

Queenstown Lakes District

Automating cadastre update processes using the
LINZ Data Service, ArcGIS Pro, and Python



Tim White

Growing Pains

- Population growth projections released in December:
 - 20,840 houses in 2018 --> 28,500 houses in 2028
- Over 100 new property records per month over the last 6 months





Cadastre Goal

“Land and property information are among the core datasets of a local government authority. A GIS is the perfect platform for presenting this complex information in an easily consumable way for the public.”

-- Marco

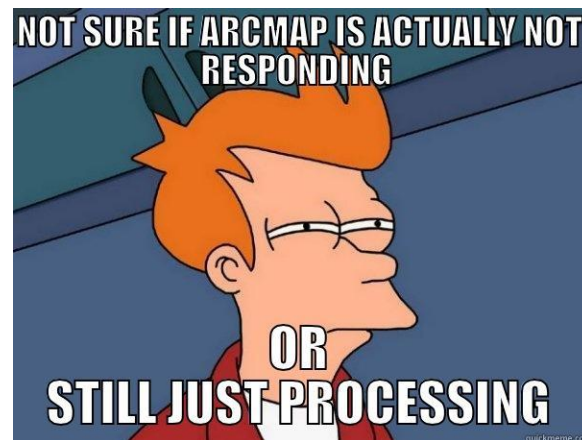
Land parcels have geometry
Property records need geometry

A short, short time ago...

- Old Processes
 - Corax data
 - Lengthy update process
 - Pre-processing the data
 - Delete rows from existing layers in a SDE
 - Append all new rows to parcel, road, and address point feature classes
 - Roughly 6 hour process involving ~20 models
 - Run monthly

A short, short time ago...

- Old Processes (cont.)
 - LINZ DS with ArcMap
 - MXD with WFS Server connections to the LINZ DS – took ~20 minutes to index each morning





NZ Parcels

LINZ / Survey & Title

Updated 16 Mar 2019

About Metadata Data Table History Services Comments (0)

This service requires an API key to be configured for your account.

Your current API key: API

You can configure your API keys on your dashboard.

Vector JSON Query Example

Centered on current map position.

<https://data.linz.govt.nz/services/query/v1/vector.json?key=125b0ad8abeb4685ac1a9720ecd16c73&layer=51571>

Vector XML Query Example

Centered on current map position.

<https://data.linz.govt.nz/services/query/v1/vector.xml?key=125b0ad8abeb4685ac1a9720ecd16c73&layer=51571>

Web Feature Service (WFS)

WFS allows your GIS application to query and retrieve feature data directly from LINZ Data Service in a number of common formats and projections.

This service requires an API key to be configured for your account.

Your current API key is: API

You can configure your API keys on your dashboard.

The following URL lists available WFS layers:

<https://data.linz.govt.nz/services/key=125b0ad8abeb4685ac1a9720ecd16c73/wfs?service=WFS&request=GetCapabilities>

The following URL provides WFS capabilities for "NZ Parcels"

<https://data.linz.govt.nz/services/key=125b0ad8abeb4685ac1a9720ecd16c73/wfs/layer-51571?service=WFS&request=GetCapabilities>

The following URL shows a GetFeature example returning up to 3 features:

<https://data.linz.govt.nz/services/key=125b0ad8abeb4685ac1a9720ecd16c73/wfs?service=WFS&version=1.0.0&request=GetFeature&maxfeatures=3>

Metadata Service (CS-W 2.02)

Web catalog services provide common interfaces to find, query and browse metadata about data held by LINZ Data Service:

<https://data.linz.govt.nz/services/csw/?service=CSW&request=GetCapabilities>

Streets Find address or place.



Tasman
Sea

Greymouth
Hokitika

Nelson
Marlborough

Marlborough

Wairarapa

Wairarapa

Wairarapa

Wairarapa



A short, short time ago...

- Old Processes (cont.)
 - LINZ DS with ArcMap
 - Publishing a layer combining parcel and property information
 - Imaginatively named ParcelProperty
 - Still a somewhat lengthy process to update
 - Fewer models, but multiple MXDs configured for the models, and one for each of the layers to be published

Current Process

- Using ArcGIS Pro
 - Data Interoperability Extension (FME)



Simple Updates

- Using ArcGIS Pro (cont.)
 - Single project
 - Multiple maps
 - All models run from the one project
 - Overwriting published services much quicker

Trust the (scripted) Process

- Python
 - Series of model calls to begin with
 - Soon scripted the individual geoprocesses
 - Very similar process, but running itself

Trust the (scripted) Process

- Python
 - Script for publishing
 - Only a little more complicated
 - Update frequency improved from monthly to weekly
 - Update time reduced from ~6 hours to ~45 min

What's next?

- Scheduling and report generation
- LINZ Changeset for parcel information
 - Already in use, potential to be scripted
- Infrastructure QA/QC
 - GIS data being submitted
 - Scripting that process gives some assurance of data quality