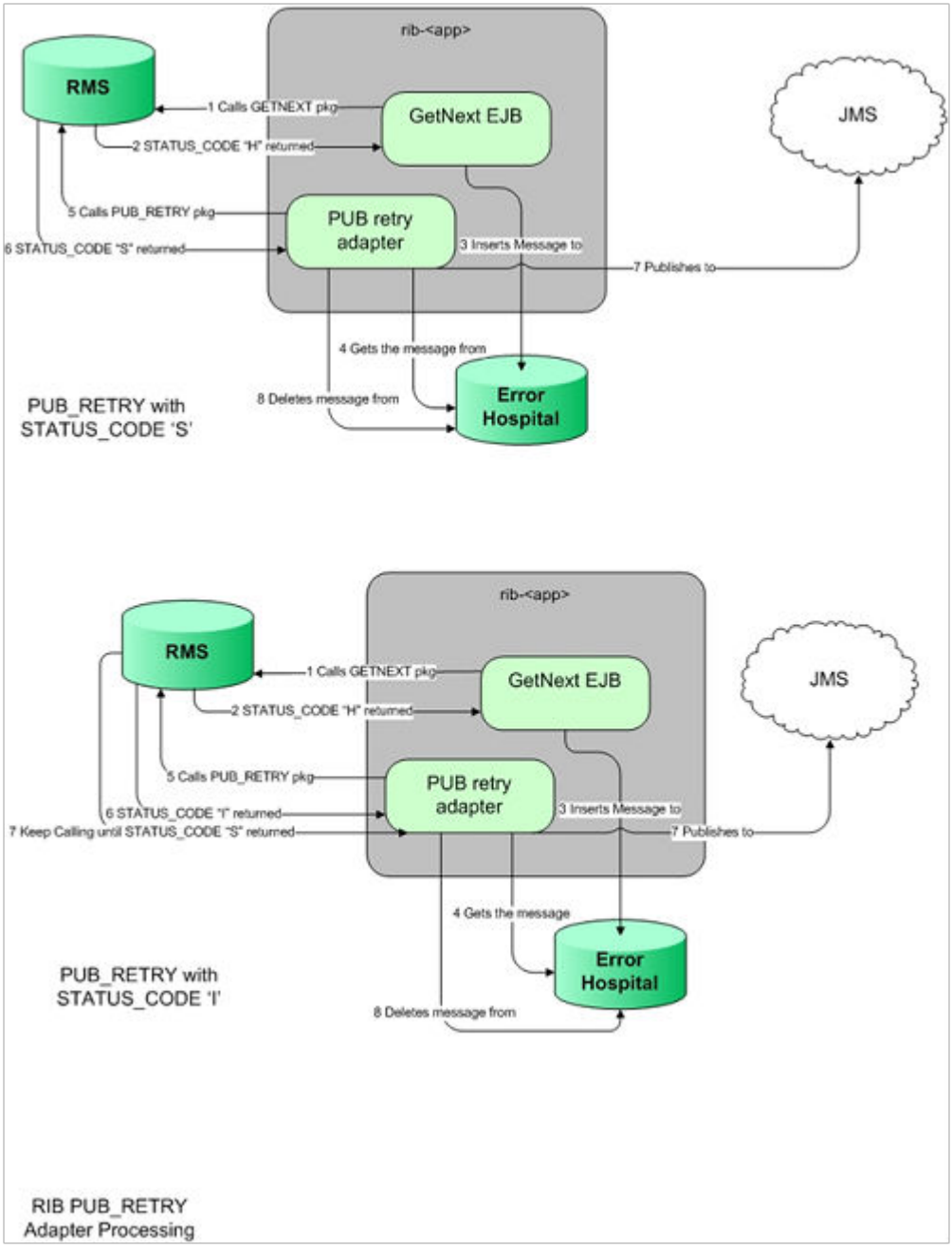
All subscriber-side retrying of messages is handled by the Sub Retry Adapter. The Sub Retry Adapter looks at all messages with reason code SUB, then filters and identifies the messages that are ready to be reprocessed, keeping message ordering in mind.

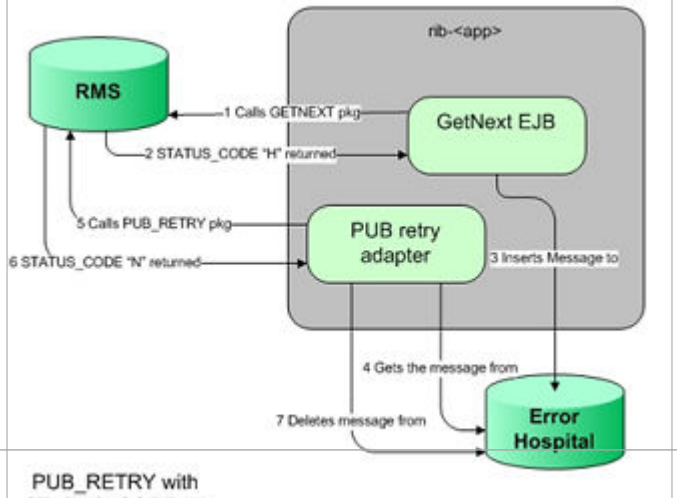
Oracle Retail applications are unaware that the integrations of business data are happening through a JMS server. RIB abstracts the fact it is using a JMS server from the retail applications. When the JMS server is down or RIB has some problem publishing to the JMS server, RIB will not rollback the transaction as long as it is a recoverable problem. In such a situation, all messages are inserted to the RIB Hospital with a reason code of JMS and publication continues on. The JMS Retry Adapter retries all messages with reason code of JMS at a later time.

All messages with reason code of PUB are retried by the Pub Retry Adapter. Merchandising is the only retail application that needs the Pub Retry Adapter.

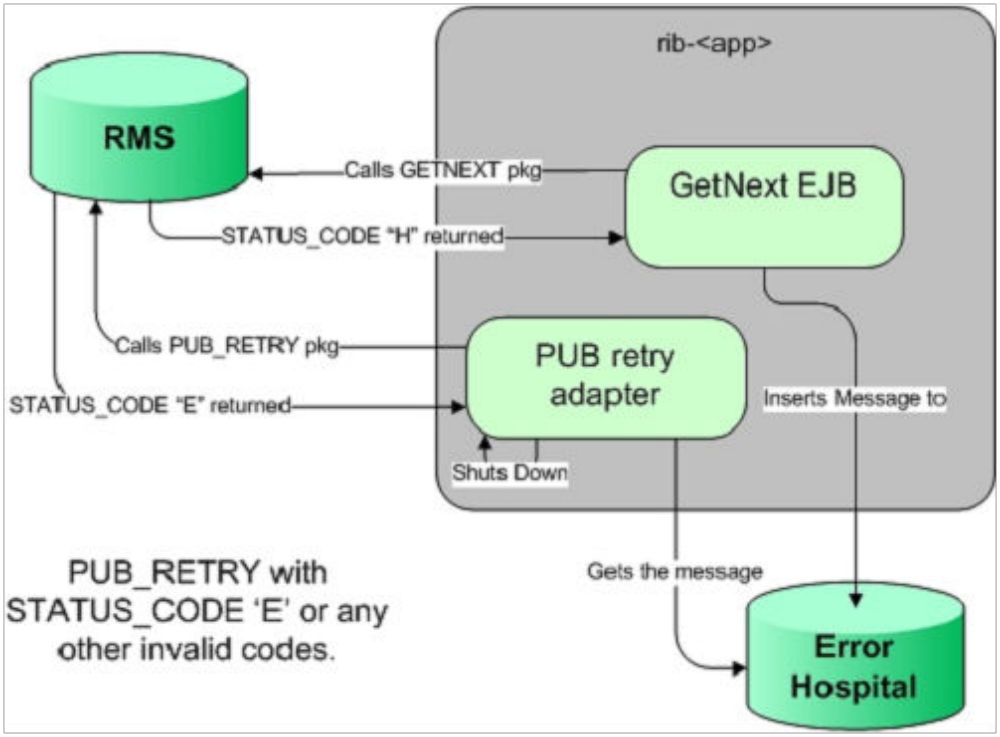
PUB Retry Adapter

The following diagrams illustrate how the PUB Retry Adapter works:





PUB_RETRY with STATUS_CODE 'N'



Hospital Attempt (Retry) Count

When the message first comes through the subscriber, if there is no businessObjectId, then no dependency check is performed. If the message cannot be processed, it is then inserted into the hospital with an attempt_count = 1.

A message that comes through the subscriber, that has a businessObjectId, a dependency check is performed. If there is no dependency and the message cannot be processed, it is then inserted into the hospital with an attempt_count = 1.

A message that comes through the subscriber that does match the ID and family of another message in the hospital is known to be dependent, so it goes to the hospital immediately, with an attempt_count = 0.

Exception to this rib-tafr app, in case of rib-tafr attempt_count is 1, even if the message is inserted into the hospital as a dependent message because tafr adapters work with two topics and message would already be subscribed once by the tafr, therefore it always has attempt_count=1.

JMS Delivery Count

JMSXDeliveryCount is a message property set by AQ JMS. This property is checked to determine whether the message is being redelivered by the JMS. If the count MAX_REDELIVERY_THRESHOLD (set to 2) is reached, the RIB subscribers assume that the message is being re-delivered; the message will be determined to be a poison message. In such scenarios, the message is written to the file system (at the same

location where application log files are written), and the adapter is shut down. An administrator must decide how this message will be handled.

2
Navigation and Help

This chapter describes the navigation steps in the Oracle Retail Integration Bus Hospital Administration or RIB Hospital Administration (RIHA) application.

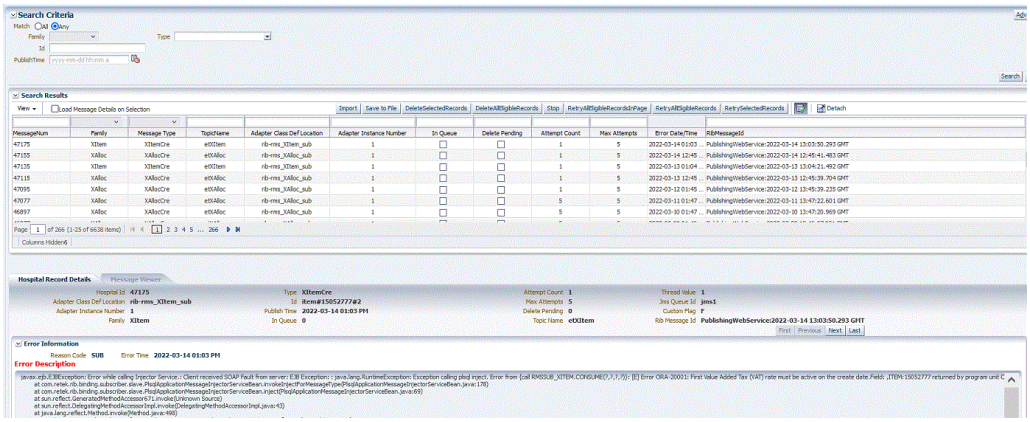
Log in to RIHA

This procedure explains how to log in to the application.

1. Enter the application URL: in the address bar of the browser.

> **Note:**
>
> Using Mozilla Firefox Web browser is recommended.

2. In the User Name field, enter the user name configured at the time of installation of the application.
3. In the Password field, enter the password.
4. Select the application name from the drop down to go the error hospital details of a particular application.
5. Click Login. The application home page appears.



Search for a Hospital Record

This procedure explains how to search for a hospital record in RIHA.

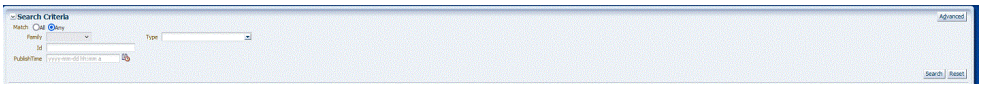
Basic Search

By default, the basic search option is enabled. Basic search is done using the Equal to operator against the given search values.

Click **Reset** to clear the data from search fields.

To perform a Basic Search:

1. Log in to the application.

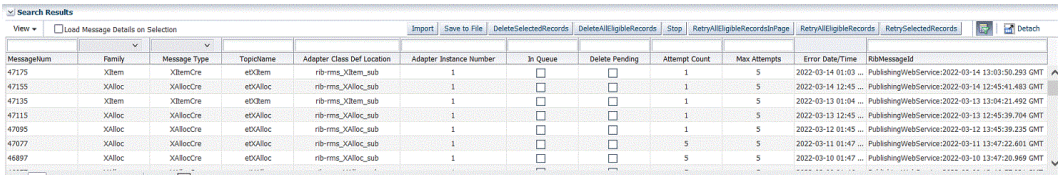


2. In the Search Criteria section, enter or select the criteria to limit your search in one or more of the following fields:
   - Family
   - ID
   - Publish Time
   - Message Type

> **Note:**
>
> Select **All** to match all fields in the search. Select **Any** to match

   any field in the search criteria.

3. Click **Search**. The hospital records that match the search criteria are populated in the search results table.



Advanced Search

By default, the basic search option is selected in the application. In the search panel, click **Advanced** to switch to advanced search option. Advanced search allows you to add more search fields to the search criteria. Click **Add Fields** to add more fields.

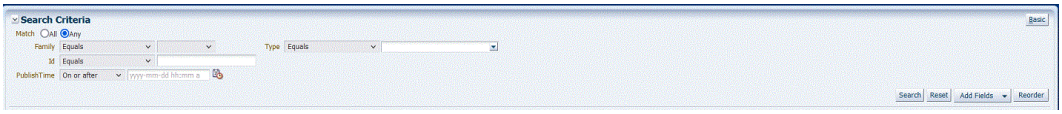
In the advanced search, the operators of each search field can be changed to other available options.

Click **Basic** to switch back to the basic search option.

Click **Reset** to clear the data from search fields.

To perform an Advanced Search:

1. Log in to the application.
2. Click **Advanced** in the search panel.

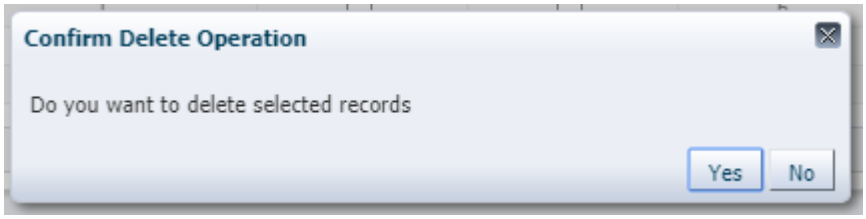


3. Click **Add Fields**. Additional fields are listed. Select the required fields to add to the search criteria.
   - Click the red cross mark icon besides the field to remove the field from the search criteria.
4. Enter values in the respective fields and click Search. The hospital records that match the search criteria are populated in the search results table.

Delete a Message

This procedure explains how to mark a message for deletion from the RIB Hospital.

1. Log in to the application.
2. Search for hospital records.
3. Select a row that represents a hospital record.
4. Click **Delete**. A confirmation dialog box appears.



5. The message is deleted when the hospital retry adapters and/or process checks for messages to be deleted from the RIB Hospital.

   Bulk deletion of records from error hospital tables can be done using the following options:

   - RetrySelectedRecords - This deletes records that are selected using the multi-select option.
   - RetryAllEligibleRecords - This deletes all the eligible records in error hospital irrespective of search result.

   > **Note:**
   >
   > A message that is in queue (as indicated when the check box in the In Queue column is selected) cannot be deleted.

Stop a Message

This procedure explains how to stop a retry adapter and/or a process from attempting to retry a message.

1. Log in to the application.
2. Search for a message.
3. Select a row that represents a hospital record.
4. Click **Stop**. The retry adapter and/or a process does not attempt to reprocess the message until you select the message for Retry.

> **Note:**
>
> A message that is in queue (as indicated when the check box in the In Queue column is selected) cannot be stopped.

Retry a Message

This procedure explains how to retry a message after you have stopped the retry adapter and/or process from re-processing it.

1. Log in to the application.
2. Search for a message.
3. Select a row that represents a hospital record.
4. Click one of the following buttons:
   - RetryAllEligibleRecordsInPage - This option will retry all the eligible records in current page which is being displayed. (See note below for delete criteria)
   - RetryAllEligibleRecords - This option will retry all the eligible records in error hospital irrespective of search result.

- RetrySelectedRecords - This will retry records that are selected using the multi-select option.

> **Note:**
>
> A message that is in queue (as indicated by the check box in the In Queue column is selected) or pending deletion (as indicated by the check box in the Delete Pending column is selected) cannot be retried.

View and Edit a Message

This procedure explains how to view a message.

1. Log in to the application.
2. Search for hospital records.
3. Click the **Load Message Details on Selection** check box located in the search results table.
4. Select a row to view the payload of hospital records.
5. Click the **Message Viewer** tab. The message viewer displays the payload in text mode.

6. You can edit the message shown and click **Save** to save the message.

Save a Message Locally

This procedure explains how to save a message locally.

1. Search for a message and select a row.
2. Click **Save To File**. The message is saved to a RibMessage.xml, a text file named by default.

Import a New Hospital Record to Hospital Tables

This procedure explains how to retrieve a message from a local location.

1. Click **Import**
2. Search for a message and select a row.
   - A popup browser opens with an option to browse for a hospital entry to be

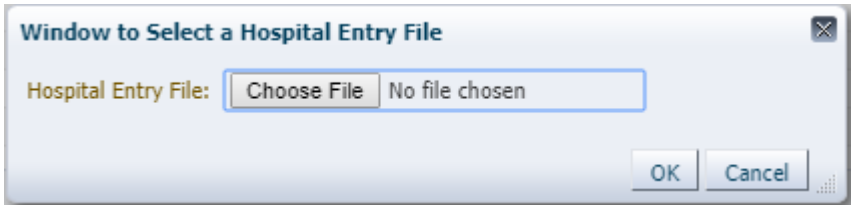
The message must be in the following specified format:

```
<HospitalEntry>
<AdapterClassLocation>AdapterClassLocation</AdapterClassLocation>
<Family>Family</Family>
<Type>Type</Type>
<TopicName>TopicName</TopicName>
<CustomFlag>F</CustomFlag>
<CustomData> <![CDATA[ CustomData ]]> </CustomData>
<ReasonCode>ReasonCode</ReasonCode>
<RibMessagePayloadView>
<RibMessagePayload>
<MessageData> <![CDATA[ <Message Xml> ]]> </MessageData>
</RibMessagePayload>
</RibMessagePayloadView>
<RibMessageRoutingInfoView>
<RibMessageRoutingInfo>
<SeqNumber>0</SeqNumber>
<Name>Name</Name>
<Value>Value</Value>
<Detail1Name>DetailName</Detail1Name>
<Detail1Value>DetailValue</Detail1Value>
</RibMessageRoutingInfo>
</RibMessageRoutingInfoView>
</HospitalEntry>
```

Update an Existing Hospital Record

This procedure explains how to update an existing hospital record location.

1. Search for a message and select a row (see View and Edit a Message).
2. Save the hospital entry locally (See Save a Message Locally).
3. Edit the hospital entry file.
   - Do not edit or remove any of the <MessageNum> attributes.
4. Click **Import**.



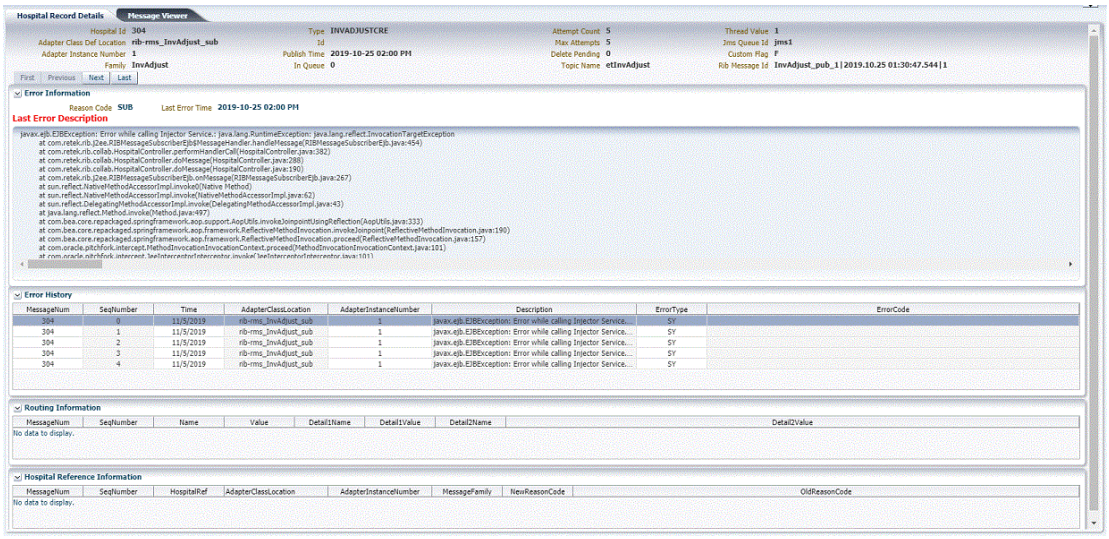
The message must be in the same format in which it was saved.

Format the hospital entry to be updated.

```
<HospitalEntry>
   <MessageNum>12345</MessageNum>
   <AdapterClassLocation>AdapterClassLocation</AdapterClassLocation>
   <Family>Family</Family>
   <Type>Type</Type>
   <RibMessageId>RibMessageId</RibMessageId>
   <Id>Id</Id>
   <PublishTime>YYYY-MM-DD HH:MM:SS</PublishTime>
   <TopicName>TopicName</TopicName>
   <ThreadValue>Threadvalue</ThreadValue>
   <JmsQueueId>jmsId</JmsQueueId>
   <CustomFlag>F</CustomFlag>
   <CustomData> <![CDATA[ CustomData ]]> </CustomData>
   <ReasonCode>ReasonCode</ReasonCode>
   <RibMessagePayloadView>
      <RibMessagePayload>
         <MessageNum>12345</MessageNum>
         <MessageData> <![CDATA[ <Message Xml> ]]> </MessageData>
      </RibMessagePayload>
   </RibMessagePayloadView>
   <RibMessageRoutingInfoView>
      <RibMessageRoutingInfo>
         <SeqNumber>0</SeqNumber>
         <Name>Name</Name>
         <Value>Value</Value>
            <Detail1Name>DetailName</Detail1Name>
            <Detail1Value>DetailValue</Detail1Value>
         </RibMessageRoutingInfo>
      </RibMessageRoutingInfoView>
   </HospitalEntry>
```

View Hospital Record Details

This procedure explains how to see detailed information about a hospital record.

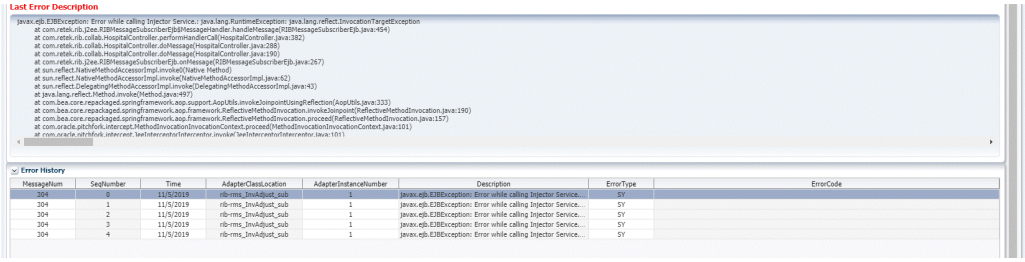


1. Search for a message (see "View and Edit a Message").
2. Select a row that represents a hospital record.

- By default, the Hospital Records Detail tab is active and displays the selected row's hospital record details.
- The size of the pane can be adjusted by using the arrow mark located in the right side of the pane.

View the Error History of a Message

This procedure explains how to view a message's error history.



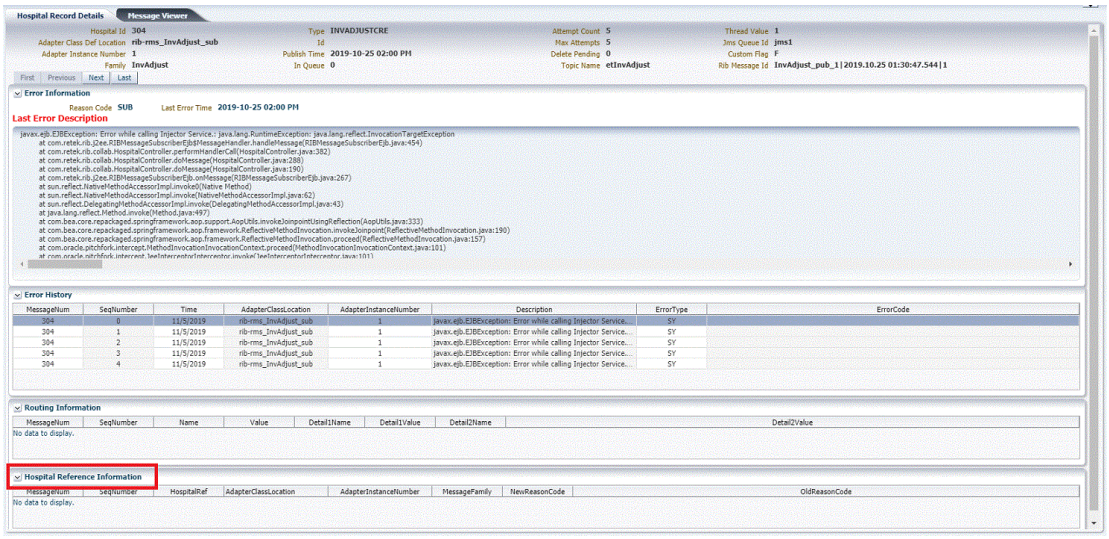
1. Search for a message (see "View and Edit a Message").
2. Select a row that represents a hospital record.
   - By default the Hospital Records Details tab is active and displays hospital record details for the selected row.
   - Click on the arrow located near the error history. This will expand the pane and display errors associated with each of the possible retry attempts.

View the Hospital Reference Information of a Message

This procedure explains how to view a message's hospital reference information.

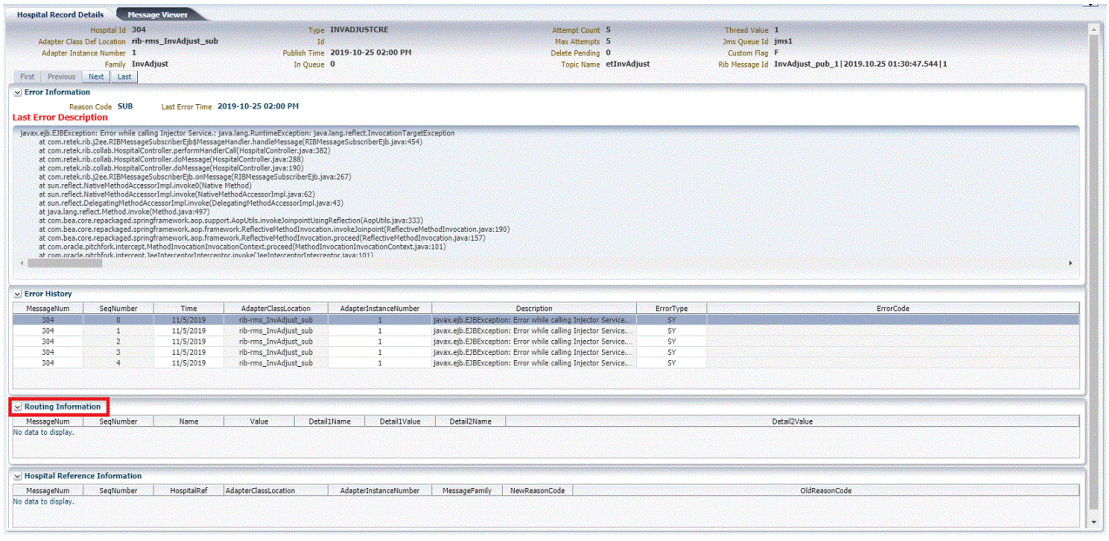
> **Note:**
>
> This pane contains data that applies only to retailers who have access to the custom code.

This pane displays records that are already in the RIB_MESSAGE table but are prevented from being retried until another record has been successfully retried. Once the other record has been successfully retried, the Reason Code in the RIB_MESSAGE table for the record being referenced in the Hospital Reference column is set to the new Reason Code to make it available for retry. View the hospital record details for a message (See View Hospital Record Details).



1. Search for a message (See “View and Edit a Message”).
2. Select a row that represents a hospital record.
   - By default the Hospital Records Details tab is active and displays hospital record details of the selected row.
   - Click on the arrow located near the hospital reference information. This will expand the pane and display associated reference information.

View the Routing Information of a Message



This procedure explains how to view a message's routing information.

1. Search for a message (See “View and Edit a Message”).
2. Select a row that represents a hospital record.
   - By default the Hospital Records Details tab is active and displays hospital record details of the selected row.

- Click on the arrow located near the routing information. This will expand the pane and display associated reference information.

A
Glossary

Table A-1 Glossary

Term	Definition
Attempt Count	The number of times the system has tried to process the message.
Adapter	An adapter represents one or more threads of control within theadapter that publishes or subscribes to the applicable XML messages.
Custom Flag	This value is used to signal that the message contains custom data. Thisis not currently used by the RIB; therefore its value is always set to F(false).
Delete Pending	A Yes means that the message is marked for deletion and will be removed from the RIB Hospital when the retry adapter and/or process checks for messages to be deleted from the RIB Hospital. No means that the message is not pending for deletion.
Family	The valid message family to which the message belongs. Each message family contains information specific to a related set of operations on a business entity or related business entities.
Hospital ID	This is the identifier of a single message in the Hospital database. It is the primary key that associates the message in the RIB_MESSAGE table with its corresponding data in the RIB_MESSAGE_FAILURE, RIB_ MESSAGE_ROUTING_INFO and RIB_MESSAGE_HOSPITAL_REF tables.
ID	Optional ID string that identifies the message. Composite primary keys require multiple IDs. For example, a line item within a Purchase Order may contain the PO number and line item number as part of the ID. For example: `<id>PONumber=12345</id> <id>ItemID=321</id>`
In Queue	If Yes, messages in the queue are waiting to be reprocessed. If No, messages are not being reprocessed.
JMS Queue ID	This ID represents the JMS server that the message is published to during retries from the hospital. The ID also represents the JMS server from which the message was originally published (or from which the message was originally attempted to be published). The format of this field is: `<JMS host name>:<JMS host port>`
Last Error Description	The text of the error message that describes why the message failed to process.
Location	The adapter name and/or process name.
Max Attempts	The maximum number of times a message in the RIB Hospital should be re-processed by an application.
Message Type	Each message family contains a set of sub-formats specific to the business event triggering message publication. The term message type embodies this specific sub-format. For example: a Purchase Order message family can contain message types such as Create PO Header, Create PO Detail, Update PO Header, or Delete PO Detail.

Table A-1 (Cont.) Glossary

Term	Definition
Publish Time	The date/timestamp indicating when the message was published.
Reason Code	This value identifies whether an error occurred during publication of the message or during consumption (subscription). The indicators are JMS, SUB, and PUB. The PUB reason code is used by RMS to indicate that a reference to a message must be retained in the RIB Hospital. When retried, the adapter must call a special stored procedure (PUB_RETRY) that will publish the message once some specific conditions are met in the RMS application.
RIB Message ID	ID of the Message within the RIB Hospital. This value is set only after the message is checked into the RIB Hospital.
Thread Value	The thread value is used for parallel processing of messages within the same family. This value is added to the message during publication to the JMS so that it can be routed through a specific adapter and/or process.