JMS Listener Architecture

**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Rev** | **Date** | **Author** | **Description** |
| 1.0 | 5/1/2012 | Ted Crane | Release Version |
| 1.6 | 04/04/2013 | Ted Crane | Updates for version 1.6 |

**Document Approvers & Sign-Off**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Approver** | **Role** | **Document Accept/Reject** |
| 5/1/2012 | Ric Merrifield | Release Manager | Accept |
| 5/11/2012 | John Stiehl | Project Manager | Accept |
| 4/11/2013 | Glenn Curtis | Project Manager | Accept |

**Table of Contents**

[1 Introduction 4](#_Toc352850448)

[1.1 Purpose 4](#_Toc352850449)

[1.2 Scope 4](#_Toc352850450)

[1.3 Assumptions and Constraints 4](#_Toc352850451)

[1.4 Definitions 4](#_Toc352850452)

[1.5 Revisions 5](#_Toc352850453)

[2 The JMS Listener Environment 5](#_Toc352850454)

[3 Prerequisites 6](#_Toc352850455)

[4 Messages 7](#_Toc352850456)

[4.1 Database Schema 8](#_Toc352850457)

[4.1.1 GxP Message Schema 8](#_Toc352850458)

[4.1.2 xBRC Message Schema 9](#_Toc352850459)

[4.2 GxP Messages 9](#_Toc352850460)

[4.2.1 Entitlement Selection Message 9](#_Toc352850461)

[4.2.2 Entitlement Redemption Message 10](#_Toc352850462)

[4.2.3 Blue Lane Message 11](#_Toc352850463)

[4.3 xBRC Messages 12](#_Toc352850464)

[4.3.1 Entry Event 12](#_Toc352850465)

[4.3.2 Merge Event 13](#_Toc352850466)

[4.3.3 Abandon Event 13](#_Toc352850467)

[4.3.4 Reader Event 14](#_Toc352850468)

[4.3.5 Metrics Event 14](#_Toc352850469)

[4.3.6 Load Event 14](#_Toc352850470)

[4.3.7 Exit Event 14](#_Toc352850471)

[5 Troubleshooting 15](#_Toc352850472)

# Introduction

## Purpose

This document provides a description of the system architecture for the xConnect JMS Listener software that reads and messages transmitted from the xBRCs and the FastPass+ system on a Progress Software Sonic MQ Enterprise Service Bus.

## Scope

This document covers the messages processed to support the xi UI. Messages processed to cache guest and xBand data from xBMS and SF-OV, are also part of the JMS Listener software. This part of the JMS Listener software is described in the xConnect IDMS ICD and Design Document.

## Assumptions and Constraints

A Progress Software Sonic MQ Enterprise Service Bus has been installed and configured in a location that can be connected to by the JMS Listener software.

A SQL Server 2008 R2 Server has been installed and configured with the appropriate xBRMS database schema in a location that can be connected to by the JMS Listener software.

Both xBRC and FastPass+ systems are operating and publishing the expected messages on the SonicMQ Enterprise Service Bus.

IDMS is available to retrieve guest information.

## Definitions

The following acronyms are used:

|  |  |
| --- | --- |
| **Term** | **Definition** |
| xConnect | Code, scripts, APIs, and database schemas which comprise the unifying messaging, management, and reporting software which ties the hardware together into a coherent solution |
| xBand | RFID device worn by Guests |
| xTP | Experience TouchPoint, a Disney-themed short range RFID reader or “tap” device |
| DAP | Disney Access Portal, an xTP configured with a biometric reader |
| xBR | Long range RFID reader with uni- or omni-directional antennae |
| xBRC | xBand Reader Controller which manages xBRs, xTPs, and DAP devices |
| xBRMS | xBand Reader Management System code and database which stores operational data and manages xBRCs and unassigned readers. |
| IDMS | Code and database storing Guest and xBand information data |
| xBMS | xBand Management System code and database, which is the system of record for media, i.e. cards and bands, and the association between media and Guests via link ID architecture. |
| SF-OV | Strategic Functionality and One View. |

# The JMS Listener Environment



Figure 1 The JMS Listener Environment

# Prerequisites

The JMS Listener runs as a Linux daemon. As part of the xConnect

# Messages

This section documents the messages the JMS Listener processes. All messages are stored in a SQL Server database to be used by the xi Dashboard UI. The format of messages from the xBRC can be found in the xBRC Interface Control Document (#900-0058). The messages from the FastPass+ system have been included in this document.

## Database Schema

### FastPass+ Message Schema



Figure 2 FastPass+ Schema

### xBRC Message Schema



Figure 3 xBRC Message Schema

## FastPass+ Messages

### Entitlement Selection Message

Each time a guest selects an entitlement the FastPass+ system sends a message on topic JMS topic GXP.XPASS. The message text is XML, shown in the following example:

<businessEvent>

<location>GXP.XPASS</location>

<eventType>BOOK</eventType>

<subType>x</subType>

<guestIdentifier>ABCD1234</guestIdentifier>

<referenceId>10000</referenceId>

<correlationId>

</correlationId>

<payLoad>

</payLoad>

</businessEvent>

This information is stored in the BusinessEvent table in the xBRMS database (see Figure 2) for details.

The location and eventType elements will always be **GXP.XPASS** and **BOOK**, respective.

The payload and subtype elements will always be empty, and the correlationId element is persisted but never used.

The guestidentifer element represents the IDMS guest ID. A call to IDMS is made to get the first name, last name an e-mail address for the guest. This data is written to the Guest table in the xBRMS database.

The referenceId element is used to make a RESTFul call to the FastPass+ web service API to retrieve the StartTime, EndTime, EntertainmentID, and LocationID values. If this call fails for any reason the values will not be populated.

### Entitlement Redemption Message

Each time a guest redeems an entitlement they have selected, the FastPass+ system sends a JMS message. This message is an xml message NGE business event with a JSON payload:

<businessEvent>

<location>GXP.XPASS.REDEEM</location>

<eventType></eventType>

<subType></subType>

<referenceId></referenceId>

<guestIdentifier></guestIdentifier>

<timeStamp>2011-11-18T15:19:11Z</timeStamp>

<payload>

<![CDATA{

"cacheXpassApntmtId":3079,

"apntmtId":15722,

"apntmtStatus":"INQ",

"entertainmentId":80010176,

"locationId":80010176,

"xbandId":1234567,

"apntmtReason":"STD",

"tapDate":1342716587433

}]]>

</payload>

<correlationId>074321ff-5af5-44a5-85dd-fb8bf2b8980c</correlationId>

</businessEvent>

This data is saved to the RedepmtionEvent table.

The cacheXpassApntmtId and apntmtId fields are persisted but not used.

The xbandId represents the secureID of the band or card the guest used to redeem the entitlement and is not persisted, but is used

The entertainmentID, apntmntStatus, and apntmntReason values are persisted as is.

The Timestamp field in the EntitlementStatus table is read from the timestamp of the JMS message itself.

### Blue Lane Message

Each time an unsuccessful attempt to redeem an entitlement (also called a Blue Lane) occurs, the FastPass+ system sends a JMS message on the GXP.BLUELANE topic. The message has the following XML format:

<businessEvent>

<location>GXP.BLUELANE</location>

<eventType>Entitlement</eventType>

<subType>BlueLane</subType>

<referenceId>0776810827978534</referenceId>

<guestIdentifier>0776810827978534</guestIdentifier>

<timeStamp>2011-11-18T15:19:11Z</timeStamp>

<payload>

<![CDATA[<blueLane>

<xbandId>0776810827978534</xbandId>

<gxpEntertainmentId>80010110</gxpEntertainmentId>

<reason>{No Valid Park Admission || No Xpass || Early || Late || Different Entertainment}</reason>

<tapTime>Fri Nov 18 15:19:11 EST 2011</tapTime>

<facilityId>80007944</facilityId>

</blueLane>]]>

</payload>

<correlationId>074321ff-5af5-44a5-85dd-fb8bf2b8980c</correlationId>

</businessEvent>

As with the Entitlement Selection message, the data in the Business Event object is stored in the Business Event table.

The location, eventType, and subtype elements will always contain “GXP.BLUELANE”, “Entitlement”, and “BlueLane”, respectively.

The referenceID element is not persisted.

The guestIdentifer represents the secureID of the card or band the guest attempted to redeem the entitlement with and is used to lookup the guest. The guestID is then persisted, along with the guest first name, last name and email address.

The payload element contains the information persisted to the BlueLaneEvent table. The facilityId and Reason are normalized and are represented by the ReasonCode in the ReasonCode table and the FacilityName in the Facility table.

## xBRC Messages

The xBRC messages are documented in the xBRC Interface Control Document.

### Entry Event

An Entry Event is sent from the xBRC when a guest touches their card to the xTP at the entry of the attraction.

A record is created in the Event Table, and the EventTypeID is set to refer to the value in the type attribute of the message element. All other elements are passed through as is, with the exception of readersection which is not used at this time.

### Merge Event

A Merge Event is sent from the xBRC when a guest touches their card to the xTP at the merge point of the attraction.

A record is created in the Event table and the Event Type ID is set to the value that represents a Merge Event in the EventType table. Values are mapped in the same manner as an entry event.

### Abandon Event

An Abandon Event is sent from the xBRC when a guest enters the attraction (Entry Event), but is not seen at the merge (Merge Event) for a predetermined amount of time.

A record is created in the Event table and the Event Type ID is set to the value that represents an Abandon Event in the EventType table. Values are mapped in the same manner as an entry event. In addition a record is created in the AbandonEvent table and the lastxmit element is written to the LastTransmit field.

### Reader Event

A Reader event is generated by an xBRC configured to generate only events in response to guest touching a specific xTP with their card.

A record is created in the Event table and the Event Type ID is set to the value that represents a Reader Event in the EventType table. Values are mapped in the same manner as an entry event.

Elements not contained in the Event table are stored in their corresponding fields in the ReaderEvent table.

### Metrics Event

Processed but not used by the xi Dashboards.

### Load Event

A Load Event is generated when the guest loads into a car in an attraction.

### Exit Event

An Exit Event is generated when the guest exits from an attraction.

# Troubleshooting

Please refer to the *Rev 1.x of xConnect System* *Troubleshooting.docx* for troubleshooting instructions.