



Integrating PostilionPRM with Proactive Risk Manager

PostilionPRM

Release 2.0

12 April 2018



UNIVERSAL
PAYMENTSSM

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Publish Date: February 2018

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About this publication

Audience

This document is intended for operators who are responsible for configuring the PostilionPRM Interface to successfully integrate with a Proactive Risk Manager (PRM) server. The personnel using this information should have adequate knowledge and experience in configuring a Postilion system.

What's new in this publication

This is the first version of the publication. In future versions, this section will identify the changes that were made to the publication since it was last published.

Terminology

The following acronyms are used in this document:

Acronym	Term
TM	Transaction Manager
PRM	Proactive Risk Manager
RPRA	RetailPaymentsRiskAnalyze
NRT	Near real-time
RT	Real-time
BSI	Business Service Infrastructure
AG	Analytic Gateway

The following concepts are used in this document:

Concept	Definition
External transaction processing	Processing performed by an entity external to Transaction Manager for a particular transaction. Refer to the <i>Realtime Framework User Guide</i> for more information.
Customer transaction	The original transaction initiated by the customer involved in a transaction chain that requires external transaction processing.
External processing transaction	The auxiliary transaction generated by TM when performing external transaction processing on a customer transaction. The external processing transaction is associated with the customer transaction.

Section 1: Introduction

Overview

The integration between the PostilionPRM interface and PRM is accomplished through the use of the following components:

- Demographic Data Upload
- Retail Payments Risk Analysis
- Card Status Modification
- Transaction Risk Analysis Management

A service-based architecture is used to facilitate communication between a Postilion system and a PRM server.

To integrate Proactive Risk Manager with the PostilionPRM interface, do the following:

Note: The sink nodes that will be used for risk analysis must have already been configured in Transaction Manager before you start these configuration steps.

1. [Configure the PostilionPRM service](#)
2. Configure the required external processing and control node. See the *Realtime Framework User Guide* for information on configuring external processing and control nodes.
3. [Configure the interchange or interchanges](#)
4. [Configure Scheduled Job](#)
5. [Configure active/active](#)
6. [Configure tracing](#) (optional)

Architectural overview

The following diagram shows how the PostilionPRM interface fits into a Postilion system:

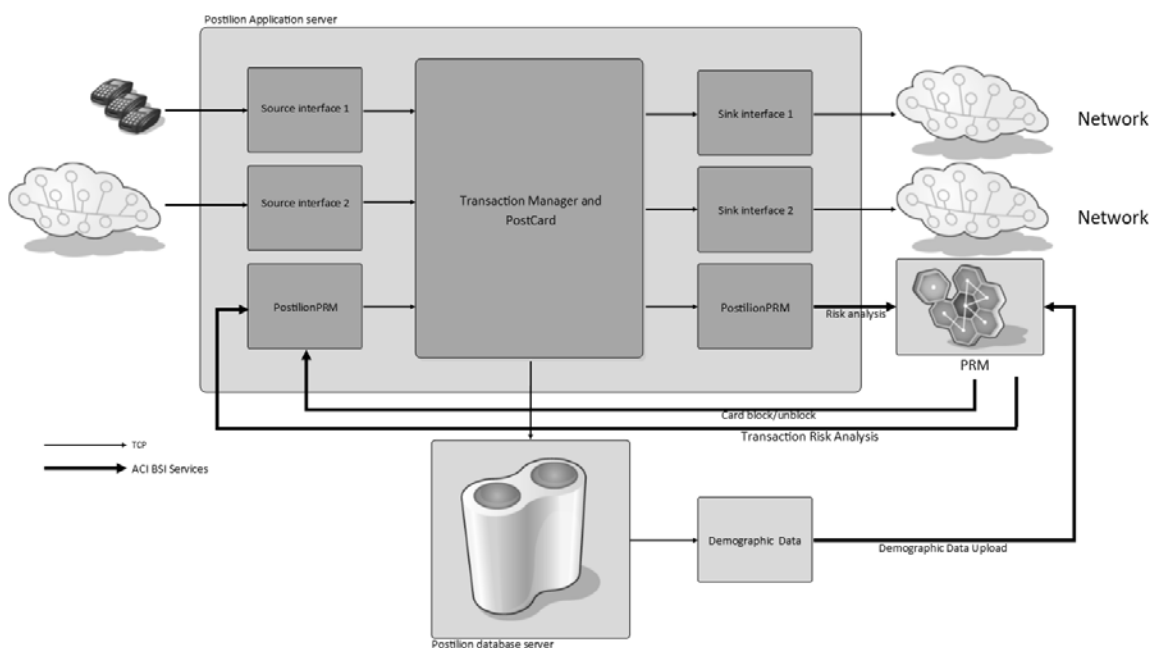


Figure 1: Architectural Overview

The PostilionPRM interface is configured as both a source and sink interchange in the Postilion system:

- On the control node, transaction notification messages from Transaction Manager are converted into corresponding messages to the PRM server. These messages notify the PRM server of transactions that have already been processed by the Postilion system. The PRM server performs **near real-time risk analysis** on these transactions. Because the risk analysis is performed after the transaction is already authorized, it does not affect the outcome of the authorization.
- On the external processing sink node, transaction request messages from Transaction Manager are converted into corresponding messages to the PRM server. These messages request the PRM server to perform **real-time risk analysis** on the transaction before it is authorized. Transaction Manager considers the result of the risk analysis during authorization and may decline the transaction as a result.

- On the source node, card block and unblock messages received from the PRM server are converted into acquirer file update advice messages. These messages will result in the corresponding card being blocked or unblocked in PostCard.
- On the source node, transaction risk action messages received from the PRM server are converted into dead-end administrative advice messages to the Transaction Manager, which will be normalized by Postilion Office. These messages correspond to transactions where risk analysis determined that they should be withheld from settlement, pending review. The details contained in these messages will determine if the corresponding transactions are released for settlement or discarded.

Along with these two interchanges, scheduled jobs are configured to extract demographic data from both the Realtime and PostCard databases. This demographic data is uploaded to the PRM server for use during the risk analysis process.

Real-time risk analysis message flow

The following diagram and steps describe how Transaction Manager interfaces with PostilionPRM to perform both real-time and near real-time risk analysis on a 0200 message (transaction request):

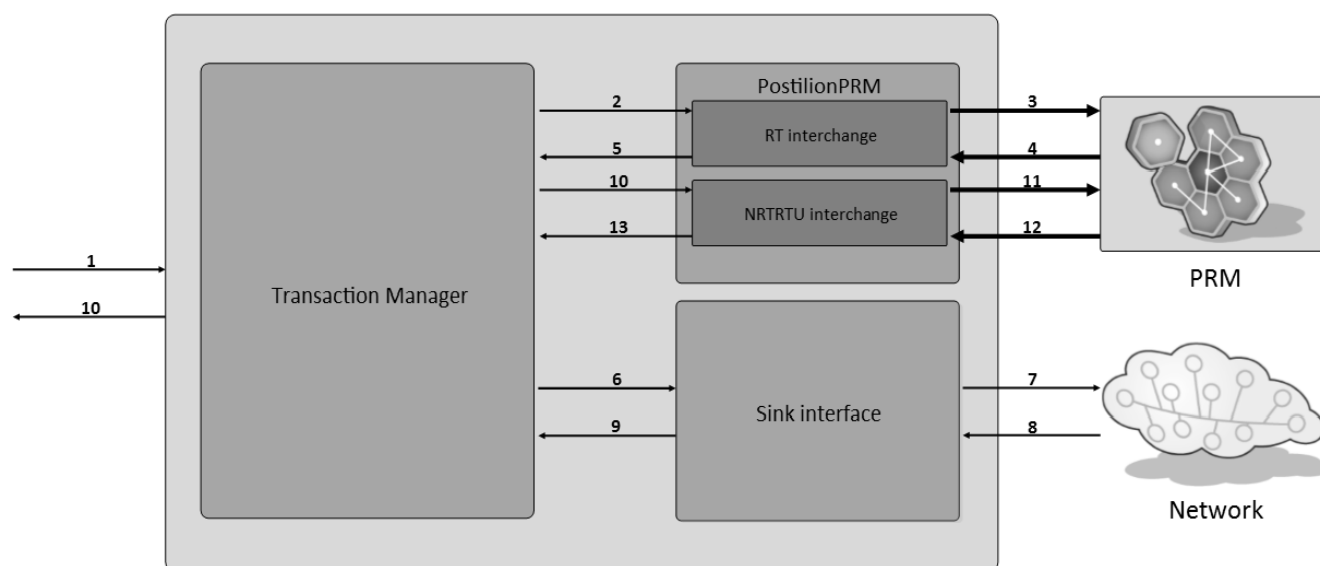


Figure 2: Real-time message flow

1. Transaction Manager receives a 0200 message (transaction request) from a source node.
2. Transaction Manager sends a 0200 message to the PostilionPRM sink node interface. The interchange is configured to consume the real-time (RT) RetailPaymentsRiskAnalyze service. The interchange is associated with a sink node that is configured as an **external processing node** for the route selected for the 0200 message.
3. PostilionPRM sends a message PRM for real-time risk analysis.
4. PostilionPRM receives a real-time risk analysis response from PRM.
5. PostilionPRM sends a 0210 message (transaction request response) to Transaction Manager.
6. Transaction Manager sends the 0200 message to the applicable sink node.
7. The sink node interface sends a request to the upstream entity.
8. The sink node interface receives a response from the upstream entity.
9. The sink node interface sends a 0210 message to Transaction Manager.
10. Transaction Manager sends a 0210 message to the source node, and also sends a 9220 message (transaction notification) to the PostilionPRM sink node interface. The interchange is configured to consume the near real-time with real-time update (NRTRTU) RetailPaymentsRiskAnalyze service. The interchange is associated with a sink node that is configured as a **control node** for the route selected for the 0200 message.
11. PostilionPRM sends a message to PRM for near real-time risk analysis.
12. PostilionPRM receives a near real-time risk analysis response from PRM.
13. PostilionPRM sends a 9230 message (transaction notification response) to Transaction Manager.

Near real-time risk analysis message flow

The following diagram and steps describe how Transaction Manager interfaces with PostilionPRM to perform near real-time risk analysis on a 0200 message (transaction request):

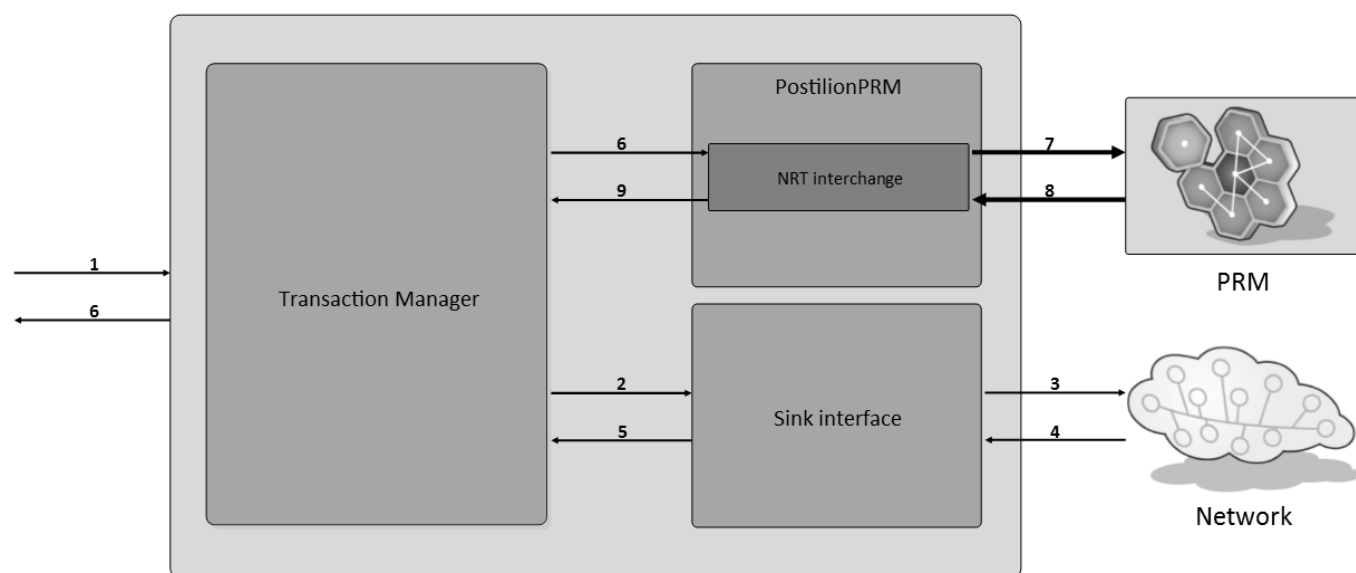


Figure 3: Near real-time message flow

1. Transaction Manager receives a 0200 message (transaction request) from a source node.
2. Transaction Manager sends the 0200 message to the applicable sink node.
3. The sink node interface sends a request to the upstream entity.
4. The sink node interface receives a response from the upstream entity.
5. The sink node interface sends a 0210 message (transaction request response) to Transaction Manager.
6. Transaction Manager sends a 0210 message to the source node, and also sends a 9220 message (transaction notification) to the PostilionPRM sink node interface. The interchange is configured to consume the near real-time (NRT) RetailPaymentsRiskAnalyze service. The interchange is associated with a sink node that is configured as a **control node** for the route selected for the 0200 message.
7. PostilionPRM sends a message to PRM for near real-time risk analysis.
8. PostilionPRM receives a near real-time risk analysis response from PRM.
9. PostilionPRM sends a 9230 message (transaction notification response) to Transaction Manager.

Transaction Risk Analysis message flow

Transaction Manager (TM) will send a transaction to PRM through the PRM Interface for real-time risk screening. Transaction manager can then send the transaction to PRM for near-realtime risk screening as well. PRM will respond with a recommended disposition of the transaction. The valid values of the recommended disposition are:

- A (Approve the transaction)
- D (Decline the transaction)
- R (Refer the transaction)
- A configurable 'hold' value to indicate that the transaction must be held from settlement until final review (the default value is H).

If the recommended disposition is equal to the 'hold' value, the transaction is placed in a state in the PRM system where an analyst or other automated rules are expected to further review the transaction and provide a final disposition.

When the PRM system provides the final transaction disposition, the Transaction Risk Analysis Management service is called, passing in the final transaction disposition as well as some other fields related to the analysis performed. The PostilionPRM interface then converts the message from PRM into an ISO 0620 message (tran type of 93, dead-end general admin) and sends it to TM.

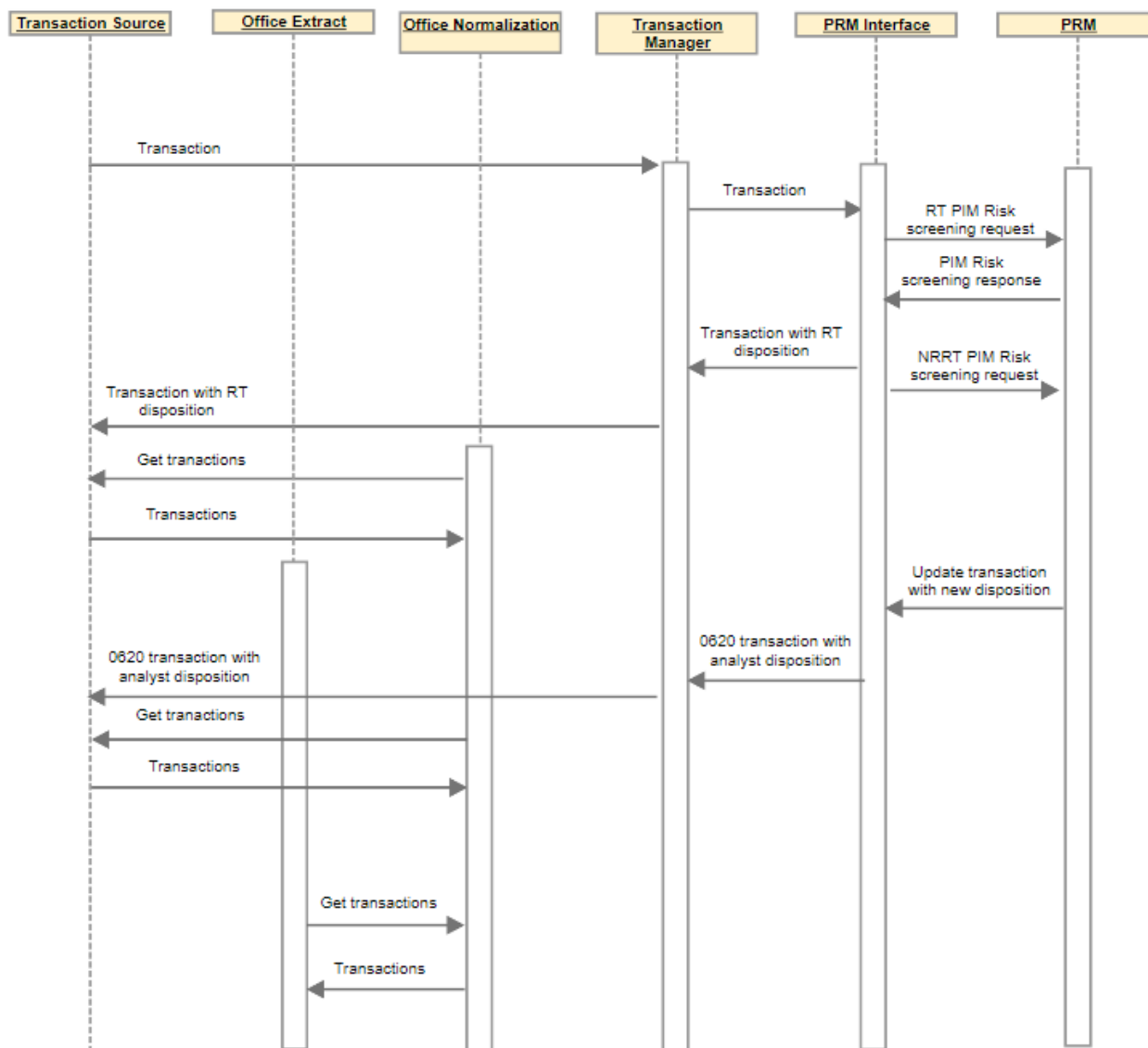


Figure 4: Transaction Risk Analysis message flow

Postilion Office will normalize and hold transactions with a recommended disposition of 'hold' (preventing them from being extracted) until the matching 0620 message is normalized (or a timeout is reached and a default action is taken). If a matching 0620 message is normalized in time, Office will consider the final transaction disposition and either allow the transaction to be extracted or discard it, which means it will not be extracted in the Extract process.

Service overview

Communication between a Postilion system and a PRM server is made possible through the use of a service-based architecture. The following services are supported for integration with PRM:

- Demographic Data Upload
- RetailPaymentsRiskAnalyze
- Card Status Modification
- Transaction Risk Analysis Management

Each of these services enables a high-level component (Demographic Data Upload, Retail Payment Risk Analysis, Card Status Modification, and Transaction Risk Analysis Management). See the “Overview” section of the *PostilionPRM User Guide* for details on these high-level components.

Demographic Data Upload service

The demographic data upload service is provided by the PRM server and is used by the PostilionPRM interface to send account, card, merchant (card acceptor), and terminal data to the PRM server. This is accomplished by using a number of individual services, one for each category of demographic data.

The following services are used to upload information stored in the **Postcard** database to the PRM server:

- AccountLoadService
- CardLoadService
- CustomerLoadService

The following services are used to upload information stored in the **Realtime** database to the PRM server:

- MerchantLoadService
- TerminalLoadService

NOTE: The demographic data upload services are only used by the *PostilionPRM – Upload – Demographic* scheduled job, which is responsible for uploading demographic data to the PRM server. The use of these services will have an impact on system performance. It is therefore recommended that the services are only used in off-peak times when transaction volumes are low.

RetailPaymentsRiskAnalyze service

The RetailPaymentsRiskAnalyzeService is provided by the PRM server and is used by the PostilionPRM interface to perform risk analysis on transactions that are processed by the Postilion system. This service is available in three modes; real-time (RT), near real-time (NRT) or near real-time with real-time Update (NRTRTU). See the "Routing configuration" topic in the *PostilionPRM User Guide* for details about the differences between these modes.

Near real-time and near real-time with real-time update

When communicating with the NRT or NRTRTU mode of the service, the PostilionPRM interface sends notifications of transactions that have already been processed by the Postilion system and authorized by the upstream entity. Therefore, the results of the risk analysis do not affect authorization.

Real-time

When communicating with the RT mode of the service, the PostilionPRM interface sends messages to the service to request risk analysis on the transaction before it is authorized. The Postilion system will consider the result of the risk analysis during authorization if it is configured to do so. Refer to the *Realtime Framework User Guide* for more information on risk analysis.

Card Status Modification service

The CardStatusModService is provided by the PostilionPRM interface and is used by the PRM server to block and unblock cards configured in PostCard.

Transaction Risk Analysis Management service

The TransactionRiskAnalysisManagementService is provided by the PostilionPRM interface and is used by the PRM server to provide the final disposition of a transaction that is held from settlement pending review.

Limitations

Demographic uploads

PRM cannot handle duplicate account records. Therefore, only the customer account record with the smallest "Customer ID" (compared lexicographically but case-insensitively) is used during the demographic upload for account records to PRM.

Card block/unblock service

Blocking of cards is only supported for cards managed by PostCard on the Postilion system and is not supported for acquirer sink nodes or upstream host systems. The PRM system must therefore be configured with *portfolios* (groups of entities defined on PRM), so that card blocks/unblocks are only sent for cards that are managed by PostCard.

Note: This configuration takes place on the PRM system. See the "Routing configuration" topic in the *PostilionPRM User Guide* for more details.

Transaction Risk Analysis Management service

The final disposition provided by the PRM server through the Transaction Risk Analysis Management service is only supported by the Postilion Office product. It is not currently supported by any other back-office transaction normalizing product.

Achieving PCI DSS compliance

Securing demographic extract files at rest

The Demographic Data Upload component of the PostilionPRM interface produces several files containing sensitive cardholder information. This sensitive data must be protected in order to meet PCI DSS requirements. See the “Configuring Scheduled Jobs” section in this guide for more information on the files produced by the demographic data upload process.

The following basic recommendations can assist in protecting the sensitive information in these files:

- Store files on an encrypted disk segment
- Control user access

Note: A full list of recommendations and compensatory controls for securing sensitive information is beyond the scope of this document. See *PCI Implementation Guide for Postilion* for more information.

Store files on an encrypted disk segment

As the demographic extract produces files containing unencrypted sensitive data, the files should be stored securely in an encrypted segment of the storage media.

Control user access

Least permissions must be assigned to the extract files containing sensitive data, so as to restrict access.

Note: All extracted data is stored in subdirectories in
<POSTILIONDIR>/postilionprm/demographic_data.

Consider applying least permissions to this entire directory.

Section 2: Service configuration

Service configuration is accomplished by using the service configurator wizard, which will create or update the configuration files required to enable communication with the PRM server. To configure the services, follow the steps in the “Service configuration” section of the *PostilionPRM User Guide*.

The following properties must be configured in the response file:

Property	Description
services.serviceregistry.type	Set to static . This will indicate that PostilionPRM should connect via a Static Service Registry (SSR) when consuming services. Ensure that IP addresses and ports are configured as described below for the relevant services.
services.risk.engine.type	Set to PRM . This will indicate that PostilionPRM will be integrated with PRM
services.primary.siteid	This optional property may be used to specify the Site ID for the location specified in the configuration.
services.retailpaymentsriskanalyze.nrt.consumer.address services.retailpaymentsriskanalyze.nrt.consumer.port	<i>address</i> should be the remote hostname or IP address of the PRM server providing the near real-time RetailPaymentsRiskAnalyze service. <i>port</i> should be the port configured for the near real-time RetailPaymentsRiskAnalyze service provided by the PRM server. Note: Leave these property values blank if this service is not going to be consumed.

Property	Description
services.retailpaymentsriskanalyze.rt.consumer.address services.retailpaymentsriskanalyze.rt.consumer.port	<p><i>address</i> should be the remote hostname or IP address of the PRM server providing the real-time RetailPaymentsRiskAnalyze service.</p> <p><i>port</i> should be the port configured for the real-time RetailPaymentsRiskAnalyze service provided by the PRM server.</p> <p>Note: Leave these property values blank if this service is not going to be consumed.</p>
services.retailpaymentsriskanalyze.nrtrtu.consumer.address services.retailpaymentsriskanalyze.nrtrtu.consumer.port	<p><i>address</i> should be the remote hostname or IP address of the PRM server providing the near real-time with real-time update RetailPaymentsRiskAnalyze service.</p> <p><i>port</i> should be the port configured for the near real-time with real-time update RetailPaymentsRiskAnalyze service provided by the PRM server.</p> <p>Note: Leave these property values blank if this service is not going to be consumed.</p>
services.retailpaymentsriskanalyze.response.address services.retailpaymentsriskanalyze.response.port	<p><i>address</i> should be the hostname or externally accessible IP address of the server where PostilionPRM is installed.</p> <p><i>port</i> should be any unused port that is accessible from the PRM server.</p>
services.cardstatusmod.provider.address services.cardstatusmod.provider.port	<p><i>address</i> should be the hostname or externally accessible IP address of the server where PostilionPRM is installed.</p> <p><i>port</i> should be any unused port that is accessible from the PRM server.</p>

Property	Description
services.cardload.consumer.address services.cardload.consumer.port services.accountload.consumer.address services.accountload.consumer.port services.customerload.consumer.address services.customerload.consumer.port services.merchantload.consumer.address services.merchantload.consumer.port services.terminalload.consumer.address services.terminalload.consumer.port	For each service, <i>address</i> should be the remote hostname or IP address of the PRM server. <i>port</i> should be the port configured for the corresponding service provided by the PRM server.
services.demographicdata.response.address services.demographicdata.response.port	<i>address</i> should be the hostname or externally accessible IP address of the server where PostilionPRM is installed. <i>port</i> should be any unused port that is accessible from the PRM server.
services.transactionriskanalysismanagement.provider.address services.transactionriskanalysismanagement.provider.port	<i>address</i> should be the hostname or externally accessible IP address of the server where PostilionPRM is installed. <i>port</i> should be any unused port that is accessible from the PRM server.

Section 3: Interchange configuration

Select the **Interchanges** page in the Realtime applications configurator to configure the PostilionPRM interface within the Postilion system.

Card Status Modification service

1. Create a new entry for the Card Status Modification service in the Interchanges category:

Variable	Setting
Interface	Select PostilionPRM
Interchange	Provide a name for the interchange, <i>for example CardStatusMod</i> .
User Parameters	There is a single user parameter for the Card Status Modification service. To disable card unblock processing, set to false . To enable the card unblocking service, set to true . See the “Disabling Card Unblock requests” section of the <i>PostilionPRM User Guide</i> for more information.
Source Node	<p>Select the name of a source node created in the Source Nodes page of the Transaction Manager Configurator. This is the source node to which acquirer file update advice (0320/0321) messages will be sent when the PRM server sends PostilionPRM card block or unblock messages.</p> <p>NOTE: Ensure that the following settings are applied to the source node:</p> <ul style="list-style-type: none">• The Advice Timeout Period of this source node should be set to less than 120 seconds.• The Allow File Updates? setting must be ticked.

2. Create one Service Access Point (SAP) in the **SAPs** category for the Card Status Modification service:

Variable	Setting
SAP	Any name. Suggestion: Use the same name as the name of the interchange. <i>For example, CardStatusMod.</i>
Type	Select server .
Protocol	Select Generic Protocol .
SAP Factory Class Name	Enter postilion.realtime.postilionprm.ipc.SapFactory
Address	Leave this blank
Setup Data	Enter CardStatusMod
Max Connections	Enter 1 .

RetailPaymentsRiskAnalyze service

PostilionPRM can be configured to consume the real-time, (RT), near real-time (NRT) or near real-time with real-time update (NRTTU) version of the RetailPaymentsRiskAnalyze service. A single interchange must be configured for each service consumer.

Note: Prior to configuring PostilionPRM interchanges, the sink nodes that will be used for risk analysis must have already been configured in the *Transaction Manager* console in Realtime Framework, and the following must be taken into consideration:

- An **external processing sink node** with processing type **Pre-auth risk analysis** must be configured for the real-time risk analysis channel.
- A **control node sink node** must be configured for the near real-time and near real-time with real-time update risk analysis channels.

PRM supports the following message types on the given channel:

Message type	Channel
0100	Real-time
0200	Real-time
0400	Real-time
0600	Real-time
9120	Near real-time
9220	Near real-time
9420	Near real-time
9620	Near real-time

Message types other than the ones specified above are not supported by PRM.

A PostilionPRM interchange can be configured in the follow way on the **Interchanges** tab in the Applications configuration console:

1. Create a new entry for the RetailPaymentsRiskAnalyze service in the **Interchanges** category:

Variable	Setting
Interface	Select <i>PostilionPRM</i>
Interchange	Provide a name for the interchange, for example <i>NearRealTime</i> .

Variable	Setting
User Parameters	<p>Note: Parameters should be specified using the following template and must use the predefined keys. Values must be encapsulated in single quotation marks and comma separated. <i>e.g. key1='value1', key2='value2', key3='value3'.</i></p> <ul style="list-style-type: none"> • Provide the Acquiring Institution ID (variable length up to 11 characters) to be used to identify acquirer transactions in PRM. <i>For example, AcquiringInstId='ACQ00001'.</i> See "Message Identification" in the <i>PostilionPRM User Guide</i> for more information. • <Optional>: Provide the server identifier value (variable length up to 4 characters) that will be used to identify the active/active partner sending the transactions to PRM. The value must be configured uniquely across the active/active partners. For example, <i>ServerId=PST1 and ServerId=PST2.</i> • <Optional>: Provide the risk management system value that will be used to identify which risk management system to use. <i>RiskManagementSystem='RS'</i> must be specified when integrating with ReD Shield. If this parameter is not specified, the default parameter value of <i>RiskManagementSystem='PRM'</i> will be used. • <Optional>: Provide the 1 character near real-time preferred value that specifies which NRT message (9120 or 9220) will be screened for risk analysis. <i>NrtPreferred='0'</i> indicates that the NRT 9120 message will be screened, while <i>NrtPreferred='1'</i> indicates that the NRT 9220 message will be screened for risk analysis. If this parameter is not specified, the default parameter value of 1 will be used. • <Optional>: Specify the risk profile for the rules that should be associated with this interchange. For example, <i>RiskProfile='DefaultProfile'.</i> See the "Interchange configuration" section in the <i>PostilionPRM User Guide</i> for more information. • <Optional>: Specify the code used by PRM to indicate that settlement should be withheld until an operator has reviewed the transaction. For example, <i>SettlementHoldCodeRemote = 'H'.</i> If this parameter is not set, it will default to 'H'. • <Optional>: Specify the period of time, in hours, the Office Extract will wait for PRM to provide a final analyst disposition. For example, <i>SettlementTimeoutPeriod='72'.</i> If this parameter is not set, it will default to 72 hours. • <Optional>: Specify the action Office Extract should take if PRM does not provide a final analyst disposition within the timeout period. Valid parameter values are <i>SettlementTimeoutCode='A'</i> to release the payment, or <i>SettlementTimeoutCode='D'</i> to stop the payment. If this parameter is not set, a default value of 'D' will be used.

Variable	Setting
Sink Node	<p>Select the name of a sink node created in the Sink Nodes page of the Transaction Manager Configurator.</p> <p>Note: Ensure that the correct sink node is chosen. If the interchange is configured to consume the near real-time or near real-time with real-time update version of the service then the sink node should be configured as a control node. If the interchange is configured to consume the real-time version of the service then the sink node should be configured as an external processing node. The external processing type on the external processing sink node should be set to <i>Pre-Auth Risk Analysis</i>. See the sections on configuring nodes in the Routing “Configuration” section of the <i>PostilionPRM User Guide</i> for more detail.</p>

2. Create one Service Access Point (SAP) in the **SAPs** category for each RetailPaymentsRiskAnalyze service entry configured in the previous step:

Variable	Setting
SAP	Any name. Suggestion: Use the same name as the name of the interchange. For example, NearRealTime.
Type	Select client .
Protocol	Select Generic Protocol .
SAP Factory Class Name	Enter <code>postilion.realtime.postilionprm.ipc.SapFactory</code>
Address	Leave this blank
Setup Data	<p>Enter <code>postilion.realtime.postilionprm.service.nearrealtimefraudanalyze.ProxyDriver</code> to configure a near real-time consumer of the RetailPaymentsRiskAnalyze service.</p> <p>or</p> <p>Enter <code>postilion.realtime.postilionprm.service.retailpaymentsriskanalyze.RTProxyDriver</code> to configure a real-time consumer of the RetailPaymentsRiskAnalyze service.</p> <p>or</p> <p>Enter <code>postilion.realtime.postilionprm.service.retailpaymentsriskanalyze.NRRTUProxyDriver</code> to configure a near real-time with real-time update consumer of the RetailPaymentsRiskAnalyze service</p>

3. Create one connection for the configured client SAP for the RetailPaymentsRiskAnalyze service entry:

Variable	Setting
Direction	Select Dual
Priority	Select High
Connect on Demand	Do not enable this option
Connect Timeout	Enter 0
Inactivity Timeout	Enter 0
Address	Enter the name of the RetailPaymentsRiskAnalyze service to be consumed
Setup Data	Leave blank

Transaction Risk Analysis Management service

1. Create a new entry for the Transaction Risk Analysis Management service in the Interchanges category:

Variable	Setting
Interface	Select PostilionPRM
Interchange	Provide a name for the interchange, <i>for example TranRiskAnalyze</i> .
User Parameters	There are no user parameters for the Transaction Risk Analysis Management service. However, the <i>ServerId</i> parameter must be configured for the RetailPaymentsRiskAnalyze service. If this parameter is not set, and Realtime is configured to send in a server ID (see Sink Node configuration in the Realtime Framework user guide), then the one sent by Realtime will be used. If Postilion Office is used for settlement, then the corresponding PRMServerID parameter must also be configured as a Normalization online system user parameter in the Postilion Office application. Please refer to the Office user guide for more details.
Source Node	Select the name of a source node created in the Source Nodes page of the Transaction Manager Configurator. This is the source node to which dead-end admin advice (0620) messages are sent when the PRM server sends final disposition messages to PostilionPRM.

2. Create one Service Access Point (SAP) in the **SAPs** category for the Transaction Risk Analysis Management service:

Variable	Setting
SAP	Any name. Suggestion: Use the same name as the name of the interchange. <i>For example, TranRiskAnalyze.</i>
Type	Select server .
Protocol	Select Generic Protocol .
SAP Factory Class Name	Enter postilion.realtime.postilionprm.ipc.SapFactory
Address	Leave this blank
Setup Data	Enter TransactionRiskAnalysisManagement
Max Connections	Enter 1 .

Section 4: Scheduled Job configuration

The Scheduled Jobs installed with PostilionPRM are mandatory for its operation as it provides PRM with data to perform its risk monitoring. The jobs created on installation are listed in the table below along with their default schedules.

Job name	Description	Default schedule
PostilionPRM - Extract - Demographic Data	Performs a full extract of the merchant and terminal information from Realtime and a full card-account extract from PostCard, if PostCard is installed.	Daily at 03:00
PostilionPRM - Upload - Demographic Data	Uploads the information contained in the extracts created by the Demographic Data Extract Job to the PRM server.	Triggered when the Demographic Data Extract Job completes

Job schedules

The jobs are configured to run at a default time when they are installed. This can be changed as required in the Scheduled Jobs Configuration Console installed with the Realtime Framework. Refer to the *Realtime Framework User Guide* for more information on how to configure scheduled jobs.

Note: The Postilion Scheduler service must be started before scheduled jobs can be configured.

PostilionPRM - Extract - Demographic Data

This job extracts merchant and terminal information from Transaction Manager and - if PostCard is present - card and account information for each issuer. Each time the job is run, it outputs the data to files in the <POSTILIONDIR>/postilionprm/demographic_data/current directory. At present, the following files are produced by the extract job:

- CardAcceptors.txt - contains the details of all card acceptors (merchants) configured in the Realtime database
- Terminals.txt - contains the details of all Terminals configured in the Realtime database

If PostCard is installed then the following files are produced for each issuer:

- accountoverridelimits.txt - contains records from the account override limits table
- accounts.txt - contains records from the account table
- cardaccounts.txt - contains records from the card accounts table
- cardoverridelimits.txt - contains records from the card override limits table
- cards.txt - contains records from the card table

- `customers.txt` - contains records from the customers table
- `denormalized_cardcustomers.txt` - contains records from the cards table merged with records from the customers table
- `denormalized_customeraccounts.txt` - contains records from the customers table merged with records from the accounts table.

Note: The extract job produces temporary files in addition to the files listed above. The temporary files typically contain sorted or filtered information based on the contents of the other extracted files. Although temporary, these files contain sensitive data that must also be secured.

PostilionPRM - Upload - Demographic Data

This job compares the newly extracted information produced by the Extract job with archived information from a previous run of the Extract job. Each difference encountered - either a new record or change to an existing record - will result in the information being uploaded to PRM. Records that are unchanged are not uploaded to PRM to conserve resources. At the end of the upload process the information contained in the `<POSTILIONDIR>/postilionprm/demographic_data/current` directory is moved into the `<POSTILIONDIR>/postilionprm/demographic_data/archive` so that it can be used to detect new and modified records the next time the job is run.

Monitoring scheduled jobs

Monitoring the PostilionPRM demographic jobs is important, as the PRM system requires the information they produce. The Realtime Monitor and Scheduled Jobs Configuration Console can be used to monitor the jobs and will help determine if they have run successfully or not. In addition, the jobs can log detailed information to a trace file. See “Control / Monitor Instructions” in the *PostilionPRM User Guide* for details of how to enable tracing, and the *Realtime Framework User Guide* for more information on monitoring the payments system.

Partial upload failures

During a Demographic Data Upload, PostilionPRM validates individual records before adding them to an upload batch. For each invalid record, an error event 2002X is logged, where X is a digit from 1 to 5 that is determined by the record type. The record is excluded from the batch and the upload continues.

It can also happen that a record passes PostilionPRM's validation, but is rejected as invalid by the PRM system in its response to the batch upload. In this case, an error event 20028 is logged with some details of the invalid records gleaned from the PRM system's response. The batch is still considered to have been uploaded successfully and the upload will continue.

This behavior implies that records that fail either validation step will only be retried if the source data is modified (for example, to correct the invalid data). To force retrying the upload for all records, it may be necessary to delete archived extract files controlling the archiving of extract files. (See “Demographic Uploads”)

Configuring Scheduled Jobs

Disabling specific extract and uploads

The scheduled jobs described above act together to extract and upload demographic data to a PRM system. By default, they will extract and upload all information available from both Realtime - and if installed - PostCard. However, in some cases this may not be necessary. For instance, if a PostilionPRM interface and a PRM system are being used in an issuing scenario, the demographic data from PostCard would be vitally important, but the details of merchant and terminals configured in the Realtime system may not be. To cater for such scenarios, each individual demographic service - served by an extract and an upload step - can be disabled by configuring a system property as described below.

Note that in the case of PostCard a single extract step provides the information for the card, account and customer services. All of these must therefore be disabled to disable the extract.

See the *Realtime Framework User Guide* for more information on configuring system properties.

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.service.disable_account	Set to true to prevent account information from being extracted and uploaded. Defaults to false if not set. Note the restriction on disabling PostCard extracts above.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.service.disable_card	Set to true to prevent card information from being extracted and uploaded. Defaults to false if not set. Note the restriction on disabling PostCard extracts above.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.service.disable_customer	Set to true to prevent customer information from being extracted and uploaded. Defaults to false if not set. Note the restriction on disabling PostCard extracts above.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.service.disable_merchant	Set to true to prevent merchant information from being extracted and uploaded. Defaults to false if not set.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.service.disable_terminal	Set to true to prevent terminal information from being extracted and uploaded. Defaults to false if not set.

Realtime extract

Part of the Demographic Data extract job involves extracting merchant and terminal information from Realtime to send to PRM. The job can be configured to produce extract files where the record fields have specific separator, quotation and escape characters. This is configured using the same system properties that control how the Demographic Upload interprets the separator, quotation and escape characters in the merchant and terminal extract files. See the *Realtime Framework User Guide* for more information on configuring system properties.

PostCard extract

Part of the Demographic Data extract job involves extracting card and account information from PostCard to send to PRM. If the job detects that PostCard is installed, it will attempt to extract this information for **all** issuers configured in PostCard. The extract process places additional overhead on the payments system so it is recommended to perform this extract only for issuers which have data that must be sent to PRM. The job can be configured to only extract information for certain issuers by setting a system property, as described below. See the *Realtime Framework User Guide* for more information on configuring system properties.

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.extract.postcard.issuers	A comma separated list of issuer <i>numbers</i> . For example, if the job should extract data for issuers 1, 3 and 5, set the parameter value to 1,3,5

Throttling

The scheduled jobs for PostilionPRM can be throttled to ensure that they do not interfere with other processes within the payments system. Throttling is supported for the following job steps:

- **PostilionPRM - Extract - Demographic Data**
 - Run Terminal Extract
 - Run Merchant Extract
 - Run PostCard Extract
- **PostilionPRM - Upload - Demographic Data**
 - Run Demographic Data Delta Generator

Throttling a scheduled job allows the PostilionPRM system administrator to manage how aggressively the job uses CPU resources allocated to it by the operating system. A higher throttle value means the job will use CPU resources allocated by the operating system more aggressively and a lower value means less aggressive use. Throttle values are expected to range between 1 and 100.

Note: The throttle value does not equate to total percentage of CPU resources used by the job process.

Throttling extracts

To specify a custom throttling percentage for any of the **Extract** jobs, append `-throttle:<percentage>` to the job step for that extract. For example, to throttle the PostCard extract job step, the command should appear as follows in the Modify Scheduled Job window of the Scheduled Jobs Configuration console: `postjava_postilionprm postilion.realtime.postilionprm.demographicdata.postcard.PostCardExtractRunner -throttle:80`.

Note: When the default throttling of 80 percent should be applied, the command line switch does not need to be supplied.

Throttling delta generation

Several system properties are provided to specify custom throttling percentages for the Delta Generation job as listed below. If no throttling properties are set, all delta generation steps are throttled to 80 percent. See the *Realtime Framework User Guide* for more information on configuring system properties.

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.throttle_percentage	The default throttle percentage to apply to all delta generation steps, unless overridden by a property specific to that step, as listed below.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.account.throttle_percentage	The throttle percentage to apply <i>specifically</i> to the Account delta generation step. When set, this value will take precedence over any other throttling parameters that have been configured.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.card.throttle_percentage	The throttle percentage to apply <i>specifically</i> to the Card delta generation step. When set, this value will take precedence over any other throttling parameters that have been configured.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.customer.throttle_percentage	The throttle percentage to apply <i>specifically</i> to the Customer delta generation step. When set, this value will take precedence over any other throttling parameters that have been configured.

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.merchant.throttle_percentage	The throttle percentage to apply <i>specifically</i> to the Merchant delta generation step. When set, this value will take precedence over any other throttling parameters that have been configured.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.terminal.throttle_percentage	The throttle percentage to apply <i>specifically</i> to the Terminal delta generation step. When set, this value will take precedence over any other throttling parameters that have been configured.

Demographic Uploads - extract file processing

Several system properties are provided to specify how some characters in the extract file records should be interpreted. See the *Realtime Framework User Guide* for more information on configuring system properties.

Account

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.account.extract_include_quotation_char	Indicates whether or not the Account extract file record fields can be quoted by a specific character. Defaults to false .
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.account.extract_include_escape_char	Indicates whether or not quotation characters in the Account extract file record fields can be escaped by a specific character. Defaults to false . Note: This property has no effect if the <i>postilionprm.demographicdata.upload.account.extract_include_quotation_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.account.extract_record_separator_char	The character separating the records in the Account extract files. Defaults to a comma (,).
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.account.extract_quotation_char	The character to use as a quotation character in the Account extract file record fields. Defaults to a double quote ("). Note: This property has no effect if the <i>postilionprm.demographicdata.upload.account.extract_include_quotation_char</i> is set to false.

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.account.extract_escape_char	<p>The character to use as an escape character in the Account extract file record fields. Defaults to a backslash (\).</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.account.extract_include_escape_char</i> is set to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.account.extract_include_quotation_char	<p>Indicates whether or not the archived Account extract file record fields can be quoted by a specific character. Defaults to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.account.extract_include_escape_char	<p>Indicates whether or not quotation characters in the archived Account extract file record fields can be escaped by a specific character. Defaults to false.</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.account.extract_include_quotation_char</i> is set to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.account.extract_record_separator_char	<p>The character separating the records in the archived Account extract files. Defaults to the value of the <i>postilionprm.demographicdata.upload.account.extract_record_separator_char</i> system property.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.account.extract_quotation_char	<p>The character to use as a quotation character in the archived Account extract file record fields. Defaults to the value of the <i>postilionprm.demographicdata.upload.account.extract_quotation_char</i> system property.</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.account.extract_include_quotation_char</i> is set to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.account.extract_escape_char	<p>The character to use as an escape character in the archived Account extract file record fields. Defaults to the value of the <i>postilionprm.demographicdata.upload.account.extract_escape_char</i> system property.</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.account.extract_include_escape_char</i> is set to false.</p>

Card

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.card.extract_include_quotation_char	Indicates whether or not the Card extract file record fields can be quoted by a specific character. Defaults to false .
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.card.extract_include_escape_char	Indicates whether or not quotation characters in the Card extract file record fields can be escaped by a specific character. Defaults to false . Note: This property has no effect if the <i>postilionprm.demographicdata.upload.card.extract_include_quotation_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.card.extract_record_separator_char	The character separating the records in the Card extract files. Defaults to a comma (,).
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.card.extract_quotation_char	The character to use as a quotation character in the Card extract file record fields. Defaults to a double quote ("). Note: This property has no effect if the <i>postilionprm.demographicdata.upload.card.extract_include_quotation_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.card.extract_escape_char	The character to use as an escape character in the Card extract file record fields. Defaults to a backslash (\). Note: This property has no effect if the <i>postilionprm.demographicdata.upload.card.extract_include_escape_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.card.extract_include_quotation_char	Indicates whether or not the archived Card extract file record fields can be quoted by a specific character. Defaults to false .
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.card.extract_include_escape_char	Indicates whether or not quotation characters in the archived Card extract file record fields can be escaped by a specific character. Defaults to false . Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.card.extract_include_quotation_char</i> is set to false.

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.card.extract_record_separator_char	The character separating the records in the archived Card extract files. Defaults to the value of the <i>postilionprm.demographicdata.upload.card.extract_record_separator_char</i> system property.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.card.extract_quotation_char	The character to use as a quotation character in the archived Card extract file record fields. Defaults to the value of the <i>postilionprm.demographicdata.upload.card.extract_quotation_char</i> system property. Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.card.extract_include_quotation_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.card.extract_escape_char	The character to use as an escape character in the archived Card extract file record fields. Defaults to the value of the <i>postilionprm.demographicdata.upload.card.extract_escape_char</i> system property. Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.card.extract_include_escape_char</i> is set to false.

Customer

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.customer.extract_include_quotation_char	Indicates whether or not the Customer extract file record fields can be quoted by a specific character. Defaults to false .
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.customer.extract_include_escape_char	Indicates whether or not quotation characters in the Customer extract file record fields can be escaped by a specific character. Defaults to false . Note: This property has no effect if the <i>postilionprm.demographicdata.upload.customer.extract_include_quotation_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.customer.extract_record_separator_char	The character separating the records in the Customer extract files. Defaults to a comma (,).

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.customer.extract_quotation_char	<p>The character to use as a quotation character in the Customer extract file record fields. Defaults to a double quote (").</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.customer.extract_include_quotation_char</i> is set to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.customer.extract_escape_char	<p>The character to use as an escape character in the Customer extract file record fields. Defaults to a backslash (\).</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.customer.extract_include_escape_char</i> is set to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.customer.extract_include_quotation_char	<p>Indicates whether or not the archived Customer extract file record fields can be quoted by a specific character. Defaults to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.customer.extract_include_escape_char	<p>Indicates whether or not quotation characters in the archived Customer extract file record fields can be escaped by a specific character. Defaults to false.</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.customer.extract_include_quotation_char</i> is set to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.customer.extract_record_separator_char	<p>The character separating the records in the archived Customer extract files. Defaults to the value of the <i>postilionprm.demographicdata.upload.customer.extract_record_separator_char</i> system property.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.customer.extract_quotation_char	<p>The character to use as a quotation character in the archived Customer extract file record fields. Defaults to the value of the <i>postilionprm.demographicdata.upload.customer.extract_quotation_char</i> system property.</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.customer.extract_include_quotation_char</i> is set to false.</p>

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.customer.extract_escape_char	<p>The character to use as an escape character in the archived Customer extract file record fields. Defaults to the value of the <i>postilionprm.demographicdata.upload.customer.extract_escape_char</i> system property.</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.customer.extract_include_escape_char</i> is set to false.</p>

Merchant

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.merchant.extract_include_quotation_char	Indicates whether or not the Merchant extract file record fields can be quoted by a specific character. Defaults to false .
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.merchant.extract_include_escape_char	<p>Indicates whether or not quotation characters in the Merchant extract file record fields can be escaped by a specific character. Defaults to false.</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.merchant.extract_include_quotation_char</i> is set to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.merchant.extract_record_separator_char	The character separating the records in the extract files. Defaults to a comma (,).
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.merchant.extract_quotation_char	<p>The character to use as a quotation character in the Merchant extract file record fields. Defaults to a double quote (").</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.merchant.extract_include_quotation_char</i> is set to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.merchant.extract_escape_char	<p>The character to use as an escape character in the Merchant extract file record fields. Defaults to a backslash (\).</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.merchant.extract_include_escape_char</i> is set to false.</p>

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.merchant.extract_include_quotation_char	Indicates whether or not the archived Merchant extract file record fields can be quoted by a specific character. Defaults to false .
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.merchant.extract_include_escape_char	Indicates whether or not quotation characters in the archived Merchant extract file record fields can be escaped by a specific character. Defaults to false . Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.merchant.extract_include_quotation_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.merchant.extract_record_separator_char	The character separating the records in the archived Merchant extract files. Defaults to the value of the <i>postilionprm.demographicdata.upload.merchant.extract_record_separator_char</i> system property.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.merchant.extract_quotation_char	The character to use as a quotation character in the archived Merchant extract file record fields. Defaults to the value of the <i>postilionprm.demographicdata.upload.merchant.extract_quotation_char</i> system property. Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.merchant.extract_include_quotation_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.merchant.extract_escape_char	The character to use as an escape character in the archived Merchant extract file record fields. Defaults to the value of the <i>postilionprm.demographicdata.upload.merchant.extract_escape_char</i> system property. Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.merchant.extract_include_escape_char</i> is set to false.

Terminal

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.terminal.extract_include_quotation_char	Indicates whether or not the Terminal extract file record fields can be quoted by a specific character. Defaults to false .
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.terminal.extract_include_escape_char	Indicates whether or not quotation characters in the Terminal extract file record fields can be escaped by a specific character. Defaults to false . Note: This property has no effect if the <i>postilionprm.demographicdata.upload.terminal.extract_include_quotation_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.terminal.extract_record_separator_char	The character separating the records in the extract files. Defaults to a comma (,).
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.terminal.extract_quotation_char	The character to use as a quotation character in the Terminal extract file record fields. Defaults to a double quote ("). Note: This property has no effect if the <i>postilionprm.demographicdata.upload.terminal.extract_include_quotation_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.terminal.extract_escape_char	The character to use as an escape character in the Terminal extract file record fields. Defaults to a backslash (\). Note: This property has no effect if the <i>postilionprm.demographicdata.upload.terminal.extract_include_escape_char</i> is set to false.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.terminal.extract_include_quotation_char	Indicates whether or not the archived Terminal extract file record fields can be quoted by a specific character. Defaults to false .
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.terminal.extract_include_escape_char	Indicates whether or not quotation characters in the archived Terminal extract file record fields can be escaped by a specific character. Defaults to false . Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.terminal.extract_include_quotation_char</i> is set to false.

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.terminal.extract_record_separator_char	The character separating the records in the archived Terminal extract files. Defaults to the value of the <i>postilionprm.demographicdata.upload.archive.terminal.extract_record_separator_char</i> system property.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.terminal.extract_quotation_char	<p>The character to use as a quotation character in the archived Terminal extract file record fields. Defaults to the value of the <i>postilionprm.demographicdata.upload.archive.terminal.extract_quotation_char</i> system property.</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.terminal.extract_include_quotation_char</i> is set to false.</p>
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.archive.terminal.extract_escape_char	<p>The character to use as an escape character in the archived Terminal extract file record fields. Defaults to the value of the <i>postilionprm.demographicdata.upload.archive.terminal.extract_escape_char</i> system property.</p> <p>Note: This property has no effect if the <i>postilionprm.demographicdata.upload.archive.terminal.extract_include_escape_char</i> is set to false.</p>

Demographic Uploads - batch sizes

Each delta generation step in the Demographic Data Upload job may require uploading data to PRM. The data uploaded consists of individual records which can be grouped into batches before being uploaded. Setting the size of this batch will influence both network utilization and throughput as well as processing load on the PRM system. Several system properties are provided in order to specify custom batch sizes for the demographic upload steps, as listed below.

Note: Increasing batch sizes beyond the default values can result in the demographic upload process failing as it uses more memory than has been allocated. This is directly linked to the number of records in the batch and the amount of data contained in each record. Setting the batch size above the default value could result in sporadic failures, linked to the varying size of the records to be uploaded. Careful consideration must be given before setting the batch size over the default value. See the *Realtime Framework User Guide* for more information on configuring system properties.

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.account.batch_size	The number of records to group into a batch before uploading to PRM <i>specifically</i> for the Account delta generation step. Defaults to 500.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.card.batch_size	The number of records to group into a batch before uploading to PRM <i>specifically</i> for the Card delta generation step. Defaults to 500.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.customer.batch_size	The number of records to group into a batch before uploading to PRM <i>specifically</i> for the Customer delta generation step. Defaults to 500.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.merchant.batch_size	The number of records to group into a batch before uploading to PRM <i>specifically</i> for the Merchant delta generation step. Defaults to 500.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.terminal.batch_size	The number of records to group into a batch before uploading to PRM <i>specifically</i> for the Terminal delta generation step. Defaults to 500.

Demographic Uploads - retry counts

Each delta generation step in the Demographic Data Upload job may require uploading data to PRM. In some instances the upload may fail, for example when a network error occurs. The upload process is capable of recovering from certain errors and will attempt to upload the data again a configurable number of times before giving up and reporting failure. Note that the upload process is not capable of recovering from all possible errors it could encounter. If an uploader encounters an error it cannot recover from, it will report failure and stop the rest of the Demographic Upload job. Setting the number of retries to attempt when uploading data can influence how often the job fails if network or similar errors occur frequently.

Note: A retry count of 0 will disable any retry attempts - if an upload process fails for any reason it will report failure and stop the rest of the upload job. Several system properties are provided to specify custom retry counts for the demographic upload steps, as listed below. If none of the system properties listed below are configured, all demographic uploads will attempt 3 retries before reporting failure. See the *Realtime Framework User Guide* for more information on configuring system properties.

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.retry_count	The default number of attempts to upload data to PRM before reporting failure. If set, this value will apply to all delta generation steps unless overridden by a property specific to that step, as listed below.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.account.retry_count	The number of attempts to upload data to PRM <i>specifically</i> for the Account delta generation step. When set, this value will take precedence over any other retry count parameters that have been configured.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.card.retry_count	The number of attempts to upload data to PRM <i>specifically</i> for the Card delta generation step. When set, this value will take precedence over any other retry count parameters that have been configured.

Application	System property name	Description
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.customer.retry_count	The number of attempts to upload data to PRM <i>specifically</i> for the Customer delta generation step. When set, this value will take precedence over any other retry count parameters that have been configured.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.merchant.retry_count	The number of attempts to upload data to PRM <i>specifically</i> for the Merchant delta generation step. When set, this value will take precedence over any other retry count parameters that have been configured.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.terminal.retry_count	The number of attempts to upload data to PRM <i>specifically</i> for the Terminal delta generation step. When set, this value will take precedence over any other retry count parameters that have been configured.

Demographic Uploads - controlling the archiving of extract files

When performing multiple delta generation and upload job steps, it is important for only the final step to archive the current extract files. To specify whether the files are archived during a job step, append the `-archivefiles:<value>` parameter to the OS command for the job step. Valid values are true or false. For example, to not archive files during the job step, on Microsoft Windows the OS command should appear as follows:

```
postjava_postilionprm -cp:file "C:\Program
Files\Postilion\postilionprm\java\services\demographic\classpath"
postilion.realtime.postilionprm.demographicdata.upload.DeltaUploader -
archivefiles:false
```

If the `-archivefiles` parameter is not specified, or an invalid value is specified, the job step will archive the current extract files.

Configure demographic uploads when performing near real-time analysis only

When integrating to PRM only for near real-time (NRT) analysis, demographic data only needs to be loaded into the NRT database. In this case, it is necessary to perform a single set of uploads and so the PostilionPRM - Upload - Demographic Data job only requires a single delta generation and upload step (which is installed by default with PostilionPRM).

The details of the demographic services can be configured by setting the appropriate address and port properties to point to each NRT demographic service. See the “Service configuration” section for more information about configuring services.

Configure demographic uploads when performing both real-time and near real-time analysis

When integrating to PRM for both real-time (RT) and near real-time (NRT) analysis, two databases are used by PRM. Demographic data needs to be loaded into both the RT and NRT databases. This can be achieved in two different ways:

- Perform a single set of uploads to PRM demographic services that are in the near real-time with real-time update (NRTRTU) mode. These services will update both the RT and NRT databases. This is the preferred option.
- Perform two sets of uploads to PRM demographic services. One set will upload to services that are in the RT mode and the other set will upload to services that are in the NRT mode.

Configure Scheduled Jobs to upload to NRTRTU demographic services only

In this case it is necessary to perform a single set of uploads and so the PostilionPRM - Upload - Demographic Data job only requires a single delta generation and upload step (which is installed by default with PostilionPRM).

The details of the demographic services can be configured by setting the appropriate address and port properties to point to each NRTRTU demographic service. See the “Service configuration” section for more information about configuring services.

Configure Scheduled Jobs to upload to both RT and NRT demographic services

In this case it is necessary to perform two sets of uploads and so the PostilionPRM - Upload - Demographic Data job requires two delta generation and upload steps.

First, configure the details of both the RT and NRT demographic services. See "Service configuration" for more information.

1. Configure the details of the PRM demographic services running in RT mode. These services will be used for the set of demographic uploads that will update the RT database used by PRM.
2. Copy all the files from <POSTILIONDIR>/postilionprm/java/services/demographic to a new directory at <POSTILIONDIR>/postilionprm/java/services/demographic_rt
3. Update the .classpath file located in the <POSTILIONDIR>/postilionprm/java/services/demographic_rt directory to point to the relative path ../demographic_rt instead of ../demographic.
4. Configure the details of the PRM demographic services running in NRT mode. These services will be used for the set of demographic uploads that will update the NRT database used by PRM.

Next, add another delta generation and upload step to the PostilionPRM - Upload - Demographic Data scheduled job:

1. Duplicate the "Run Demographic Data Delta Generator" step and name this "Run Demographic Data Delta Generator RT". Refer to the *PostilionPRM User Guide* for more information.
2. Edit the new job step to launch using the .classpath file located at <POSTILIONDIR>/postilionprm/java/services/demographic_rt.
For example, on Microsoft Windows the OS command should appear as follows:
postjava_postilionprm -cp:file "C:\Program Files\Postilion\postilionprm\java\services\demographic_rt\.classpath"postilion.realtime.postilionprm.demographicdata.upload.DeltaUploader
3. Update the command for the first job step to not archive the current extract files. This is done by appending the following parameter to the OS command: **-archivefiles:false**
4. Ensure that the first job step will ABORT the job on step failure.

Section 5: Active/active configuration

PostilionPRM interfaces can be connected to a single PRM (AG) instance or multiple PRM (AG) instances. Assuming a single instance of PRM, the Postilion configuration entails running the service configurator to duplicate the configuration on each Realtime active/active partner, performing the steps as outlined in the “Service configuration” section of the *PostilionPRM User Guide*.

The “Service Configurator configuration files”, “Server identification”, and “Scheduled jobs” sections in this guide describe the requirements for active/active.

Note: For these changes to take effect, you will need to RESYNC. Refer to the *Realtime Framework User Guide* for more information about performing a resync.

Service Configurator configuration files

CardStatusMod provider address

For the CardStatusMod service receivers, ensure that the service provider address of the PostilionPRM installation is correctly configured with the address of each active/active partner. Both of these would then need to be configured as redundant sites for the service on PRM.

Responses for service consumers

Similarly, for each of the consumed services (that is, the RetailPaymentsRiskAnalyze service and Demographic Upload services), ensure that the response address is correctly configured with the address of each active/active partner.

Server identification

For the active/active PostilionPRM instances to transact with PRM, an identifier for each of the active/active partners needs to be configured. This is used internally by PostilionPRM for transactions from each of the active/active partners to be uniquely identified by PRM. A unique server identification value must be provided in the user parameter for each partner.

Refer to the “Interchange Configuration” section for more information on how to configure the user parameters for the RetailPaymentsRiskAnalyze service.

Scheduled jobs

For the demographic data upload to be performed using scheduled jobs, certain configuration should be applied. This guide assumes a single PRM database is updated by the demographic uploads.

The PostilionPRM interface installs two jobs as part of the demographic data upload component: PostilionPRM - Extract - Demographic Data and PostilionPRM - Upload - Demographic Data. Together these jobs extract and upload demographic data to a PRM system. Note that only the Extract job is scheduled and activated, the Upload job is started automatically when the Extract job completes successfully. When running the PostilionPRM interface in an active/active environment, it is important to ensure that only one of the servers runs these jobs to prevent duplication of effort and possible data inconsistencies arising on the PRM system. For more detail on the functioning of these jobs, see the "Scheduled Jobs Overview" section in the *PostilionPRM User Guide*.

Active/active configuration

It is recommended that the following approach be used in an active/active environment:

- Nominate one of the active/active servers to be the "primary" server. The remaining server is then considered the "partner" server.
- On the primary server, ensure that the PostilionPRM - Extract - Demographic Data is correctly scheduled and enabled. The PostilionPRM - Upload - Demographic Data should remain disabled as it is started by the Extract job on completion.
- On the partner server, ensure that both the PostilionPRM - Extract - Demographic Data and PostilionPRM - Upload - Demographic Data jobs are disabled.
- Copy extracted files from the primary server to the partner server for synchronization and failure recovery.

As long as the two active/active servers are kept synchronized by making use of the Configuration Migrator tool, each server should have an identical set of demographic data and it is therefore safe to nominate one server to upload this information to PRM. See the *PostCard User Guide* for details on how to keep PostCard synchronized in an active/active environment.

Note: The PostilionPRM interface does not merge or coordinate demographic data across active/active servers. This is left to standard active/active tools such as Configuration Migrator. If the upload jobs are enabled on both active/active servers and the demographic data is not synchronized between them, there is no guarantee that the PRM system will receive a correct set of demographic information.

Active/active coordination and failure recovery

The demographic upload jobs should be kept coordinated across the two active/active servers by copying the files stored in the "%PostilionDir%/PostilionPRM/Demographic_data/archive" directory of the Extract job on the primary server to the corresponding "archive" directory on the partner server. Note that this step is not provided automatically by the PostilionPRM interface. It is expected that the system operator will configure an additional job to perform this task, or to do so manually at regular intervals. Maintaining the coordination of the servers is important for the correct operation of the partner server in the event that the primary server can no longer function, such as when a failure occurs or it is taken offline for maintenance.

Follow the steps below in the event that processing must be moved from the primary to the partner server:

1. Disable both the PostilionPRM - Extract - Demographic Data and PostilionPRM - Upload - Demographic Data jobs on the primary server.
2. Ensure that the latest files stored in the `"%PostilionDir%/PostilionPRM/Demographic_data/archive"` directory on the primary server have been copied to the corresponding "archive" directory on the partner server. Doing so will ensure that the demographic upload process will continue to only send the latest changes to the PRM system.
3. Enable the PostilionPRM - Extract - Demographic Data job on the partner server. The PostilionPRM - Upload - Demographic Data should remain disabled as it is started by the Extract job on completion.

Note that if it is not possible to copy the extracted files from the primary server to the partner server, the demographic upload process will still function but may upload changes that the PRM system is already aware of. In the extreme scenario, when no archive information is available on the partner server, the demographic upload process will upload all demographic information on its first run. Subsequent runs will then only upload changes made since the last run.

To restore operations from the partner server back to the primary server, simply follow the steps above with the server roles reversed.

Configuring multiple PRM (AG) instances

Automatic failover from a primary to a partner PRM (AG) instance is supported. This is configured by updating the `staticRegistryConfig.xml` with additional locations and assigning a value of "firstavailable" to the `locationselection` parameter as shown in Figure 4.

```
<provider id="RetailPaymentsRiskAnalyzeProvider2">
  <serviceName>RetailPaymentsRiskAnalyze</serviceName>
  <providerId>RetailPaymentsRiskAnalyze1</providerId>
  <applicationId>Application1</applicationId>
  <applicationId>Application1</applicationId>
  <startVersion>1</startVersion>
  <endVersion>1.0</endVersion>
  <locationSelection>firstavailable</locationSelection>
  <locations>
    <location>
      <url>bsi:tcpip://[primary hostname]:[primary port]</url>
      <messageFormat>SBA</messageFormat>
      <siteId>Site1</siteId>
    </location>
    <location>
      <url>bsi:tcpip://[partner hostname]:[partner port]</url>
      <messageFormat>SBA</messageFormat>
      <siteId>Site1</siteId>
    </location>
  </locations>
  <serviceAttributes>
    <param name="NRT">false</param>
    <param name="RT">true</param>
    <param name="NRTRTU">false</param>
  </serviceAttributes>
</provider>
```

Figure 5: Example - Configuring a **real-time** consumer with a primary and partner PRM (AG) instance.

Note: Additions are marked in yellow

The location selection configuration is optional and enables the PostilionPRM interface to always use the primary PRM (AG) instance. It only uses the second or remaining locations if all preceding locations have become unavailable. This means that the PRM (AG) instance configured as the primary location will always be used when all locations are online. The partner instance will only be used when the primary goes offline. Thereafter, when the primary PRM (AG) instance comes back online, all external processing requests will resume being sent to it once again.

Note: If location selection is not configured, default behavior will apply. In this case, external processing messages will be sent in *roundrobin* fashion to all available PRM (AG) instances. Configuring location selection as *firstavailable* is recommended.

Section 6: Optional configuration

Tracing configuration

Tracing can be enabled for events relevant to the PostilionPRM interface and PostilionPRM - Demographic Upload scheduled jobs. The following types of events are recorded to the Postilion traces:

- Postilion events
- Business Service Infrastructure (BSI) events

Postilion event tracing

To enable tracing, configure the system properties described below. See the *Realtime Framework User Guide* for more information on configuring system properties.

Application	System Property Name	Description
PostilionPRM	postilion.env.enable_tracing_at_startup	Set to true to enable tracing.
PostilionPRM - Demographic Upload	postilion.env.enable_tracing_at_startup	Set to true to enable tracing.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.account.enable_batch_tracing	Set to true to indicate that the contents of each Account batch should be logged when tracing the Demographic Upload.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.card.enable_batch_tracing	Set to true to indicate that the contents of each Card batch should be logged when tracing the Demographic Upload.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.customer.enable_batch_tracing	Set to true to indicate that the contents of each Customer batch should be logged when tracing the Demographic Upload.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.merchant.enable_batch_tracing	Set to true to indicate that the contents of each Merchant batch should be logged when tracing the Demographic Upload.
PostilionPRM - Demographic Upload	postilionprm.demographicdata.upload.terminal.enable_batch_tracing	Set to true to indicate that the contents of each Terminal batch should be logged when tracing the Demographic Upload.

Business Service Infrastructure event tracing

The BSI framework is used by the PostilionPRM interface to consume and provide business services. Detailed events generated by the BSI framework can be traced by the PostilionPRM interface as well as the Demographic upload process. The following system property is used to determine if these detailed events should be included in the application traces. See the *Realtime Framework User Guide* for more information on configuring system properties.

Application	System Property Name	Description
PostilionPRM	postilionprm.bsi.include_detailed_tracing	Set to true to indicate that detailed BSI events should be included in application tracing. Note: This behavior can be controlled at run time with a SET command.
PostilionPRM - Demographic Upload	postilionprm.bsi.include_detailed_tracing	Set to true to indicate that detailed BSI events should be included when tracing the Demographic Upload.