

**Virgin Trains West Coast**

CRM

Preference Management

Juanjo Diaz

Technical Consultant

**August 2018**

z

Contents

[1. Document Management 3](#_Toc528186400)

[2. Document Purpose 4](#_Toc528186401)

[2.1 In Document Scope 4](#_Toc528186402)

[2.2 Out of Document Scope 4](#_Toc528186403)

[3. High Level Overview 5](#_Toc528186404)

[3.1. Process Context 5](#_Toc528186405)

[Terminology 5](#_Toc528186406)

[3.2. Process 6](#_Toc528186407)

[3.2.1 Process Overview 6](#_Toc528186408)

[4. Tables 8](#_Toc528186409)

[ER Diagram Customer Preferences 8](#_Toc528186410)

[ER Diagram Individual Preferences 9](#_Toc528186411)

[Staging.STG\_CustomerPreference definition 9](#_Toc528186412)

[Staging.STG\_IndividualPreference definition 10](#_Toc528186413)

[Reference.Preference definition 10](#_Toc528186414)

[Reference.Preference Initial Values 11](#_Toc528186415)

[Reference.Channel definition 12](#_Toc528186416)

[Reference.Channel Initial Values 12](#_Toc528186417)

[Audit.STG\_CustomerPreference definition 13](#_Toc528186418)

[Audit.STG\_IndividualPreference definition 13](#_Toc528186419)

[5. Audit Overview 15](#_Toc528186420)

[6. Use Cases 16](#_Toc528186421)

[Use Case 1: New Customer - Preference Opt-in = Y 16](#_Toc528186422)

[Use Case 2: New Customer - Preference Opt-in = N 16](#_Toc528186423)

[Use Case 3: New Customer - Preference Opt-in NULL or Empty 16](#_Toc528186424)

[Use Case 4: Existing Customer – Current Preference = Y & Data Source Preference = N and Data Source Preference Date > Current Preference Date. 16](#_Toc528186425)

[Use Case 5: Existing Customer – Current Preference = N & Data Source Preference = N and Data Source Preference Date > Current Preference Date. 16](#_Toc528186426)

[Use Case 5: Existing Customer – Current Preference = N & Data Source Preference = Y and Data Source Preference Date > Current Preference Date. 17](#_Toc528186427)

[Use Case 6: Existing Customer – Current Preference = Y & Data Source Preference = N and Data Source Preference Date < Current Preference Date. 17](#_Toc528186428)

# Document Management

|  |  |  |  |
| --- | --- | --- | --- |
| **Version Control** | | | |
| **Version** | **Date** | **Author(s)** | **Sections Changed** |
| 1.0 | 27/07/2018 | Juanjo Diaz | Initial draft document |
| 2.0 | 07/08/2018 | Juanjo Diaz | Adding Individual Preference |
| 3.0 | 24/10/2018 | Juanjo Diaz | Adding Business Rules |

| **Distribution List** | | |
| --- | --- | --- |
| **Organisation** | **Name** | **Role** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

# Document Purpose

The purpose of this document is to define how all CRM preferences are going to be stored and managed. By doing that we will create single point of truth for VTWC CRM preference.

## 2.1 In Document Scope

The following items are in scope for this document:

* Table definition
* Audit system definition
* Use Cases

## 2.2 Out of Document Scope

The following items are out of scope for this document and will be covered to separate design documents:

* Preference reporting.
* Table mapping from all preference data sources.
* Monitoring

# High Level Overview

## 3.1. Process Context

A preference can be modified from different data sources and channels, however a single point of truth, that reflects the latest customer/individual preferences, is going to be provided in form of table. In case we need to query/validate past preferences an Audit schema will store all preference activities.

## Terminology

* **Preference:** Is the question that will be presented to the customer and/or individual.
* **Customer Preferences:** It is the customer answer for a given Preference.
* **Individual Preferences:** It is the prospect answer for a given Preference.
* **Channel:** Communication channel for what this preference is asked for.
* **Audit:** Historical data activity.

## 3.2. Process

Customer and Individual preferences will be provided from different data sources, however the methodology described below is applicable to all of them.

## 3.2.1 Process Overview

A set of external data sources will provide latest preferences updates. CRM is responsible to read, process and load them.

The table below show which data sources are taken into consideration to update customers and individual preferences.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | **Channel** | | |
| **Feed** | **Consider permission in Phoenix build** | **EMAIL** | **SMS** | **MAIL** |
| TOC Customer | Yes | Yes | Yes | Yes |
| Beam | Yes | Yes | Yes | Yes |
| Euston Surge | Yes | Yes | Yes | Yes |
| Evolvi | No | N/A | N/A | N/A |
| NAS | No | N/A | N/A | N/A |
| Nexus Alpha | Yes | Yes | Yes | Yes |
| SiteCore | Yes | Yes | Yes | Yes |
| Wifi | Yes | Yes | Yes | Yes |
| IBM WCA Phoenix | Yes | Yes | Yes | Yes |

Errors and progress will be audited by standard approach.

Based on the table above, logic to insert or update preference is:

* All incoming marketing preferences flagged as “General Marketing Opt-In” where value could be 0 (zero) or 1, where 0 is for false and 1 is true.
* If a data source provides a preference with a NULL or EMPTY value we won’t create or update that customer or individual preference.
* Once a preference is set to 0 (General Marketing Opt-In = False) we’ll NEVER update that preference back o true by ANY source. That rule is based on the lack of confidence on the preference update date data feeds, because it has been detected that some (if not all) data sources are not providing the date and time when a preference has changed but when the row was exported or created on the external data source.
* When we create or update a preference it will always apply to all channels (SMS, EMAIL, MAIL).
* All preference will track the data source that has create or update that preference as well as the load identifier.

The Flowchart below explains the logic to load or update preference.



# Tables

This section contains a description of the tables involved on this process. Only new or updated table are described here. For more information about already existing tables, please see database design document.

*Please notice that for simplicity not all columns have been provided on the ER Diagrams*.

## ER Diagram Customer Preferences



## ER Diagram Individual Preferences



## Staging.STG\_CustomerPreference definition

Stores latest version of customer preferences.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **COLUMN\_NAME** | **PK** | **DATA\_TYPE** | **IS\_NULLABLE** | **LENGTH** | **PRECISION** | **DESCRIPTION** |
| PreferenceID | TRUE | BIGINT | FALSE |  | 19 | Unique Identifier for a Preference. FK to Reference.Preference |
| CustomerID | TRUE | BIGINT | FALSE |  | 19 | Unique Identifier for a CRM Customer. FK to Staging.STG\_Customer |
| ChannelID | TRUE | INT | FALSE |  | 10 | Unique Identifier for a Channel. FK to Reference.Channel |
| Value | FALSE | BIT | FALSE |  | 1 | Customer Preference values. 0 = False | 1 = True |
| CreatedBy | FALSE | INT | FALSE |  | 10 | Unique User Identifier who has created this row |
| CreatedDate | FALSE | DATETIME | FALSE |  |  | Timestamp when this row was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp when this row was modified |
| InformationSourceID | FALSE | INT | FALSE |  | 10 | Source which has created/updated the customer (eg: trainline, NAS, Wifi). FK to Reference.InformationSource |
| SourceCreatedDate | FALSE | DATETIME | FALSE |  |  | Date when source record was created (provided by the supplier) |
| SourceModifiedDate | FALSE | DATETIME | FALSE |  |  | Date when source record was modified, use this date to update the record if its latest (provided by supplier) |
| CreatedExtractNumber | FALSE | INT | FALSE |  | 10 | Created Control record number. Join on to Operations.DataImportDetail table to get extract details |
| LastModifiedExtractNumber | FALSE | INT | FALSE |  | 10 | Modified Control record number. Join on to Operations.DataImportDetail table to get extract details |

## Staging.STG\_IndividualPreference definition

Stores latest version of individual preferences.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **COLUMN\_NAME** | **PK** | **DATA\_TYPE** | **IS\_NULLABLE** | **LENGTH** | **PRECISION** | **DESCRIPTION** |
| PreferenceID | TRUE | BIGINT | FALSE |  | 19 | Unique Identifier for a Preference. FK to Reference.Preference |
| IndividualID | TRUE | BIGINT | FALSE |  | 19 | Unique Identifier for a CRM Individual (Prospect). FK to Staging.STG\_Individual |
| ChannelID | TRUE | INT | FALSE |  | 10 | Unique Identifier for a Channel. FK to Reference.Channel |
| Value | FALSE | BIT | FALSE |  | 1 | Customer Preference values. 0 = False | 1 = True |
| CreatedBy | FALSE | INT | FALSE |  | 10 | Unique User Identifier who has created this row |
| CreatedDate | FALSE | DATETIME | FALSE |  |  | Timestamp when this row was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp when this row was modified |
| InformationSourceID | FALSE | INT | FALSE |  | 10 | Source which has created/updated the customer (eg: trainline, NAS, Wifi). FK to Reference.InformationSource |
| SourceCreatedDate | FALSE | DATETIME | FALSE |  |  | Date when source record was created (provided by the supplier) |
| SourceModifiedDate | FALSE | DATETIME | FALSE |  |  | Date when source record was modified, use this date to update the record if its latest (provided by supplier) |
| CreatedExtractNumber | FALSE | INT | FALSE |  | 10 | Created Control record number. Join on to Operations.DataImportDetail table to get extract details |
| LastModifiedExtractNumber | FALSE | INT | FALSE |  | 10 | Modified Control record number. Join on to Operations.DataImportDetail table to get extract details |

## Reference.Preference definition

Stores a list of all available preferences.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **COLUMN\_NAME** | **PK** | **DATA\_TYPE** | **IS\_NULLABLE** | **LENGTH** | **PRECISION** | **DESCRIPTION** |
| PreferenceID | TRUE | BIGINT | FALSE |  | 19 | Unique Identifier for a Preference. FK to Reference.Preference |
| Name | FALSE | VARCHAR | FALSE | 20 |  | Short Name for a preference |
| Description | FALSE | VARCHAR | FALSE | 4000 |  | Full description for what is this preference for. |
| CreatedBy | FALSE | INT | FALSE |  | 10 | Unique User Identifier who has created this row |
| CreatedDate | FALSE | DATETIME | FALSE |  |  | Timestamp when this row was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp when this row was modified |

## Reference.Preference Initial Values

|  |  |
| --- | --- |
| **PreferenceID** | 1 |
| **Name** | MKT\_OPTIN |
| **Description** | General Marketing opt in |
| **CreatedBy** | TBC |
| **CreatedDate** | NOW |
| **LastModifiedBy** | TBC |
| **LastModifiedDate** | NOW |
|  |  |
| **PreferenceID** | 2 |
| **Name** | CRDT\_OPTIN |
| **Description** | Credit opt in |
| **CreatedBy** | TBC |
| **CreatedDate** | NOW |
| **LastModifiedBy** | TBC |
| **LastModifiedDate** | NOW |
|  |  |
| **PreferenceID** | 3 |
| **Name** | DFT\_OPTIN |
| **Description** | Data Franchise Transfer opt in |
| **CreatedBy** | TBC |
| **CreatedDate** | NOW |
| **LastModifiedBy** | TBC |
| **LastModifiedDate** | NOW |
|  |  |
| **PreferenceID** | 4 |
| **Name** | 3RD\_PARTY\_OPTIN |
| **Description** | Op in from 3rd party’s communications |
| **CreatedBy** | TBC |
| **CreatedDate** | NOW |
| **LastModifiedBy** | TBC |
| **LastModifiedDate** | NOW |

## Reference.Channel definition

Stores a list of all available channels.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **COLUMN\_NAME** | **PK** | **DATA\_TYPE** | **IS\_NULLABLE** | **LENGTH** | **PRECISION** | **DESCRIPTION** |
| ChannelID | TRUE | INT | FALSE |  | 10 | Unique Identifier for a Channel. FK to Reference.Channel |
| Name | FALSE | VARCHAR | FALSE | 20 |  | Short Name for a Channel |
| Description | FALSE | VARCHAR | FALSE | 4000 |  | Full description for what is this channel for. |
| CreatedBy | FALSE | INT | FALSE |  | 10 | Unique User Identifier who has created this row |
| CreatedDate | FALSE | DATETIME | FALSE |  |  | Timestamp when this row was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp when this row was modified |

## Reference.Channel Initial Values

Values below should be inserted as part of the initial data load for Reference.Channel table.

|  |  |
| --- | --- |
| **ChannelID** | 1 |
| **Name** | NONE |
| **Description** | Channel used for preference not associated to a channel |
| **CreatedBy** | TBC |
| **CreatedDate** | NOW |
| **LastModifiedBy** | TBC |
| **LastModifiedDate** | NOW |
|  |  |
| **ChannelID** | 2 |
| **Name** | EMAIL |
| **Description** | Electronic Mail |
| **CreatedBy** | TBC |
| **CreatedDate** | NOW |
| **LastModifiedBy** | TBC |
| **LastModifiedDate** | NOW |
|  |  |
| **ChannelID** | 3 |
| **Name** | SMS |
| **Description** | Electronic Mail |
| **CreatedBy** | TBC |
| **CreatedDate** | NOW |
| **LastModifiedBy** | TBC |
| **LastModifiedDate** | NOW |
|  |  |
| **ChannelID** | 4 |
| **Name** | Mail |
| **Description** | Postal Mail |
| **CreatedBy** | TBC |
| **CreatedDate** | NOW |
| **LastModifiedBy** | TBC |
| **LastModifiedDate** | NOW |

## Audit.STG\_CustomerPreference definition

Stores historical customer preference data activity. The latest version of customer preference can be found on Staging.STG\_CustomerPreference.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **COLUMN\_NAME** | **PK** | **DATA\_TYPE** | **IS\_NULLABLE** | **LENGTH** | **PRECISION** | **DESCRIPTION** |
| PreferenceID | TRUE | BIGINT | FALSE |  | 19 | Unique Identifier for a Preference. Logical FK to Reference.Preference |
| CustomerID | TRUE | BIGINT | FALSE |  | 19 | Unique Identifier for a CRM Customer. Logical FK to Staging.STG\_KeyMapping |
| ChannelID | TRUE | INT | FALSE |  | 10 | Unique Identifier for a Channel. Logical FK to Reference.Channel |
| ActionTimestamp | TRUE | DATETIME | FALSE |  |  | Timestamp when this audit happened. |
| Value | FALSE | BIT | FALSE |  | 1 | Customer Preference values. 0 = False | 1 = True |
| Action | FALSE | CHAR | FALSE | 1 |  | I for Insert | U for Update | D for Delete |
| CreatedBy | FALSE | INT | FALSE |  | 10 | Unique User Identifier who has created this row |
| CreatedDate | FALSE | DATETIME | FALSE |  |  | Timestamp when this row was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp when this row was modified |
| InformationSourceID | FALSE | INT | FALSE |  | 10 | Source which has created/updated the customer (eg: trainline, NAS, Wifi). FK to Reference.InformationSource |
| SourceCreatedDate | FALSE | DATETIME | FALSE |  |  | Date when source record was created (provided by the supplier) |
| SourceModifiedDate | FALSE | DATETIME | FALSE |  |  | Date when source record was modified, use this date to update the record if its latest (provided by supplier) |
| CreatedExtractNumber | FALSE | INT | FALSE |  | 10 | Created Control record number. Join on to Operations.DataImportDetail table to get extract details |
| LastModifiedExtractNumber | FALSE | INT | FALSE |  | 10 | Modified Control record number. Join on to Operations.DataImportDetail table to get extract details |

## Audit.STG\_IndividualPreference definition

Stores historical individual preference data activity. The latest version of individual preference can be found on Staging.STG\_IndividualPreference.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **COLUMN\_NAME** | **PK** | **DATA\_TYPE** | **IS\_NULLABLE** | **LENGTH** | **PRECISION** | **DESCRIPTION** |
| PreferenceID | TRUE | BIGINT | FALSE |  | 19 | Unique Identifier for a Preference. Logical FK to Reference.Preference |
| IndividualID | TRUE | BIGINT | FALSE |  | 19 | Unique Identifier for a CRM Individual (Prospec). Logical FK to Staging.STG\_Individual |
| ChannelID | TRUE | INT | FALSE |  | 10 | Unique Identifier for a Channel. Logical FK to Reference.Channel |
| ActionTimestamp | TRUE | DATETIME | FALSE |  |  | Timestamp when this audit happened. |
| Value | FALSE | BIT | FALSE |  | 1 | Customer Preference values. 0 = False | 1 = True |
| Action | FALSE | CHAR | FALSE | 1 |  | I for Insert | U for Update | D for Delete |
| CreatedBy | FALSE | INT | FALSE |  | 10 | Unique User Identifier who has created this row |
| CreatedDate | FALSE | DATETIME | FALSE |  |  | Timestamp when this row was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp when this row was modified |
| InformationSourceID | FALSE | INT | FALSE |  | 10 | Source which has created/updated the customer (eg: trainline, NAS, Wifi). FK to Reference.InformationSource |
| SourceCreatedDate | FALSE | DATETIME | FALSE |  |  | Date when source record was created (provided by the supplier) |
| SourceModifiedDate | FALSE | DATETIME | FALSE |  |  | Date when source record was modified, use this date to update the record if its latest (provided by supplier) |
| CreatedExtractNumber | FALSE | INT | FALSE |  | 10 | Created Control record number. Join on to Operations.DataImportDetail table to get extract details |
| LastModifiedExtractNumber | FALSE | INT | FALSE |  | 10 | Modified Control record number. Join on to Operations.DataImportDetail table to get extract details |

# Audit Overview

Once a row is inserted/update/delete on Staging.STG\_CustomerPreference / Staging.STG\_IndividualPreference a trigger will capture that action and it will insert a new row into Audit.STG\_CustomerPreference / Audit.STG\_IndividualPreference table. We have chosen database triggers to handle audits. By doing that we simplify the audit logic significantly and delegate the responsibility of auditing outside stored procedures, functions or SSIS packages.

General definition of the proposed audit methodology / system is defined on VTEC Software Architecture - Audit & Log V1.1.docx.

This section defines how customer preferences changes are going to be audited.

# Use Cases

Use cases below are Customer focus, however same logic applies for Individuals. Main difference is that we’ll have to replace CustomerID per IndividualID, Staging.STG\_Customer per Staging.STG\_Individual and Staging.STG\_CustomerPreference per Staging.STG\_IndividualPreference.

## Use Case 1: New Customer - Preference Opt-in = Y

1. A new customer will be created on Staging.STG\_Customer table.
2. Insert record on Staging.STG\_CustomerPreference with 1 for all channels for Preference type “General Marketing Opt-in”
3. Trigger capture insert action and inserts same information into Audit.STG\_CustomerPreference table adding ActionTimestamp = now() and Action = ‘I’

## Use Case 2: New Customer - Preference Opt-in = N

1. A new customer will be created on Staging.STG\_Customer table.
2. Insert record on Staging.STG\_CustomerPreference with 0 for all channels for Preference type “General Marketing Opt-in”
3. Trigger capture insert action and inserts same information into Audit.STG\_CustomerPreference table adding ActionTimestamp = now() and Action = ‘I’

## Use Case 3: New Customer - Preference Opt-in NULL or Empty

1. A new customer will be created on Staging.STG\_Customer table.
2. Since preference value is NULL or empty no action will be performed against Staging.STG\_CustomerPreferences, therefore no audit is required.

## Use Case 4: Existing Customer – Current Preference = Y & Data Source Preference = N and Data Source Preference Date > Current Preference Date.

1. Update General Marketing Opt-In preference = 0.
2. Trigger capture insert action and inserts same information into Audit.STG\_CustomerPreference table adding ActionTimestamp = now() and Action = ‘U’

## Use Case 5: Existing Customer – Current Preference = N & Data Source Preference = N and Data Source Preference Date > Current Preference Date.

1. Since current General Marketing Opt-In preference is already N we won’t update the preference therefore no audit or further action is required.

## Use Case 5: Existing Customer – Current Preference = N & Data Source Preference = Y and Data Source Preference Date > Current Preference Date.

1. Since current General Marketing Opt-In preference is already N we won’t update the preference therefore no audit or further action is required.

## Use Case 6: Existing Customer – Current Preference = Y & Data Source Preference = N and Data Source Preference Date < Current Preference Date.

1. Since incoming record has an oldest date, we won’t update current General Marketing Opt-In preference to 0.

**END**