

**INTERNAL AFFAIRS**



Te Tari Taiwhenua

# **National Dog Database TA Interface Guidelines**

**Version 5.3**

**November 2011**



## Revision History

Date	Version	Description	Author
4 February 2005	1.0	Issued with version 0.1 of the XML Schema	Equinox
16 March 2005	2.0	Issued with version 0.2 of the XML Schema, with changes resulting from the 2 <sup>nd</sup> workshop with the focus group, and feedback from vendors on version 0.1 of the schema.	Equinox
5 May 2005	3.0	Document named changed to XML Extract File Schema Guidelines. Deployment diagram on page 3 updated. Document restructured into three major sections. Some minor editing changes. The content in the Extract Rules and Considerations section (section 3) was added. Appendix 1 – Data Validation Workshop Notes added. Appendix 2 – Standard Lists added Schema changes since version 2: <ul style="list-style-type: none"> <li>Added fields for dog alert, owner safety alert, and owner classification section</li> <li>Header fields grouped into one header element</li> <li>Changed fields from specified values to standard coded lists for breed (4 characters), colour (3 characters), dog classification type and owner classification type.</li> <li>Restriction to only one occurrence per owner of “other registration”, and per dog of “other TA”.</li> </ul>	Equinox
5 May 2005	3.0	Amended by DIA to correct Classification Sections wording. Version and Date not changed	DIA
9 August 2005	3.1	Remove reference to FTP and Secure FTP, and refer instead to SCP/SSH Insert note on use of XML Validation tools Insert reference to Interface testing Usage Guide and Error XML Schema Amend version numbers for name .xsd and address .xsd files	Equinox
18 August 2005	4.0	CR1080 Rule F2 amended to reflect the need to include dogs associated with infringements in the initial load and reconciliation	Equinox



Date	Version	Description	Author
15 September 2005	4.1	<p>Amended title and filename to TA Interface Guidelines (title was Extract File XML Schema guidelines, and filename was NDD TA File Extract Guidelines.doc)</p> <p>Deployment view diagram at 2.2 updated to replace reference to FTP client with SSH client</p> <p>Inserted explanation of suggested restriction of image size when uploading images of classified dogs at 2.7.6.</p> <p>Updated explanation of Reconciliation and Synchronisation process at section 2.8</p> <p>Section 3 updated to standardise terminology used to describe the extracts. Replaces the terms Daily with Incremental, and Initial load/Reconciliation with Full. This includes renaming of the rules which were prefixed with the extract type, so that rules relating to Incremental extracts are now called I1, I2 etc, and rules relating to Full extracts are numbered F1, F2 etc. Updated associated references to these rules.</p> <p>Inserted explanation of the process to add a new owner to a dog, compared with changing the owner of a dog in Section 3.3 Rule I5</p> <p>Deleted Appendix 1 Data Validation Workshop Notes, and replaced it with insertion of section 4</p> <p>Renumbered Appendix 2 to Appendix 1</p> <p>Corrections to various typos and formatting from DIA review.</p>	Equinox
19 September 2005	4.2	Updates to validation information in section 4, and note under section 2.6.1	Equinox
21 October 2005	4.3	<p>Updates to the deployment and sequence diagram, and 2.5.7 to reflect use of SSH</p> <p>Section 4.3.1 Clarification that deactivated reason field is mandatory if dog status is deactivated</p> <p>Spelling correction Appendix 1 section 5</p> <p>Added column to field level tables in section 4 to indicate where validation is done in the xml schema, to conform to the validation updates specified in the Online Help.</p> <p>Updated terminology from "Defined lists" to "Standard Lists"</p>	Equinox
25 October 2005	4.4	<p>Clarification of filename and automated transfer of Full file (Section 2.8.5)</p> <p>Addition of note to diagram to show ToDo list xml.</p>	Equinox
November 2005	4.5	Updated versions of the deployment and sequence diagrams.	Equinox



Date	Version	Description	Author
17 February 2006	4.6	Updated explanation in rules C3 and F2 (page 24) to clarify the referential integrity between infringements, dogs and registrations, and that the reference to a dog on an infringement is optional, but if it exists, the dog (and its registration) must also exist.	Equinox
29 June 2006	4.7	Updated 4.4.3 to include description of how to supply an unregistered dog to the NDD	Equinox
20 July 2006	4.8	Updated 4.4.3 to more fully reflect the definition of an unregistered dog (previously registered/never registered.)	Equinox
8 Sept 2006	4.9	Appendix 1 update to infringements standard list.	Equinox
2 June 2010	5.0	Updated to reflect "Current" dataset definition; updated document links; added dog colour standard list; clarified rules.	Equinox
2 August 2011	5.1	Updates to: <ul style="list-style-type: none"> <li>include standard list for Dog Breeds</li> <li>standard list for Infringement Section</li> </ul>	Equinox
8 August 2011	5.2	Update standard Dog Breeds list	Equinox
15 Nov 2011	5.3	Update Standard Dog Breeds list	Equinox



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# TA Interface Guidelines

## 1. Introduction

The National Dog Database (NDD) will be a national repository of registered dog information, and it will mirror the information from the seventy plus Territorial Authorities (TAs) that currently undertake dog registration and control activities within New Zealand.

In order to obtain the dog, owner, registration, and infringement information from the TAs an XML file will be provided to the NDD on a regular basis (ideally each working day) by each of the TAs. The XML file will notify the NDD of insertions, updates or deletions for dog, owner, registration, and infringement information that occurred in the batch period.

### 1.1 Purpose

The purpose of this document is to provide context, background and guidelines for the XML schema design. The intended audience is both TAs and the suppliers of Dog Control Systems to TAs.

### 1.2 References

Document	Source
TA Interface Schema	Users should note the annotations in the schema
Dog Control Act 1996 and Dog Control Amendment Act 2004	<a href="http://www.legislation.govt.nz/default.aspx">http://www.legislation.govt.nz/default.aspx</a>
New Zealand e-Government Interoperability Framework (e-GIF)	<a href="http://www.e.govt.nz/standards/e-gif">http://www.e.govt.nz/standards/e-gif</a>
NZ xNAL Guidelines	<a href="http://www.e.govt.nz/standards/e-gif/xnal/index.html">http://www.e.govt.nz/standards/e-gif/xnal/index.html</a>
TA Interface Connection Guide	Distributed by DIA to suppliers of TA Dog Control Systems
ToDo List Schema	Distributed by DIA to suppliers of TA Dog Control Systems
NDD Operations Manual	Equinox
NDD Administration Manual	Equinox
NDD Technical Glossary	Equinox



## 2. Overview of the National Dog Database System

### 2.1 General Principle – Mirror and Link

The NDD is a *mirror* of a subset of each TA's local dog control information. No core information on dogs, owners, registrations, or infringements is directly updatable from functionality within the NDD. All changes must first occur in the local TA system and then be forwarded to the NDD via the batch upload file.

The NDD will have an online facility which allows users to search and create *links* between dog and owner records that came from different TAs. The searching functionality will also be provided as a web service.

When a batch is uploaded to the NDD it will undergo a series of validation steps that may result in errors, warnings, or information messages. Detection of suspected duplicate dog or owner records within a TA and possible links to owner or dog records within other TAs can result in further messages.

These messages can be made available in three ways. The first is as a batch report which details all the messages created for a certain batch. The second way allows the user to access this information online as a ToDo list delivered as a web application. The third way is via an XML file which represents the content of all messages for the TA from the batch processing.

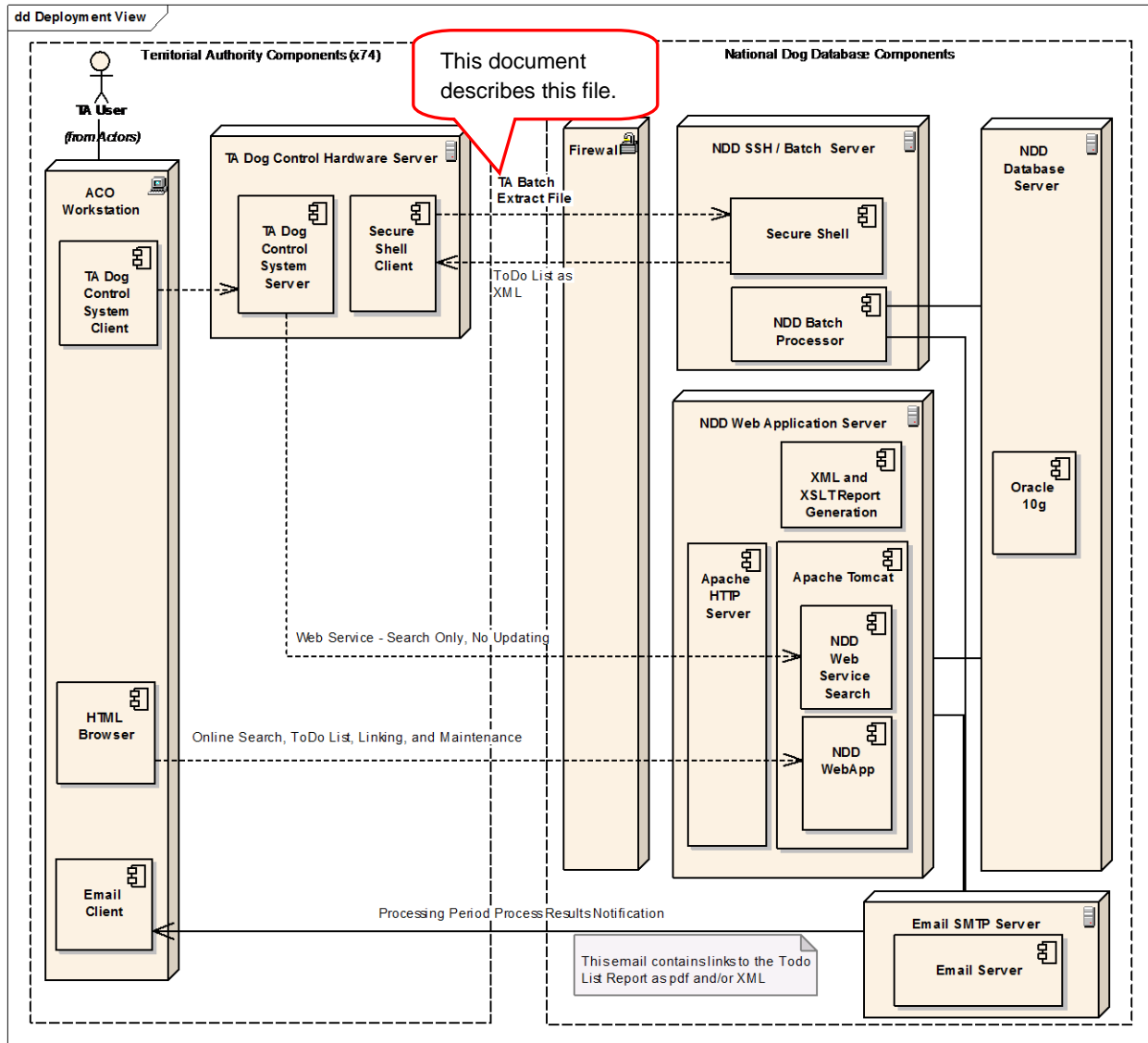
### 2.2 Requirements of the TA Dog Control Systems

In brief terms, the NDD is dependent upon the TA dog control systems undertaking the following:

- Providing on a regular basis (ideally each working day) one or more sequentially numbered batch files that contain inserted, updated, or deleted information pertaining to dogs, owners, registrations, and infringements that have occurred since the previous period's batch file(s) were sent.
- The batch file must comply with the published XML schema and contain data that follows the guidelines in the schema annotations.

Some TA systems may choose to import the validation and other messages via an XML file and provide functionality within their own system based on these messages, but this is entirely up to them and is in no way a requirement.

The following deployment diagram shows the major physical components that make up the NDD and its interaction with TA dog control, and microchip supplier systems. It also shows the XML file this document discusses.



### 2.3 Aim of the XML Schema

The schema aims to provide a single standard XML structure for all the TAs to provide their dog registration data to the National Dog Database system.

The use of an XML schema allows certain levels of data validation to be undertaken by virtue of the XML support provided in nearly all current IT environments and development platforms. Namely:

- Validating that the XML file is “well-formed”
- Validating that the XML file complies with the XML schema.
- XML validation can be done at the TA prior to transferring the file to NDD, to ensure that XML errors do not cause the batch to be rejected



## 2.4 Interface File XML Schema Design Constraints and Consideration

In defining the XML Schema a number of sometimes conflicting requirements, constraints and considerations had to be taken into account. The aim was to keep the XML Schema as straight-forward as possible, yet still allow flexibility and alignment with the e-Government requirements (xNAL etc.).

The XML Schema is required to:

- Support the transfer of information specified in the Dog Control Act
- Support the transfer of information specified in the Department of Internal Affairs (DIA) RFP – National Dog Database Supply and Implementation (DIA 2004/26), Section 5.2 – Data Required to be Held
- Conform to the New Zealand E-government xNAL Guidelines
- Provide a structure that will not be too onerous for the Vendors of TA systems, and internal TA development staff to comply with
- Be used to reconcile the data in a TA's dog register with the data held in the National Dog Database
- Comply with the National Dog Database Supply and Implementation RFP.
- Support the transfer of information specified in the Software Requirements Specification, as developed during requirements workshops with the DIA and TA Focus Group.

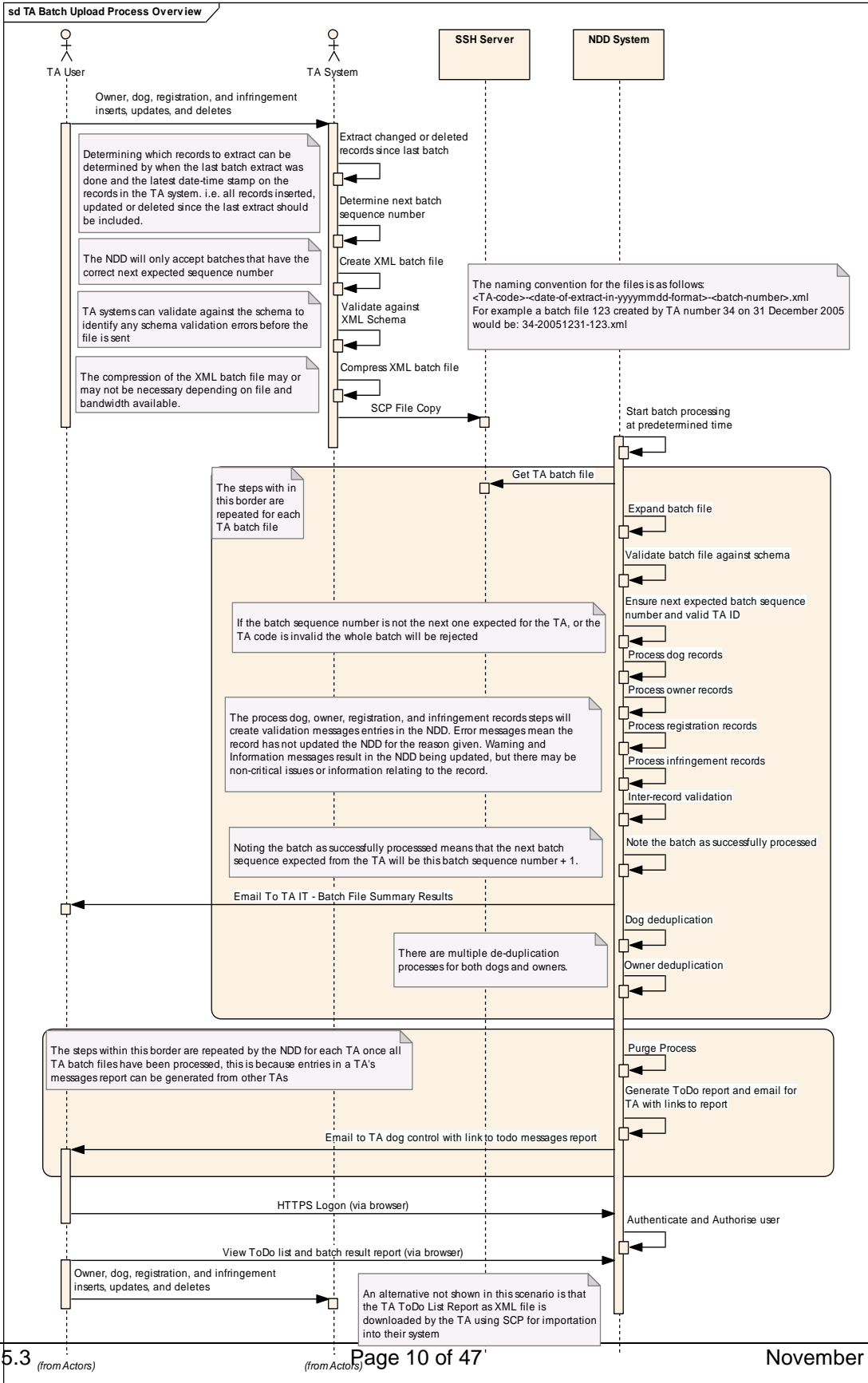
## 2.5 TA to NDD Batch File Process

In general terms the process for the NDD to obtain the dog registration data from the Territorial Authorities will involve the incremental batch transfer of added, amended or deleted dog, owner, registration, and current infringement data from the TA system to the NDD.

The NDD system will insert the new and amended data so as to provide a complete database of all dogs, owners, registrations, and current infringements within New Zealand.

When advised of deletions, the NDD will logically delete records (i.e. they will remain in the database but be marked as deleted). The exception to this will be deleted infringement records received from the TA systems; in this case the infringement record will be physically deleted from the database.

The following sequence diagram shows the major steps in the NDD batch file process.





Each of the steps required of the TA System will be discussed in turn.

#### 2.5.1 *Owner, dog, registration and infringement inserts, updates and deletes*

This represents the normal daily activity that the existing TA Dog Registration systems support.

Despite the fact that all the TA Dog Registry systems contain essentially the same or similar information on dogs, owners, registrations, and infringements, the way this information is stored in the individual systems will vary widely in their internal data structures, development languages, and databases.

The remaining steps will ideally be scheduled by the vendor system to occur automatically after the end of business day.

#### 2.5.2 *Extract changed or deleted records since the last set of batch files*

In order for any existing system to create an XML file containing the inserted and updated records for an upload period (normally each working day) it will need to record when the last set of XML batch files was successfully extracted and then identify insertions, updates, and deletes that occurred after that date and time, and create the next XML file(s) based on those records.

##### 2.5.2.1 General

The approaches described below are only offered as ideas to vendors as to how they could determine which records to include in the XML file. Vendors or TAs may develop other innovative ways to determine which records need to be sent to the NDD.

##### 2.5.2.2 Inserts and updates

A common practice in relational database management systems is to have a date-timestamp attribute for when a record is created, and also a date-timestamp for when a record was last updated.

If the vendor system is based on a relational database and has used the created and updated date-timestamps it should be a relatively straight forward process to identify those records that need to be uploaded in the next XML batch file by only selecting those records with a created or last updated date-timestamp later than the date-timestamp of the last extraction.

It should be noted that for both inserts and updates the complete record needs to be supplied to the NDD. The primary reason for this is to avoid the TA systems having to track record changes at the field level. It also allows the NDD to insert a new record if an update is received for a record it does not have, provided of course that it passes the required validation.

It may be the case that a record update may change a field in the TA system that is not one of the fields that the NDD receives as part of the XML schema. Such a record will be marked as updated and therefore included in the XML batch file. This will not cause an issue for that record on the NDD as a comparison will be done with the values in the existing NDD record and if they are identical the update ignored.

##### 2.5.2.3 Deletes

It is also common practice for deleted records to be only “logically deleted”, that is flagged as deleted, but remain physically in the database. If this technique is used along with the last updated date-timestamp, records deleted since the previous batch was sent



can be identified. If deletions are physical deletions from the system then some form of deleted records journal may be required.

#### 2.5.2.4 Other approaches

An alternative approach would be to have a separate “Send to NDD” flag on the relevant tables and to set this to true via a database trigger whenever one of the NDD relevant fields changes. This approach would avoid sending records which have had updates to fields that the NDD is not concerned with included in a NDD batch.

The “Send to NDD” flag would be used to extract the relevant records for the batch file, and set to false once the batch file is produced. This approach would also avoid marking records unnecessarily as “Send to NDD” when a process globally marks all records as updated.

If the existing TA systems are not relational or do not have record created / updated date-timestamps, and logical deletes, then they may have to use a different technique to identify records that need to be included in a batch. This may involve a journal table or file to capture relevant data changes when they occur in the system.

Otherwise, system suppliers may consider adding the created / updated date-timestamp fields and logical deletes, and/or “Send to NDD” flags to their systems.

#### 2.5.3 Determine the next batch sequence number

As a way to identify missed batches, or batch sequencing issues, the NDD will keep an incrementing batch sequence number for each TA. This will require the vendor systems to also maintain an automatically incrementing batch sequence number that is set correctly in each batch file. Also note that the batch sequence number makes up part of the file name.

If the batch number received from the TA is not the one expected then the whole batch will be rejected with an appropriate error message.

There will be a facility for the National System Administrator to reset a TA’s batch sequence number if required.

Note that batch sequence numbers are only required (and checked) for the daily or “Incremental” batches, and are not checked on batches produced for the purposes of reconciliation (“Full” batches). This is why the schema defines the batch sequence number as optional.

#### 2.5.4 Create XML batch file

This step involves the vendor system transforming the records extracted from their system into one or more XML files that complies with the defined schema. How this is done is totally dependent on the development tools and the support for XML the individual vendor systems have. However the majority of mainstream development environments, including Java and .NET have strong XML capabilities.



The XML batch file created should comply with a standard naming convention defined as follows:

```
<TA-three-digit-numeric-code>--<date-of-extract-in-yyyyymmdd-format>--  
<batch-sequence-number>.xml
```

For example an XML batch file sequence number 123 created by TA 034 on 31 December 2005 would be:

```
034-20051231-123.xml
```

If for processing or other environmental reasons a TA's system is not able to create a single XML file then the period's processing can be delivered as a set of files. But each file must be individually consistent and sequentially numbered.

Note that the above naming convention is also used for a file of type Full (for a reconciliation /synchronisation), in which case the batch number element must contain the word "FULL". (See also section 2.8.5.)

#### 2.5.5 *Validate against XML schema*

This is a step that could be done by the vendor system before sending the file to the NDD so as to identify any schema validation issues with the file before it leaves the TA. This validation will be repeated by the NDD.

At this point the processing required by the vendor system may be completed in that the following steps could be undertaken by a command file calling the required utilities to complete the following tasks. Alternatively the functionality could be built into the vendor dog registration application. The NDD has no view as to which approach to follow, but only requires that the processing occurs.

#### 2.5.6 *Compress XML file*

The compression of the XML file to reduce file transfer times may also be undertaken. Under normal conditions, when the file only contains the records updated, inserted or deleted for that day, the XML file is not expected to be that large. However the NDD reconciliation and resynchronisation processes, which can involve all registrations for a year, would result in very large files which would need to be compressed for efficient transfer.

At this stage in the design it is expected that the NDD system will determine if the file needs to be expanded or not by its file extension, for example `034-20051231-123.xml.zip` or `034-20051231-123.xml.gz` would be expanded to `034-20051231-123.xml`.

#### 2.5.7 *File Transfer mechanism*

Secure Shell (SSH) is used to transfer the files from the TA systems to the NDD. The details of this are described in the NDD Operations Manual, and the document: "TA Interface Connection Guide" distributed by DIA to the suppliers of TA Dog Control Systems.



## 2.6 NDD File Processing and Validation Overview

After decrypting and expanding the XML batch file provided by a TA the validation of the information provided by the TAs will be applied in the series of increasing strictness as shown in the following table:

Validation Step	Description	Outcome if Invalid
1. Ensure XML is "Well Formed"	The XML parser will reject any XML file that is not compliant with the XML standard	The complete batch will be rejected, and the TA notified with the reason.
2. Ensure the XML complies with the NDD Schema	The XML validating parser will check that the XML file complies with the published schema. This includes compliance with compulsory values identified in the schema.	The complete batch will be rejected, and the TA notified with the reason.
3. Ensure the batch level information is valid	The batch level information is checked to ensure that the TA code is valid, and that the batch sequence number is the next one expected.	The complete batch will be rejected, and the TA notified with the reason.
4. Ensure each record is valid.	The NDD will examine each record in turn and validate it against defined criteria. If the record has errors it will not update the NDD, if it is OK or has warnings it will be applied to the NDD.	Individual records that fail validation (i.e. have errors) will be captured in the In-error table. The TA will be notified of the errors.  The TA will also be informed of records that have updated the NDD but have warnings, or information messages.
5. Inter-record validation	Validate that no records are invalid due to their relationships or lack of relationships to other records.	Records that fail validation will not update the NDD. The TA will be notified of the errors.

### 2.6.1 Validating the XML at the TA

The use of XML as a file format has advantages in that validation can be performed before a file is transferred.

The NDD system re-validates the XML for all batches received, and any errors in the XML will cause rejection of a whole batch. Only the first of any XML errors is able to be reported.



Batches which pass the XML validation will be processed through the NDD validations which produce the error message list, and all errors will be reported. That is, once a batch has passed the XML validations, a single error does not result in rejection of the batch.

It should be noted that steps 1 and 2 in the validating process (ensuring the XML is well formed and complies with the schema) can and should be performed before the XML schema even leaves the TA. This would help identify any issues with the XML before the NDD receives it.

To avoid whole batch rejection for a single error, it is strongly recommended that the XML file is automatically validated prior to leaving the TA using a standard XML validating parser (such as SAX for Java or MSXML for .NET) and the schema supplied.

A number of tools are available to assist with manually validating XML, such as XML Spy and XML Shell. Some of these are free.

Note: Not all fields which are “mandatory” under the legislation are defined as compulsory in the XML schema. In general the fields which are compulsory within the schema are those which the NDD system cannot work without, such as the unique record IDs, and fields that would indicate something seriously wrong with the extract if validation fails, such as a month greater than 13.

Where XML has not been used to prevent the omission of fields which are mandatory fields under the legislation, this is because to do so would cause whole batches to be rejected if a TA cannot supply a value for one such field for a record.

Thus fields which are not compulsory for the NDD system integrity, but are mandatory under the legislation may not cause a whole batch to be rejected. They are validated upon loading into the NDD, and will produce errors or warnings if the validation fails. These validations are described in Section 4.



## 2.7 Key XML Schema Design Decisions

The following are the key design decisions relating to the XML schema:

### 2.7.1 XML Schema versioning

The schema versions will be identified using the approach described in the *Request for Comment: Proposal to add a URN Standard to the New Zealand e-GIF* which is a proposal to add a URN - A Unique/Uniform Resource Identifier naming convention and scheme for XML namespaces to the New Zealand E-government Interoperability Framework (e-GIF).

(See <http://www.e-government.govt.nz/docs/urn-200401/index.html> )

For example the `targetNamespace` attribute of the `xs:schema` tag will be:

```
<xs:schema  
targetNamespace="urn:nzl:govt:registering:dogs:registration:3_0"...
```

This proposed standard uses the last section of the namespace to denote the version number.

Also the file name for the schema file will reflect its version number, for example:

```
nz-ndd-tadata-upload-3_0.xsd
```

### 2.7.2 Not enforcing strict record enumeration values and valid ranges in the schema, but in the individual record processing

Although it is possible to have very strict checking in the XML schema for valid enumerations of values and valid ranges, this approach has not been followed for most XML elements. The reasons for this are:

- An individual record that does not comply with an enumerated value or valid value range will not cause the whole batch to be rejected.
- Allows a flexible and configurable approach to validation where the results of a record validation may be an error (the record was not inserted), a warning (the record was inserted, but there may be issues with it), or an information response (the NDD has some information relating to the record that may be of value to the TA).
- The ability to change the severity of a validation rule without having to redistribute a new XML schema, as validation severity will be a configurable setting in the NDD.
- The ability to add or remove valid enumeration values and alter acceptable value ranges without having to redistribute a new version of the XML schema.
- The Focus Group workshops identified that this flexibility was required of the NDD system for those enumerated values where this approach has been applied.

### 2.7.3 No Transaction scope greater than SQL insert, update, or delete.

The overall structure is based around processing individual records at the atomic SQL transaction level of insert, update, and delete. Consideration was given to allowing transactions that spanned multiple atomic operations (i.e. a registration transaction could involve the insertion of an owner, dog and registration record). However, given the heterogeneous nature of the TA systems this approach would have introduced



unnecessary complexity for the vendor systems to implement. The atomic insert, update, or delete approach has the following advantages:

1. Keeps the TA systems and NDD system more loosely coupled than support for larger scoped transactions would
2. Allows the same schema structure to be used for normal updates, database reconciliation, and database synchronization
3. Avoids the complexity of each TA system having to journal the database updates as transactions or deduce from the data what transactions occurred
4. Allows the vendors of TA dog registration systems to base the generation of content for the XML file on record date-timestamps within the database.

#### *2.7.4 Updates to unknown records treated as inserts*

If an update is received from a TA for a record which the NDD does not currently have, the update will be treated as an insert. This approach has the following implications and advantages:

- No matter whether an update or an insert occurs on the TA system all the available attributes for that record need to be provided
- Avoids the TA systems from having to treat creating the insert or update XML entries differently
- Will ensure that valid update records from the TA systems will be accepted by the NDD, even if the NDD has not seen them before
- There may be an information or warning message sent to a TA to advise that a record supplied by them as update was treated as an insert (the generation of this message will be configurable)
- If an update is received for a record and none of the attributes are different from what is currently held in the NDD, then the update will be ignored, and not re-validated.

#### *2.7.5 Batch sequence numbers*

To help identify possible batch upload sequencing issues as soon as they occur, a batch sequence number must be provided with each update batch (but not reconciliation or synchronisation batches), and it must be the next expected sequence number for that TA; otherwise the batch will be rejected. This means:

- Batches sent twice and missing batches will be identified as soon as they occur
- The TA system will need to store an incrementing sequence number
- The NDD will need to store the next expected sequence number for each TA
- If a sequence number needs to be reset on the NDD to get it in sync with the TA sequence number, the TA will need to contact the NDD National System Administrator to do this.

#### *2.7.6 Pictures for classified dogs*

It has been requested that up to two pictures for classified dogs (menacing or dangerous) can be included in the NDD in JPEG format. This means:



- The classified dog JPEG pictures will be included in the XML as base 64 data.
- To keep the size of the XML files reasonable, pictures will only be accepted for classified dogs.
- To keep database file sizes reasonable, and to improve the appearance of screens where an image of a dog is presented, it is suggested that the image size is restricted to around 360 x 360 pixels, or around 20 kb. This may involve some manipulation of the image at the TA prior to sending it to the NDD. Note that even a picture size as small as 120 x 120 pixels still displays satisfactorily.

#### 2.7.7 Use of basic version of NZ XML Name Language

The use of the basic version of the NZ XML Name Language (nz-xNL-basic-3.3.xsd) is in alignment with the e-GIF xNAL Guidelines, and avoids the more complex nz-xNL3.0.xsd schema which has elements that are not relevant to the National Dog Database function.

This includes both the Basic Person Name (`PersonName`) and Basic Organisation Name (`OrganisationName`), so that if TA systems are able to differentiate between individuals or organisations in their existing systems they should use either `PersonName` or `OrganisationName` respectively.

In the case of `PersonName` the NDD is only expecting values in the `FirstName`, `MiddleName`, and `LastName` elements of the basic person name. In the case of `OrganisationName` the NDD is only expecting a value in the `Name` element. Entries in any of the other elements will be ignored.

#### 2.7.8 Use of the NZ XML Address Language

The use of NZ XML Address Language (nz-xAL3.3.xsd) schema for address information is also in alignment with the e-GIF xNAL Guidelines. Due to the heterogeneous nature of the systems interfacing to the NDD, and from review during the focus group workshops, the XML schema uses the unparsed approach to using this standard.

The NDD is expecting up to five `AddressLine` entries in the `AddressLines` element. One of the `AddressLine` entries may have an attribute with `Type="Town"`, and one may have an attribute with `Type="Suburb"` this is not mandatory, but will allow better analysis of address data if it is followed.



## 2.8 Reconciliation / Synchronisation

The same XML schema is used for the reconciliation and the synchronisation process as is used for the batch upload process, the only difference being the batch type indicator. In both cases the complete set of TA *active* records is placed in the XML file. In the case of reconciliation the differences between the TA and NDD are identified and a report showing the differences created. In the synchronisation situation the TA information will replace that held by the NDD if a difference is found between the TA information and the NDD information. A report similar to the reconciliation report will also be produced.

As the size of this file is expected to be quite large, the processing of a reconciliation or synchronisation will be scheduled by the NDD National System Administrator.

### 2.8.1 Purpose of the Reconciliation function

The first principle of the NDD is that it should always mirror the data in the TA local systems. Reconciliation allows a TA to report on any differences between the current state of the NDD and the current state of the TA's records.

It is not expected that this option will be frequently used, however it is recognised that there may be circumstances where the data in the local system and the NDD gets out of synch, for example if a TA has a problem with the incremental extract, or if a TA has been using manual data entry.

A reconciliation report run must be arranged with the National NDD Administrator, as these jobs will have to be manually scheduled. Reconciliations will not be automatically kicked off, and the National System Administrator may optionally schedule these to run over a weekend, depending on the size of the file.

### 2.8.2 Purpose of the Synchronisation process

Synchronisation is provided as an optional second step that may follow the reconciliation. It allows a TA to instruct the NDD system to accept the TA data as correct, and bring the NDD records into line. This function would be used by a TA following the analysis of a reconciliation report.

When looking at the differences reported from a reconciliation, a TA has two options to make corrections. Option 1 is to manually make a change in the local system, that will then be picked up in the next Incremental load and updated to the NDD. Option 2 is to request the National System Administrator to run a synchronisation, which will in effect "accept" the state of the local file as being correct, that is it will apply the differences to the NDD.

The TA may choose to use the Synchronise function if they determine that the differences between the NDD and the local system cannot be resolved by taking specific actions within the local system, perhaps due to the volume of differences, or the difficulty of making individual corrections.



### 2.8.3 *Timing issues when requesting Synchronisation*

If a TA decides to request the administrator to synchronise differences detected in a reconciliation, precautions need to be considered with regard to whether a new extract has to be done before the synchronise step. If there have been no updates to the NDD since the reconciliation report was produced, then the Synchronise can be run using the same file. However if updates have been done since the report was produced (that is if “Incremental” updates have been sent in the meantime, then a new Full extract must be extracted and sent, and another reconciliation report run and re-checked prior to the Synchronise.

### 2.8.4 *An example of the steps in the Reconcile and Synchronise process*

At logical close of business e.g. 6pm;

- Run INCREMENTAL extract and submit to NDD (normal daily extract)
- Run FULL extract and submit to NDD.
- Discontinue INCREMENTAL extracts
- Liaise with NDD National Administrator to schedule Reconciliation
- Examine reconciliation report.
  - If no differences, then reconciliation is successful.
  - If some differences need to be resolved by firstly updating local TA data then cancel this reconciliation process.
  - If all differences can be resolved by synchronisation, then schedule Synchronisation
- Continue INCREMENTAL extracts from the date of the last INCREMENTAL extract

### 2.8.5 *Data sets used in Reconcile and Synchronise*

A Full extract is a snapshot in time and reflects all the current data at the TA.

It is important to make sure that only the active or current set of data is included in a Full extract file. (See section 3.2, Rule F2) In reconciliation, the incoming data set is compared with the corresponding set of current data in the NDD. Synchronisation will replace or insert all records in the Full file.

Full extracts can be transferred to the NDD using the same mechanism as the incremental batch file transfer, however these will not be automatically processed. Instead an email will advise the National System Administrator that the file has been received, and that a request to schedule a reconciliation or synchronisation is to be expected.

The TA must notify the National System Administrator what they want to do with the Full file, i.e. whether they want to run a reconcile or a synchronise.

Because of the expected size of these reconcile and synchronise files they may be supplied on a CD.

A Full file is differentiated by the header file type element value “full”, and in addition, the sequence number replaced by the word FULL.

The naming convention is as for a batch file:



```
<TA-three-digit-numeric-code>-<date-of-extract-in-yyyyymmdd-format>-  
<sequence-number>.xml
```

where a full extract XML file created by TA 034 on 31 December 2005 would be:

```
034-20051231-FULL.xml
```

## 2.9 Compressing XML Files for Transfer

One point in favour of CSV is that the batch file size would be smaller if the information was presented as CSV rather than XML. It is felt that if file size does prove to be an issue with the use of the XML format, then it would be better to compress an XML formatted document using a standard compression algorithm and transfer the compressed file which would then be expanded at the NDD, rather than introduce CSV to address this issue.



### 3. Extract Rules and Considerations

The NDD relies on the TA dog registration systems extracting the expected data and delivering it in compliance with the XML schema. There are two types of extract that will need to be produced by the TA systems, which are:

- “Full”, a file used for the initial load of data, or for reconciliation and
- “Incremental”, a file used for the daily extract.

Both extracts have a set of common data extract rules plus another set each of unique extract rules. Section 3 details these rules and the considerations concerning them. The common rules are identified by a ‘C’ prefix, the rules that apply to Full files only are prefixed by an F, and the Incremental rules by an I prefix.

**Note:** *The XML schema defines element data-types, structure, format, and multiplicity. Attribute optionality, expected values, and error/warning levels are described in section 4, Data Validation.*

*Therefore the rules expressed here are in addition to those expressed explicitly within the XML schema or section 4.*

#### 3.1 Common Extract Rules and Considerations

This section details the rules that are common to both Full and Incremental files.

***Rule C1: Unique TA keys for dog, owner, and infringement records must be maintained over time.***

**Description:** The compulsory TA record identification elements `taDogId`, `taOwnerId`, and `infringementNumber` must be kept consistent within a TA for individual dogs, owner and infringement records over time.

**Rationale:** For the NDD to uniquely identify a record it requires a two part key, the first part is the TA code, and the second part is the unique ID used by the TA for that record.

The NDD relies on this remaining consistent over time to support NDD functionality such as linking dog and owner records across TAs and identifying trends over time.

**Considerations:** The TA systems will need to keep owner, dog, and infringement ID's the same for individual owners, dogs, and infringements over registration years. The registration ID can change from year to year.

If a TA changes from one system to another the dog, owner, and infringement id's from the old system will need to be used in the next system.

**Rule C2: Complete record information must be provided for Both INSERT and UPDATE Operations**

*Description:* For records that have their `recordType` set to `INSERT` or `UPDATE` the complete set of available attributes for the record must be sent.

*Rationale:* The NDD may receive an update for a record which, for whatever reason, it may not currently have a record for. By providing the complete set of record attributes when an update occurs, the NDD can treat the update as an insert, and this avoid the issues of trying to resolve attempted updates on records the NDD does not have.

*Considerations:* When creating the XML extract file the TA system must include all available attributes for that record.

**Rule C3: Referential Integrity for Registrations and Infringements**

*Description:* Referential integrity for registration and infringement records must exist. Specifically, when a registration `recordType` is `INSERT` or `UPDATE` the `taDogId` and `taOwnerId` it holds as foreign keys must correspond to existing records in the NDD for that TA.

For infringement records the `taOwnerId` foreign key must correspond to an existing owner record for that TA.

If no corresponding valid owner or dog records exist within the NDD for the TA, or they are not provided within the same batch as the registration or infringement records, then the registration or infringement record will be rejected.

*Rationale:* Having a registration record in the NDD without a corresponding owner or dog, or an infringement without a corresponding owner would break the referential integrity of the NDD.

The NDD processes the record in the order dogs, owners, registrations, and then infringements. This allows the dog and owner records relating to a registration to be inserted in the same batch, and an infringement and associated owner to be inserted in the same batch, without the referential integrity rules being broken.

*Considerations:* If the TA system is not confident that the associated owner or dog records exist in the NDD for a registration or infringement record insertion or update, then they could include the dog and/or owner records in the same batch without any impact on the NDD. This is because if an existing identical record is attempted to be inserted into the NDD it is ignored.

Another consideration is if the TA thought the associated dog and/or owner record did exist in the NDD when in fact it didn't. An error will be reported to the TA for the registration or infringement insertion that failed. To fix this situation the TA will need to ensure the missing dog



and/or owner records are included in the next batch.

**Note:** an infringement may refer to a dog, but the reference is optional.

### 3.2 Full Extract Rules and Considerations

The following extract rules apply to the Full batch files produced by the TAs and are in addition to the common extract rules defined in section 3.1.

The Full extract is used both to initially populate the NDD with TA information and to reconcile what is in the NDD with the information held by a TA. The data extraction rules are the same for both these situations.

#### ***Rule F1: The Header Information Must be Correct for Full***

**Description:** The NDD recognises that a batch is a load or reconciliation extract by a value of "FULL" in the `filetype` element of the file header.

In a Full extract, the `sequenceNumber` element of the header is ignored.

**Rationale:** As the same schema is used for Full extracts and Incremental extracts there must be a way to differentiate within the schema what the intention of the provided XML file is.

The concept of a sequence number does not make sense for an initial load or reconciliation situation.

**Considerations:** The TA system must ensure the header information in the XML file is correctly set for the Full operation.

#### ***Rule F2: The Full "Current" Record Sets Must be Provided***

**Description:** For a Full extract the complete *current* record sets of dogs, owners, registrations and infringements must be provided. "Current" is defined for each of the record types as follows:

**Dogs** – All dogs with a Status of "currently in district" plus all dogs associated with an infringement regardless of their Status.

**Registrations** – The most recent registration for each dog identified above.

**Owners** – All owners that are identified in the registrations above, plus any owners who have current infringements who are not identified via a registration record, plus any individuals (owners) with a classification regardless of whether they own a dog or not.

**Infringements** – All unexpired infringements that have been ordered or paid (ie: within 30 months of the offence date).

**Note:** one implication of this rule is that if an unexpired infringement refers to a dog, that dog should be included even if out-of-district or deactivated, as should the dog's most recent registration, even if it is



not current.

**Rationale:** The initial load / reconciliation process is aimed at loading or comparing the current NDD data for a TA with the TA's current data. For this to work a clear and precise definition of "current" data must be defined and any comparison (in the case of reconciliation) based on that definition from both the TA and NDD systems.

**Considerations:** The records in a Full batch file must have referential integrity within the set of records provided, i.e. the corresponding owner and dog records must be provided for each registration and infringement record.

### **Rule F3: The Only Valid Operations Values are Insert or Update**

**Description:** When doing an initial load or reconciliation the only valid `recordType` values are `INSERT` or `UPDATE`. If a `recordType` of `DELETE` is received for a record the Full batch will be rejected.

**Rationale:** In both the initial load and reconciliation situations any existing data in the NDD for the TA should either not be there so cannot be deleted (initial load) or should already exist in the NDD if the data is in agreement (reconciliation).

Any records existing in the NDD that are not provided by the TA during reconciliation will be reported (and deleted if synchronisation option of reconciliation undertaken).

**Considerations:** The TA system must not include `recordTypes` of `DELETE` in any Full batch.

## **3.3 Incremental Extract Rules and Considerations**

The following extract rules apply to the incremental batches produced by the TAs and are in addition to the common extract rules defined in section 3.1.

The incremental extract is used to keep the NDD up to date with TA information on a day to day basis once the data has established a common baseline through either the initial load or reconciliation with synchronisation.

### **Rule I1: The Header Information Must be Correct for Incremental Extract**

**Description:** The NDD recognises that a batch is an incremental extract by a value of "INCR" (incremental) in the `filetype` element of the file header.

In Incremental files the `sequenceNumber` element of the header must be the next expected incremental sequence number.



*Rationale:* As the same schema is used for initial / reconciliation extracts and incremental extracts there must be a way to differentiate within the schema what the intention of the provided XML file is.

The sequence number is used to identify any instances of missing TA incremental extract files and avoid incremental extract files being processed twice. The NDD will increment its TA specific next expected TA batch sequence number once it has successfully processed the current batch file for the TA.

*Considerations:* The TA system must ensure the header information in the XML file is correctly set for the incremental extract operation.

***Rule 12: Incremental Batch to only Contain Those Records Inserted, Updated or Deleted Since the Previous Batch, Except for Those Excluded by Rule 13***

*Description:* The incremental batch should only contain those dog, owner, registration or infringement records that have been inserted, updated or deleted since the previous incremental batch was supplied.

*Rationale:* Once the NDD and TA have a common baseline of data established via an initial load or reconciliation with synchronisation, all the NDD needs to be notified of are the incremental changes to that data from that point forward.

Sending just the changes, instead of the complete set of records ensures that the batch files size and processing times are kept within reasonable limits.

*Considerations:* The TA must establish a mechanism within their own systems of identifying those records that have been inserted, updated, or deleted since the time of the last extract. Some options for doing this are discussed in section 2.5.2 including:

- A “sendToNDD” flag on the relevant records that is set to true for a record via a database trigger when a field of interest to the NDD is updated or a new record inserted. The flag is set to false for once it is confirmed that the incremental batch was successfully processed.
- The use of update date-time stamps field on the records to identify those records that changed within a batch period.
- Keeping a separate journal to record the relevant events as they occur during the period and using the journal to create the incremental XML batch.

***Rule 13: Inserts, Updates and Deletes Resulting from TA Systems House Keeping Activities Must Not be Included in an Incremental Batch Extract***

*Description:* Some local TA system house keeping activities, such as data archiving, purging, restoring, or global changes to record fields that the NDD does not receive, may result in a large number of insert, updates, or deletions in the TA’s system. Inserts, updates and deletes resulting from these types of system house keeping operations must not be included in the incremental extract.

*Rationale:* The NDD expects to receive `recordTypes` of `INSERT` if a genuine new record of that type has been added to the TA’s system, not as a result of a database being restored from a backup.

The NDD expects to receive `recordTypes` of `UPDATE` if an existing record has had a field, which the NDD stores, value changed. The NDD does not want records which have been updated due to global changes across all records on field that are not relevant to the NDD



data.

The NDD expects to receive `recordTypes` of DELETE if a record has been sent to the NDD in error and needs to be removed, or where local records have been merged (for example on local de-duplication).

*Considerations:* The TA systems must differentiate between genuine insert, update and deletes operations, and those resulting from system house keeping activities.

***Rule 14: Situations When Records Not Included in the Full Extract Need to be Included in an Incremental Extract***

*Description:* There are two known situations where records that were excluded from the initial load or a subsequent reconciliation with synchronise will need to be inserted in an incremental load extract. These situations are:

1. A dog that was identified as having died in the TA system is subsequently discovered to be alive and is being registered. In such a case the dog as well as the registration record would need to be provided.
2. An owner who was excluded from the initial load due to not having any currently registered dogs or current infringements, has an infringement raised against him. In such a case the incremental upload will need to include the owner as well as the infringement record.

*Rationale:* There are circumstances when records that are excluded from the initial load or a subsequent reconciliation with synchronise because they are not current, for example dogs that are marked as dead, or owners who have no current registrations or infringements, but may still exist in the local TA systems.

When these records become current through a change of status (e.g. dog status changes from died to active), or a new event (e.g. a non-current owner being issued with an infringement), they will need to be included in the incremental batch that inserts the associated registration or infringement record.

*Considerations:* The degree to which this will occur is a function of how much “non-current” data is kept and for how long on the existing TA systems and the number of times such events actually occur.

**Rule 15: Registrations Updates Treated as inserts**

*Description:* If registration record is received with a `recordType` of UPDATE it will be treated as an INSERT.

*Rationale:* Because there is no reliable primary key for registration (registration year and number being optional and subject to change in some systems) the NDD cannot apply updates or deletes to registrations. Accordingly, whenever a registration record is received it will be treated as superseding the previous one for the dog (regardless of the specified `recordType`). The history of previous registrations will be kept and displayed in the NDD.

*Considerations:* This rule does not really impact the TA extract process, but is included here to make TAs aware of it.

*Implications* Any insert or update of a registration supersedes the previous registration record, and becomes the “latest” registration.

To *add* a second or subsequent owner for a dog, a new registration record containing all the owners must be sent. Once processed, all and only those owners on the latest registration are shown as current.

To *replace* the owner of a dog, a new registration with only the new owner must be sent. No “delete” record for the previous owner is to be sent, as a registration cannot be deleted.



## 4. Data Validation

### 4.1 Data validation principles

Preliminary data validation is done at XML level to eliminate batches which are missing unique IDs or other fields determined as compulsory for the system integrity (see section 2.6).

The NDD then validates TA data as it attempts to load it into the NDD. Fields are validated individually and records are validated for data integrity, according to the rules outlined in Section 3.1, Rule C3.

There are two categories of message which can result from the NDD validations:

- Errors
- Warnings

(A category of “Information” has also been created, but no such messages have been defined for use in validations to date.)

#### Errors

An error will cause a record to be rejected. Errors can be caused by:

- a field that is defined as mandatory under the legislation is missing, or
- the value submitted for an optional or mandatory field requiring a standard list (See Appendix 1) contains an invalid value. (Note that if no value is supplied for an optional field that has a standard list, no validation is attempted, and this is not considered an error).

#### Warnings

Some validations will generate less severe errors, denoted as warnings. A warning will allow the record to continue to be processed and be accepted into the NDD. The severity of a message has been made configurable, so that in future it will be possible to raise the level of a warning to become an error. Initially some validations have been set up as warnings to allow for the fact that some TAs may initially not be able to comply with the mandatory requirements, and to allow data to be loaded. These may later be changed to errors.

Warnings as at time of initial supply of the system are:

- Owner Date of Birth not supplied
- Owner first name not supplied (allows that companies and people that have changed their name by deed poll may not have a first name)
- Dog year of birth not supplied (allows that this is not always known by the owner).
- Dog registration year must not be later than current calendar year.



## 4.2 Owner Entity

### 4.2.1 Field level validations

Field Name	Validation Optionality	Standard Values	Validation Outcome	Validated in Schema
TA Owner Id	Mandatory	Unique within the TA	Error	
First Name	Mandatory for (I)ndividual		Warning	
Middle Name(s)	Optional for individual			
Surname	Mandatory for (I)ndividual		Error	
Date of Birth (DOB)	Mandatory for (I)ndividual	Valid Date	Warning	Yes
Address 1	Mandatory		Error	
Business Phone	Optional			
Home Phone	Optional			
Cell Phone	Optional			
Address 2	Optional			
Organisation Name	Mandatory for (O)rganisation		Error	
Classification	Optional	(P)robationary or (D)isqualified	Error	
Classification Section	Optional	Must exist in Standard List if Status is (P) or (D)	Error	
Classification Expiry Date	Optional	Must exist if Status is (P) or (D)	Error	Yes
Email Address	Optional			
Protected Status	Mandatory	Yes or No. If blank, defaults to N in schema	Error	Yes
Safety Alert	Mandatory	Yes or No. If blank, defaults to N in schema	Error	Yes
Other TA Owner(s) TA Code and TA Owner Id	Optional	Must already exist in NDD.	Error	



## 4.2.2 Entity Level action

Context	NDD Action	Additional Validation	Validation Outcome
Insert / Update	Insert if does not exist  Update if already exists	If registration or infringement is not part of current batch load  None	Error
Delete	Logically delete the owner record  Leave related Registrations records. (This may result in a dog without an owner if the TA does not provide the new owner – accepted as an implementation limitation. The dog will not be visible in the search as it requires a dog/owner pair.)	If related Infringement exists for this owner  If Owner does not exist	Error  Information

## 4.2.3 Notes on Owner

An “owner” is a dog owner in terms of the registration process, and can also be someone who is not associated with a dog registration, if an infringement has been issued against them.

An owner may be an individual person, or an organisation. If an owner is an organisation, there will be no first name, middle name, surname or DOB.

Some TA systems may need to be changed to differentiate between an individual and an organisation. In the interim they may send through all details as individuals and the NDD will issue warnings regarding the missing information. In cases where they can differentiate they should send the information as an organisation.

**Address truncation.** Note that if an address line longer than 80 characters is supplied (as is allowed by the schema) only the first 80 characters will be stored in the database.

## 4.3 Dog Entity

## 4.3.1 Field level validations

Field Name	Validation Optionality	Standard Values	Validation Outcome	Validated in Schema
TA Dog Id	Mandatory	Unique within the TA	Error	
Kept at Address	Mandatory		Error	
Name	Optional			
Breed 1	Mandatory	Must be from Standard List	Error	
Breed 2	Optional	Standard List if present	Error	



Field Name	Validation Optionality	Standard Values	Validation Outcome	Validated in Schema
Colour 1	Mandatory	Must be from Standard List	Error	
Colour 2	Optional	Standard List if present	Error	
Year of birth	Mandatory		Warning	
Month of birth	Optional	1 to 12 if present	Error	
Gender	Mandatory	Must be either (M)ale or (F)emale	Error (Batch rejection)	Yes
De-Sexed	Mandatory	(Y)es or (N)o. If blank, defaults to N in schema	Error	Yes
Distinguishing Marks	Optional			
Permanent Identification	Optional			
Standard Microchip Number (isoChipNumber)	Optional	Unique within the TA	Error	
Other Microchip Number	Optional			
Date of Order for Destruction	Optional	Valid Date that is NOT in the future	Error	Yes
Classification Type	Optional	Must be either (D)angerous or (M)enacing if present	Error	
Classification Section	Optional	Must be from Standard List if present	Error	
Image 1	Optional	Only for classified dogs	Error	Yes
Image 2	Optional	Only for classified dogs	Error	Yes
Status	Mandatory	Must be from Standard List	Error	
Deactivated Reason	Mandatory only if status is Deactivated	Must be from Standard List only if Status is (D)	Error	
Dog Alert	Mandatory	(Y)es or (N)o. If blank, defaults to N	Error	Yes
Other TA Dog Registration(s) TA Code Registration Year Registration Number	Optional	If supplied, must already exist in NDD.	Warning	

#### 4.3.2 Entity Level actions

Context	NDD Action	Additional Validation	Validation Outcome
Insert / Update	<ul style="list-style-type: none"> <li>Insert if does not exist</li> </ul>	If registration is not part of current batch load	Error
	<ul style="list-style-type: none"> <li>Update if already exists</li> </ul>	None	
Delete	<ul style="list-style-type: none"> <li>Logically delete the dog and all related Registrations</li> </ul>	If related Infringement exists for this dog	Error
		If Dog does not exist	Information

#### 4.3.3 Notes on Dog:

“Other TA Dog Registration” fields were added to the Dog Entity to help track the movement of dogs between TAs. They are optional, but if maintained in the local TA database, will result in the NDD automatically linking related TA Dog details. This information will then be immediately traceable when searching the database for dog and owner history.

### 4.4 Registration Entity

#### 4.4.1 Field level validations

Field Name	Validation Optionality	Standard Values	Validation Outcome	Validated in Schema
Dog Registration: RegistrationYear Registration Number	Optional	Reg Year and Reg Number combination must be unique within the latest TA Dog Registrations.	Information	
		Registration Year must not be later than the current calendar Year	Warning	
TA Dog Id	Mandatory	Must already exist in NDD.	Error (Batch rejection)	Yes
TA Owner Id(s)	Mandatory (Will be a list, where there are multiple owners.)	Must already exist in NDD	Error (Batch rejection)	Yes

#### 4.4.2 Entity level actions

Context	NDD Action	Additional Validation	Validation Outcome
Insert / Update / Delete	Insert	None	



#### 4.4.3 Notes on Registration

##### (1) Unregistered Dogs:

On Monday 3 July 2006 TAs were advised by the Department of Internal Affairs that the National Dog Database was now able to allow the uploading of information relating to unregistered dogs. There has been some subsequent confusion over the definition of an "unregistered" dog and this is addressed below.

In terms of the Dog Control Act 1996 an "unregistered" dog applies to all dogs that are not currently registered, i.e. they have not been issued with a registration tag for the current registration year.

This covers both of the following situations:

- **Previously Registered** - Dogs that were registered in a PREVIOUS year but the owner has not reregistered them for this year. This is very common around reregistration time, i.e. 1st July each year.
- **Never Registered** - Dogs that you know about in your TA but the owner has NEVER registered them

##### **Previously Registered**

The NDD has always accepted details for Previously Registered dogs along with their last Registration Year and Number.

By including the last registration Year and Number the NDD search function can be used to locate the animals' details if it is picked up by another TA and is still wearing its tag.

##### **Never Registered**

Prior to July 3rd the NDD rejected details of Never Registered dogs. With the change in legislation you can now submit details of Never Registered dogs. In this case the registration year and number are not relevant and the NDD extract file should exclude the <registrationDetail> section from the <registration> record in the XML.

##### (2) Registration Year Format:

Existing TA systems record registration year in 3 different formats. For the year commencing 1 July 2006 they record registration year as either;

- 2006,
- 2007,
- 0607,
- 06/07.

The NDD has standardised on one format – the calendar year that the registration period began. In the example above for 1 July 2006 the NDD expects the registration year of 2006.



### (3) Examples of Registration Record XML:

Below are further examples showing how to create various types of registration records.

For “Currently Registered” dogs the NDD extract file requires the calendar year that the registration period began in.

See the XML example below for a dog registered with Tag 275, for the registration period that began on 1 July 2006:

```
<registration>
  <taDogId>42601</taDogId>
  <registrationDetail>
    <registrationYear>2006</registrationYear>
    <registrationNumber>275</registrationNumber>
  </registrationDetail>
  <taOwnerId>56576</taOwnerId>
  <recordType>INSERT</recordType>
</registration>
```

For “Previously Registered” dogs the NDD extract file requires the calendar year that the last recorded registration period began in.

The XML example below is for a Previously Registered dog whose last Registration Tag was 1167, issued in the registration year that began on 1 July 2005:

```
<registration>
  <taDogId>53488</taDogId>
  <registrationDetail>
    <registrationYear>2005</registrationYear>
    <registrationNumber>1167</registrationNumber>
  </registrationDetail>
  <taOwnerId>67323</taOwnerId>
  <recordType>INSERT</recordType>
</registration>
```

The XML example below is for a Previously Registered dog whose last Registration Tag was 487, issued in the registration year that began on 1 July 2002:

```
<registration>
  <taDogId>66876</taDogId>
  <registrationDetail>
    <registrationYear>2002</registrationYear>
    <registrationNumber>487</registrationNumber>
  </registrationDetail>
  <taOwnerId>27999</taOwnerId>
  <recordType>INSERT</recordType>
```

</registration>

For “Never Registered” dogs, i.e. dogs that your TA has never issued a Registration Tag to, but you know are in your district, the Registration Year and Number are not relevant.

The XML should exclude the registrationDetail section (refer to the example)

```
<registration>
  <taDogId>87736</taDogId>
  <taOwnerId>4555</taOwnerId>
  <recordType>INSERT</recordType>
</registration>
```

## 4.5 Infringement Entity

### 4.5.1 Field level validation

Field Name	Validation Optionality	Standard Values	Validation Outcome	Validated in Schema
TA Infringement Number	Mandatory	Unique within the TA	Error (Batch rejection)	
Infringement Date (dateOrderedOrPaid)	Mandatory	Valid Date NOT in the future	Error	Yes
Infringement Section	Mandatory	Standard List Schedule 1 of Act	Error	
Offence DateTime	Mandatory	Valid Date/Time: - NOT in the future - NOT more than 30 months old	Error	Yes
TA Owner Id	Mandatory	Must already exist in NDD.	Error (Batch rejection)	
TA Dog Id	Optional	Must already exist in NDD.	Error	

### 4.5.2 Entity level action

Context	NDD Action	Additional Validation	Validation Outcome
Insert / Update	Insert if does not exist  Update if already exists	None	
Delete	Physically delete the Infringement record Leave related Owner and Dog records.	If Infringement does not exist	Information



#### 4.5.3 Notes on Infringement

There is no definition of “Infringement” under the act, but Section 66 identifies the infringement process, and Schedule 1 lists them.

For the purposes of the NDD this is restricted to Dog Infringements that have been:

- Paid (in full)
- Lodged with the court
- Ordered by the court.

## Appendix 1: Standard Lists

This section gives the codes and descriptions for the standard lists identified in the XML schema documentation

Please note that codes are case-sensitive, and must be specified exactly as defined in the following lists.

Please also note, for the removal of doubt, that the 'Master' copy of the standard lists below are those available from within the NDD Website, via navigating to:

1. Standard Lists, from the Menu Options
2. Documents >Static Lists, from the Menu Options

### 1. Owner Classification Section

If an owner is classified this is the section or provision under which the classification was made.

Code	Description
21(1)_DCA	Probationary owner under section 21(1) – offence under the Dog Control Act
21(1)_Other_Acts	Probationary owner under section 21(1) – offence under other acts
21(2)	Probationary owner under section 21(2) - 3 or more infringements
25(1)(a)	Disqualified under section 25(1)(a) – 3 or more infringements
25(1)(b)	Disqualified under section 25(1)(b) – offence under the Dog Control Act
25(1)(c)	Disqualified under section 25(1)(c) – offence under other acts

### 2. Dog Classification Section

The section under which a dog was classified as Menacing or Dangerous under the Dog Control Act.

Code	Description
33A(1)(b)(i)	Menacing under section 33A(1)(b)(i) – observed or reported behaviour of dog
33A(1)(b)(ii)	Menacing under section 33A(1)(b)(ii) – characteristics typically associated with dog's breed/type
33C(1)	Menacing under section 33C(1) – dog of breed/type in schedule 4.
31(1)(a)	Dangerous under section 31(1)(a) – rushing offence under 57A(2)
31(1)(b)	Dangerous under section 31(1)(b) – threat based on sworn evidence
31(1)(c)	Dangerous under section 31(1)(c) – owner admits in writing

**3. Dog Breed**

Code	Description
ACAT	Cattle, Australian
ACOC	Spaniel, American Cocker
AFFE	Affenpinscher
AFGM	Hound, Afghan
AFHD	Hound, American Fox
AHWS	Spaniel, American Water
AIRE	Terrier, Airedale
AKIT	Akita
AMAL	Alaskan Malamute
ANAT	Shepherd, Anatolian
ASTA	Terrier, American Staffordshire
ASTE	Terrier, Australian Silky
ATER	Terrier, Australian
AUST	Shepherd, Australian
BAJI	Basenji
BASS	Hound, Basset
BBUL	Bulldog
BDCO	Collie, Border
BDTE	Terrier, Border
BEAG	Beagle
BEDT	Terrier, Bedlington
BERG	Bergamasco Shepherd
BERN	Bernese Mountain
BFDB	Basset Fauve de Bretagne
BFIL	Brazilian Fila
BICH	Bichon Frise
BLOO	Bloodhound
BOLO	Bolognese
BORZ	Borzoi
BOST	Terrier, Boston
BOUV	Bouvier des Flandres
BOXE	Boxer
BRAC	Bracco Italiano
BRIA	Briard
BRSP	Brittany
BTER	Terrier, Black Russian
BULA	Bulldog, American

Code	Description
BUMA	Mastiff, Bull
BUTE	Terrier, Bull
BUTM	Terrier, Bull Miniature
CALE	Catahoula Leopard
CANA	Canaan
CCRE	Retriever, Curly-Coated
CEAS	Shepherd, Central Asian
CESK	Canadian Eskimo Dog
CEST	Terrier, Cesky
CFOU	Cesky Fousek
CHEA	Retriever, Chesapeake Bay
CHIL	Chihuahua, Long Coat
CHIN	Chinese Crested
CHIS	Chihuahua, Smooth Coat
CHOW	Chow Chow
CKCS	Spaniel, Cavalier King Charles
CLUM	Spaniel, Clumber
COCK	Spaniel, Cocker
COLB	Collie, Bearded
COLR	Collie, Rough
COLS	Collie, Smooth
COOB	Coonhound, Bluetick
COOE	Coonhound, English
COOP	Coonhound, Plott
COOR	Coonhound, Redbone
COOT	Coonhound, Black and Tan
CORC	Corgi, Welsh Cardigan
CORP	Corgi, Welsh Pembroke
CRNT	Terrier, Cairn
CRXX	Cross
DADT	Terrier, Dandie Dinmont
DALM	Dalmatian
DEER	Deerhound
DING	Dingo
DOBE	Dobermann
DODB	Dogue de Bordeaux
DOGO	Dogo Argentino
ELKH	Elkhound, Norwegian
EPOI	Pointer, English
ESET	Setter, English

Code	Description
ESSP	Spaniel, English Springer
ESTR	Estrela Mountain Dog
ETTE	Terrier, English Toy (Black & Tan)
EURA	Eurasier
FBUL	Bulldog, French
FCRE	Retriever, Flat-Coated
FISP	Spitz, Finnish
FLAP	Lapphund, Finnish
FOXH	Foxhound
FSPA	Spaniel, Field
FTSM	Terrier, Fox (Smooth)
FTWR	Terrier, Fox (Wire)
GBSH	Shepherd, Belgian (Groenendael)
GDAN	Great Dane
GERP	Pinscher, German
GERS	Shepherd, German
GESK	Spitz, German (Klein)
GESP	Spitz, German (Mittel)
GITE	Terrier, Glen of Imaal
GOLD	Retriever, Golden
GORD	Setter, Gordon
GREY	Greyhound
GRIB	Griffon, Beauceron
GRIF	Griffon, Bruxellois
GSCH	Schnauzer, Giant
GSHP	Pointer, German Short Haired
GWHP	Pointer, German Wire Haired
HAHA	Hamiltonstovare
HARR	Harrier
HAVA	Havanese
HEAD	Heading
HPUL	Puli, Hungarian
HUNT	Huntaway
HVIZ	Vizsla, Hungarian
ICEL	Icelandic Sheepdog
IHOU	Hound, Ibizan
ISER	Setter, Irish Red & White
ISET	Setter, Irish
ITER	Terrier, Irish
ITGR	Greyhound, Italian

Code	Description
ITSP	Spinone, Italian
IWHD	Wolfhound, Irish
IWSP	Spaniel, Irish Water
JACK	Terrier, Jack Russell
JCHI	Japanese Chin
JIKO	Korea Jindo
JSPI	Spitz, Japanese
JTOS	Tosa, Japanese
KANG	Kangal
KCSP	Spaniel, King Charles
KEES	Keeshond
KELP	Australian Kelpie
KERR	Terrier, Kerry Blue
KOMO	Komondor
KUVA	Kuvasz
LABR	Retriever, Labrador
LAGO	Lagotto
LAKE	Terrier, Lakeland
LBSH	Shepherd, Belgian (Laekenois)
LEON	Leonberger
LHAS	Lhasa Apso
LOWC	Lowchen
LURC	Lurcher
MALT	Maltese
MANC	Terrier, Manchester
MARA	Sheepdog, Maremma
MAST	Mastiff
MBSH	Shepherd, Belgian (Malinois)
MLHD	Dachshund, Miniature Long Haired
MPIN	Pinscher, Miniature
MPOO	Poodle, Miniature
MSCH	Schnauzer, Miniature
MSHD	Dachshund, Miniature Smooth Haired
MUNS	Munsterlander
MWHD	Dachshund, Miniature Wire Haired
NBUH	Norwegian Buhund
NEMA	Mastiff, Neapolitan
NEWF	Newfoundland
NOTE	Terrier, Norwich
NSDT	Retriever, Nova Scotia Duck Tolling

Code	Description
NTER	Terrier, Norfolk
OESD	Sheepdog, Old English
OTTO	Hound, Otter
PAPI	Papillon
PEBA	Griffon, Petit Basset
PEKE	Pekingese
PERO	Perro sin pelo del Peru
PHAR	Hound, Pharaoh
PITB	Terrier, American Pit Bull
PJAC	Terrier, Parson Jack Russell
PLSH	Sheepdog, Polish Lowland
PMAS	Mastiff, Pyrenean
POME	Pomeranian
PORW	Portuguese Water
PRES	Perro de Presa Canario
PUGG	Pug
PUMI	Pumi
PYRE	Pyrenean Mountain
RIDG	Rhodesian Ridgeback
ROTT	Rottweiler
SALU	Saluki
SAMO	Samoyed
SBTE	Terrier, Staffordshire Bull
SCHI	Schipperke
SCHN	Schnauzer
SCOT	Terrier, Scottish
SEAL	Terrier, Sealyham
SHAR	Shar Pei
SHBA	Shiba Inu
SHIH	Shih Tzu
SHSH	Sheepdog, Shetland
SIBE	Siberian Husky
SKYE	Terrier, Skye
SLAP	Lapphund, Swedish
SLHD	Dachshund, Standard Long Haired
SLOU	Sloughi
SMIT	Smithfield
SOFT	Terrier, Soft Coated Wheaten
SPAW	Spanish Water
SPOO	Poodle, Standard

Code	Description
SSHD	Dachshund, Standard Smooth Haired
SSPA	Spaniel, Sussex
STBN	Saint Bernard
STCA	Cattle, Stumpy-Tail
SVAL	Swedish Vallhund
SWHD	Dachshund, Standard Wire Haired
TBSH	Shepherd, Belgian (Tervueren)
TCOO	Coonhound, Tree Walker
TIBS	Spaniel, Tibetan
TIBT	Terrier, Tibetan
TMAS	Mastiff, Tibetan
TPOO	Poodle, Toy
TTER	Terrier, Tenterfield
WEIM	Weimaraner
WEST	Terrier, West Highland White
WHIP	Whippet
WSSP	Spaniel, Welsh Springer
WTER	Terrier, Welsh
XOLO	Xoloitzquintle
YORK	Terrier, Yorkshire

#### 4. Dog Colour

Code	Description
BDL	Brindle
BLK	Black
BLU	Blue
BRO	Brown
GLD	Gold
GRY	Grey
ONG	Orange
RED	Red
TAN	Tan
TRI	Tri-colour
WHI	White

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**5. Dog Status**

Code	Description
I	Currently In District. Currently registered in the TA or previously registered in the TA and awaiting re-registration, i.e. new registration year.
O	Out of District. Subsequently registered in another TA.
D	Deactivated. No longer active in this TA and should not appear in any other (unless lost or stolen). Refer to <u>Deactivated Reason</u>

**6. Dog Deactivated Reason**

Code	Description
GNA	Gone No Address
EXP	Exported
DES	Destroyed
STN	Stolen
LST	Lost
DED	Dead

**7. Infringement Section**

Code	Description
18	Section 18 – wilful obstruction
19(2)	Section 19(2) – failure to supply or giving false information
19A(2)	Section 19A(2) – failure to supply or giving false information about dog
20(5)	Section 20(5) – failure to comply with bylaw
23A(2)	Section 23A(2) – failure to undertake dog owner education programme or dog obedience course (or both)
24	Section 24 – failure to comply with obligations of probationary owner
28(5)	Section 28(5) – failure to comply with disqualification
32(2)	Section 32(2) – failure to comply with classification of dangerous dog
32(4)	Section 32(4) – fraudulent sale or transfer of dangerous dog
33E(2)	Section 33E(2) - failure to comply with classification of menacing dog
33EC(1)	Section 33EC(1) – failure to comply with effects of classification of dog as menacing dog
33F(3)	Section 33F(3) – failure to advise person of muzzle and leashing requirements

Code	Description
36A(6)	Section 36A(6) – failure to implant microchip
41	Section 41 – false statement relating to dog registration
41A	Section 41A – falsely notifying death of dog
42	Section 42 – failure to register a dog
46(4)	Section 46(4) - fraudulent procurement of dog disc/label
48(3)	Section 48(3) – failure to advise change of dog ownership
49(4)	Section 49(4) – failure to advise change of address
51(1)	Section 51(1) – removing/swapping/counterfeiting registration disc/label
52A	Section 52A – failure to keep dog controlled or confined
53(1)	Section 53(1) - failure to keep dog under control
54(2)	Section 54(2) – failure to provide proper care, food, water, or shelter
54A	Section 54A – failure to carry a leash in public
55(7)	Section 55(7) – failure to comply with barking dog abatement notice
62(4)	Section 62(4) – allowing known dangerous dog to be unmuzzled/leashed
62(5)	Section 62(5) – failure to advise of muzzle and leashing requirements
72(2)	Section 72(2) – releasing dog from custody