

**Virgin Trains West Coast**

CRM

Customer Preference Management

Juanjo Diaz

Technical Consultant

**July 2018**

z

Contents

[1. Document Management 2](#_Toc520567344)

[2. Document Purpose 3](#_Toc520567345)

[2.1 In Document Scope 3](#_Toc520567346)

[2.2 Out of Document Scope 3](#_Toc520567347)

[3. High Level Overview 4](#_Toc520567348)

[3.1. Process Context 4](#_Toc520567349)

[Terminology 4](#_Toc520567350)

[3.2. Process Flow 4](#_Toc520567351)

[3.2.1 Process Overview 4](#_Toc520567352)

[4. Tables 6](#_Toc520567353)

[ER Diagram 6](#_Toc520567354)

[Staging.STG\_CustomerPreference 7](#_Toc520567355)

[Reference.Preference 7](#_Toc520567356)

[Reference.Channel 7](#_Toc520567357)

[Audit.STG\_CustomerPreference 8](#_Toc520567358)

[5. Audit Overview 9](#_Toc520567359)

[6. Use Cases 10](#_Toc520567360)

[Use Case 1: New Customer Preference 10](#_Toc520567361)

[Use Case 2: Update existing Customer Preference 10](#_Toc520567362)

[Use Case 3: Delete existing Customer Preference 10](#_Toc520567363)

# Document Management

|  |  |  |  |
| --- | --- | --- | --- |
| **Version Control** | | | |
| **Version** | **Date** | **Author(s)** | **Sections Changed** |
| 0.1 | 27/07/2018 | Juanjo Diaz | Initial draft document |

| **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 preferences, is going to be provided in form of table. In case that 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 it can be responded in a Boolean form.
* **Customer Preferences:** It is the customer answer itself for a given Preference.
* **Channel:** Communication channel for what this preference is asked for.
* **Audit:** Historical data activity.

## 3.2. Process

Customer 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 into CRM.

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

Once a row is inserted/update/delete on Staging.STG\_CustomerPreference a trigger will capture that action and it will insert a new row into Audit.STG\_CustomerPreference table.

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



## Staging.STG\_CustomerPreference

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\_KeyMapping |
| 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 |

## Reference.Preference

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.Channel

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 |

***Note:*** *A “NONE” channel will be provided for those preferences without channel.*

## Audit.STG\_CustomerPreference

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 |

# 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 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. Update Customer Preference on Staging.STG\_CustomerPreference with new Value, LatestModifiedDate and LatestModifiedBy
7. 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’

**END**