Address database design

A guide for New Zealand businesses

New Zealand Post

1. Introduction

This is a guide for New Zealand businesses to assist in the design and build of databases to manage and store customer name and address details.

A customer database should seek to accurately and efficiently capture and store name and address details and facilitate the match of these details to sales and other transactional data. The address stored within a customer database should be adequate to uniquely and consistently define the customer location. Often different systems will store different representations of the same customer and as a result a business may have several records of the same customer. This can create substantial customer service issues and unwanted failure cost for a business.

This document is primarily a guideline for the design of databases that store postal addresses. However it also provides insights into how to structure a database to improve the relationship between a business and its customers. It explores the following:

- What to consider when designing an address database
- How to structure a customer database

2. What to consider when designing a customer database

A good database design can reduce data management costs, increase the overall value of your address information, as well as reduce the lead time for customer analysis. The following are some questions that can help steer the design process.

How will the address data be used?
Besides mailing purposes, will you be using the data for customer segmentation or behaviour analysis? If so, storing the Delivery Point Identifier (available from the PAF) will make it easier to achieve this. The DPID is a 7-digit number that uniquely identifies each postal delivery point. The DPID can be used to:

- Create a single view of your customer through matching product and transactional data to customer name and addresses
- The DPID allocation helps to remove duplication in databases and improves the ability to recognise people living or working at the same address

In another similar example, if you wish to assign sales territories or conduct analysis based on surburb/town or postcode, it will be prudent to store those values in separate fields.

Is there a need to separately store different address types?
Sometimes, where a customer is located (e.g. office location) is different to the postal address (e.g. PO Box). The delivery address may also be another different one altogether, as often is the case where products are ordered on behalf of someone else.

Are there any particular data format requirements?
You may need to comply with certain requirements for address data interchange, i.e., parsed into certain formats to ensure interoperability between systems or organisations.

Will there be a requirement to implement an address data entry validation tool?
Data entry validation tools ensure addresses are validated against the PAF as they are entered into the system. As such, you will need to refer to the vendor or design specs to ensure that the fields in the database are compatible with such tools.

Will there be regular batch cleansing of addresses?
If addresses are regularly extracted, cleansed and updated back into the system, it may be useful to include a Last Modified date field to record when an address has been changed. This is to allow checking to see anything has changed (e.g. customer changed residence recently) during the time of the cleansing.

3. How to structure a customer database

There are many ways to structure your customer database. This section deals with the considerations needed to effectively store and manage address details within your customer database.

As few as three fields comprising 30 characters each is adequate to store almost every postal address in New Zealand. However the richness of the customer address may be compromised using such a restrictive structure with abbreviations required or even exclusions of certain elements such as Suburb.

A better starting point when designing your system is to consider using dedicated fields for at least street number, street name, suburb, lobby, town, city and postcode. The more structurally separated the data are, the more accurate address can be captured as well as cleansed and to reap some of the benefits associated with quality addressing.

How many fields do I need?

There are certain key elements of each New Zealand address which are mandatory in order to compile a unique and correct address. For example an accurate urban postal address requires at least Street Number, Street Name and Type, City, Postcode to be uniquely described.

The minimum number recommended for the storage of domestic address information is three fields. Note recipient details e.g. customer name should not be stored alongside the address information. The address fields should be populated in the following way:

Field 1: Building Name or Unit Type and Number/Street Number/Full Street Name or Box Number
Field 2: Suburb or 'RD and RD Number' or Box Lobby
Field 3: Town/City Postcode

The recommended approach would be to use seven address fields structured in the following sequence:

Field 1: Building Name or Unit Type and Number
Field 2: Street Number, Full Street Name or Box Number
Field 3: Suburb or 'RD and RD Number' or Box Lobby
Field 4: Town/City
Field 5: State/Province/County
Field 6: Postcode
Field 7: Country

The above recommendation will allow for:

- Foreign addresses (ie use of state, province, country)
- Data to be captured accurately and unambiguously
- Reconciliation to domains (ie sales territories based on town or postcodes

Minor variations on this might include a separate field called Delivery Point Identifier (DPID).

Note that the DPID is not recommended as a primary key for identifying a record.

To assist you with sizing database fields and determining which address elements should be aggregated, the table below provides a fully elementised database structure. This structure lists the complete range of postal address elements.

Name	Definition	Sample	Field Type	Field Size
DPID	Unique identifier for the delivery point – populated post address validation.	1234567	Integer	7
Unit Type	Identifiable portion within a building or complex, e.g.: Shop, Suite, and Unit.	Unit	Alphanumeric	10
Unit Identifier	Appended to the Unit to define the address, if the Unit Type is used the Unit Type identifier must be used, e.g.: Suite 5, Unit 23.	5F	Alphanumeric	10
Floor Type	The floor within a building or complex, e.g.: Level, Floor, Basement.	Floor	Character	12
Floor Identifier	Indicates the specific floor or level, e.g.: Level 2, Floor 23.	23	Alphanumeric	10
Building Name	The name commonly used for the property.	Smith House	Alphanumeric	50
Street Number	Physical Number of the Street address.	15	Integer	15
Street Alpha	Alphabetic suffix associated with the Street Number.	A	Character	1
Street Name	The name of the street/road.	Jones	Character	50
Street Type	The suffix identifying the category of the street/road.	Terrace	Character	15
Street Direction	The direction of the street/road, where it is split into sections.	West	Character	10
Delivery Service Type	The category of box, bag or counter service, e.g.: PO Box, Private Bag or Counter Delivery.	PO Box	Character	12
Box/Bag Number	Appended to the Delivery Service Type to indicate the specific box or bag as allocated by New Zealand Post, e.g.: PO Box 99.	99	Integer	15
Suburb/Box Lobby	For Urban addresses it is the Suburb address it is in, e.g.: Thorndon. For Delivery Services Addresses it is the location of the Box Lobby, PostShop or PostCentre, e.g.: Manners Street.	Thorndon	Character	35
RD, RD Identifier	The Rural Delivery round number that the address is located on.	RD 3	Alphanumeric	10
Town/City	For Urban and Delivery Service address types it is the town or city name the address is located in. For Rural Addresses it is the mailtown.	Wellington	Character	35
Postcode	4 digits representing a group of addresses e.g.: 0110.	6110	Alphanumeric	4
Country	The name of the country where the address is located where the country is not New Zealand.	AUSTRALIA	Character	40