

**Virgin Trains West Coast**

CRM

Preference Management

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# Document Management

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# 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 should be applicable to all of them.

## 3.2.1 Process Overview

An external data source will provide latest preferences updates. Then the system will do three validations before a preference get inserted, updated or deleted from CRM.

* **Step 1:** Validate that the preference that we are going to associate to a customer/individual exists into Reference.Preference table.
* **Step 2:** Validate that the channel exists into Reference.Channel table.
* **Step 3:** Validate the customer/individual that we are trying to associate to that preference for that channel exists into Staging.STG\_Customer or Staging.STG\_Individual table.

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.

Please notice that we will only modify a preference if the “LastUpdatedDate” of an incoming preference is newest than the current preference “LastModifiedDate”.

Errors and progress will be audited by standard approach.



# 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.

## 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 -> When Opt-Out | 1 -> When Opt-In |
| CreatedBy | FALSE | INT | FALSE |  | 10 | Unique User Identifier who has created this row |
| CreatedDate | FALSE | DATETIME | FALSE |  |  | Source Timestamp when the preference was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp from Source when preference was modified |

## 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 -> When Opt-Out | 1 -> When Opt-In |
| CreatedBy | FALSE | INT | FALSE |  | 10 | Unique User Identifier who has created this row |
| CreatedDate | FALSE | DATETIME | FALSE |  |  | Source Timestamp when the preference was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp from Source when preference was modified |

## 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 |  |  | Source Timestamp when the preference was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp from Source when preference was modified |

## Reference.Preference Initial Values

|  |  |
| --- | --- |
| **PreferenceID** | 1 |
| **Name** | MKT\_OPTIN |
| **Description** | 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 |  |  | Source Timestamp when the preference was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp from Source when preference 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 -> When Opt-Out | 1 -> When Opt-In |
| 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 |  |  | Source Timestamp when the preference was created. |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp from Source when preference was modified |

## 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 -> When Opt-Out | 1 -> When Opt-In |
| 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 |  |  | Source Timestamp when the preference was created |
| LastModifiedBy | FALSE | INT | FALSE |  | 10 | Last unique user identifier who has modified this row |
| LastModifiedDate | FALSE | DATETIME | FALSE |  |  | Last timestamp from Source when preference was modified |

## Opt-in / Opt-out

Opt outs are effectively, part of Customer Preferences. It means that we’ll have a set of Customer Preferences that will be modified every time that we receive an updated opt-in/out feed. The criteria to change a preference is to validate if the Staging.CustomerPreference opt-in value is older data source created date, then information coming from the data source will update/replace existing value(s).

As described before, audit tables must contain all historical Customer Preferences changes, helping campaign BAU team on the customer targeting and tracking.

# Audit Overview

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.

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.

# 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

1. A new customer preference comes from one of the data source.
2. Validate Preference exist into Reference.Preference
3. Validate Channel exist into Reference.Channel
4. Validate CustomerID exist into Staging.STG\_Customer
5. Validate Customer Preference do not exist.
6. Insert Customer Preference into Staging.STG\_CustomerPreference
7. Trigger capture insert action and inserts same information into Audit.STG\_CustomerPreference table adding ActionTimestamp = now() and Action = ‘I’

## Use Case 2: Update existing Customer Preference

1. An existing customer preference comes from one of the data source.
2. Validate Preference exists into Reference.Preference
3. Validate Channel exists into Reference.Channel
4. Validate CustomerID exists into Staging.STG\_Customer
5. Validate Customer Preference already exist.
6. Validate incoming preference is newest than the existing one on the Staging table.
7. Update Customer Preference on Staging.STG\_CustomerPreference with new Value, LatestModifiedDate and LatestModifiedBy
8. Trigger capture update action and inserts same information into Audit.STG\_CustomerPreference table adding ActionTimestamp = now() and Action = ‘U’

## Use Case 3: Delete existing Customer Preference

1. A request to delete a preference comes from one of the approved channels.
2. Validate Preference exists into Reference.Preference
3. Validate Channel exists into Reference.Channel
4. Validate CustomerID exists into Staging.STG\_Customer
5. Validate Customer Preference already exist.
6. Delete Customer Preference on Staging.STG\_CustomerPreference.
7. Trigger capture delete action and inserts same information into Audit.STG\_CustomerPreference as per latest customer preference values on Staging.STG\_CustomerPreferences table adding ActionTimestamp = now() and Action = ‘D’

# Preferences (Opt-In/Out) data source

Below list contains the different data sources from where we are going to receive opt in / opt outs. For more information about particularity of each data source load, please read individual Technical Design Documents.

* TRAINLINE
* WCA
* CREATOR
* VIRGIN RED
* AMAZE
* Go Media
* NEXUS ALPHA
* McLaren

**END**