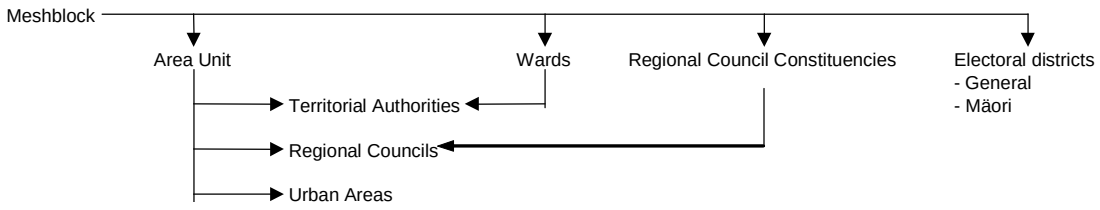
Metadata for
New Zealand Digital Boundaries Dataset

Category	Element	Comment
Dataset	Title	New Zealand Digital Boundaries.
	Custodian	Geography, Regional and Environmental Statistics Statistics New Zealand Dollan House 401 Madras Street Private Bag 4741 Christchurch 8140 New Zealand
	Steward	Land Information New Zealand Lambton House 160 Lambton Quay Private Box 5501 Wellington New Zealand
Description	Abstract	Statistics New Zealand maintains an annual meshblock pattern for Geographic Information Systems software users. The meshblock is the smallest land area within the geographic classification used by Statistics New Zealand. When aggregated, meshblocks define higher geographic areas such as territorial authorities and regional councils. The geographic classification employed by Statistics New Zealand is shown in Figure 1. Digital boundaries for all categories shown in this diagram are stored as separate layers within the New Zealand Digital Boundaries dataset. When the dataset layers are imported into geographic information systems the digital points form polygons that depict the shape of the meshblock or other area selected. They do not necessarily depict the position of roads, rivers or the coastline. Meshblock boundaries generally follow street centre-lines but in many instances cadastral lines are followed. The dataset is intended for use in the display and presentation of statistical and other data to show areas of high or low density and distributions for comparative purposes over time. The digital boundaries are defined by Statistics New Zealand. They are maintained on behalf of Statistics New Zealand by Land Information New Zealand. As at 1st July 2007, Digital Boundary data became freely available.

Figure 1: Geography Hierarchy.



Category	Element	Comment
Description - continued	Meshblocks	Meshblocks when created are allocated a unique seven-digit number. Meshblocks are numbered in a numeric sequence from north to south and west to east throughout the length and breadth of New Zealand. When a meshblock is split the final two digits of the original meshblock number are changed. Statistics New Zealand maintains a concordance file to ensure that boundaries relating to earlier meshblock patterns can also be generated.

Year	Meshblock Totals
1990	34882
1991	35152 (Census)
1993	35371
1996	36808 (Census)
1999	37154
2000	37383
2001	38366 (Census)
2002	38378
2003	38685
2004	39313
2005	39819
2006	41392 (Census as at 7 March)
2007	41512
2008	42982

	Area Units	Area units are aggregations of adjacent meshblocks with coterminous boundaries to form a single unbroken surface area (land and/or water). Exceptions to this rule are some area units comprising collections of geographically related inlets and marinas. Area units are non-administrative areas intermediate in size between meshblocks and territorial authorities. In an urban situation area units are often equated to suburbs while in rural situations area units may be equated to localities or communities. The area unit pattern is usually revised once each five years in the year immediately prior to the taking of a Census of Population and Dwellings. Statistics New Zealand maintains a concordance file to ensure that boundaries relating to earlier area unit patterns can also be

<table>
<tr><td></td><td></td><td>generated.

<table><tr><th>Year</th><th>Area Unit Totals</th></tr><tr><td>1991</td><td>1717</td></tr><tr><td>1996</td><td>1775</td></tr><tr><td>2001</td><td>1860</td></tr><tr><td>2006</td><td>1927</td></tr></table></td></tr>
<tr><td></td><td>Other Layers</td><td>Other layers available within the dataset are constructed by aggregating meshblocks:

• area units
• territorial authorities
• regional councils
• urban areas
• wards
• constituencies: regional council, Māori
• general and Māori electoral
• Police: districts, areas, stations
• district health boards (DHBs)
• district and high courts
• community boards
• subdivisions.</td></tr>
<tr><td></td><td>Search Word(s)</td><td>Meshblock, Area Unit, digital boundaries</td></tr>
<tr><td></td><td>Geographic Extent Name(s)</td><td>Meshblock, Area Unit, Territorial Authority, Ward, Regional Council, General Electoral District, Maori Electoral District.</td></tr>
<tr><td></td><td>Image sample</td><td>Refer to Figure 2. for a thumbnail image that visually illustrates the content and appearance of the dataset.</td></tr>
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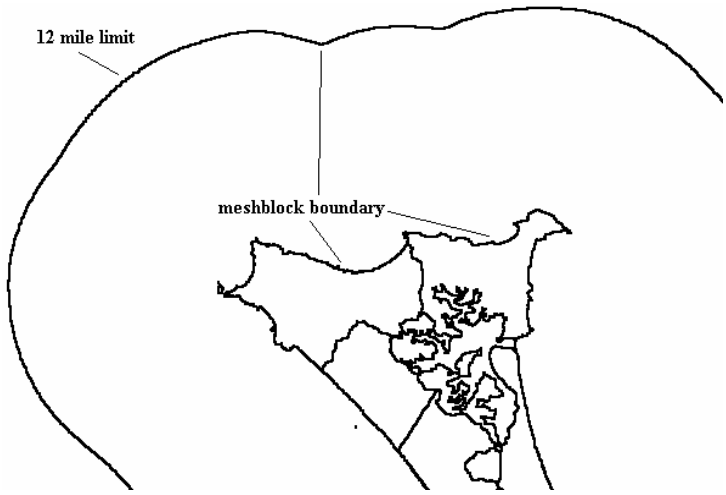
Figure 2. Meshblock Boundary Example.



Category	Element	Comment
Data Currency	Beginning date	The first year for which digital boundary data is available is as at 1 January 1991.
	Ending date	Data collection is ongoing.
Dataset Status	Progress	The Annual Pattern (Level 1) dataset is maintained on a daily basis and finalised November each calendar year and made available in December of each calendar year. The Census based (Level 2) dataset is available beginning of Census year, which is every 5 years.
	Maintenance and Update Frequency	The dataset is maintained on a daily basis and archived annually to ensure that an annual pattern is available to the public. The level 1 dataset is available annually while the Level 2 dataset is available once every five years at 1 January of the year of each Census of Population and Dwellings. Refer to the Data Quality section below for a definition of levels 1 and 2.
Access	Stored Data Format	The dataset is stored in a digital file format. Arc - shape MapInfo - export GINA
	Available Format Type	Level 1 and level 2 digital boundary datasets are available in ESRI ArcShape file and MapInfo Tab format.

Category	Element	Comment
Data Quality	Lineage	Level 1 digital boundaries are stored by Land Information New Zealand within their Landonline database. Statistics NZ maintains the meshblock by checking the cadastral pattern against the meshblock pattern via LINZ's Landonline Terralink International Limited's electronic mapping package Terraview Platinum. Non-alignment of meshblock and cadastral boundaries are one of a number of reasons for meshblock boundary adjustments. Other reasons include requests from local authorities, Local Government Commission, Electoral Representation Commission and to make Census of Population and Dwellings enumeration processes easier. Boundaries are created by the following processes using VISION* software. A. Level 1 1) Change all feature codes for meshblock boundary features to "mesh_bdy". 2) Run "node_clean". This routine may only work on a brand new database that has had no work done at all

		before the process is run. B. Level 2 1) Change all feature codes for meshblock boundary features to “mesh_bdy”. 2) Run “node_clean”. This routine may only work on a brand new database that has had no work done at all before the process is run. 3) Run “dbm_pt_reduce” with a tolerance set at 20 metres. 4) Round co-ordinates to 1 metre. Ginamod can be used for this. 5) Run “dbm_parcelize” 6) Run “dbm_formpoly” 7) Fix topological errors caused by rounding and point reduction and run step 6 until all errors are corrected.
	Positional Accuracy	Level 1 is exactly as exists in Land-on-line i.e. no points are removed and co-ordinates are retained at 1mm accuracy. Level 2 co-ordinates are rounded to the nearest metre and points on lines reduced to a 20 metre tolerance. The original points representing the meshblock boundary pattern were digitised in 1991 from 1:5,000 scale urban maps and 1:50,000 scale rural maps. The magnitude of error of the original digital points would have been in the range of +/- 10 metres in urban areas and +/- 25 metres in rural areas. Where meshblock boundaries coincide with cadastral boundaries the magnitude of error will be within the range of 1–5 metres in urban areas and 5 - 20 metres in rural areas. This being the estimated magnitude of error of Landonline. Statistics NZ is progressively realigning meshblock boundaries to cadastral boundaries and therefore the quality of the meshblock pattern has improved since 1991 when originally digitised. However, the accuracy of the digital meshblock pattern is dependent on the quality of the underlying survey information. Land Information New Zealand are progressively updating the survey plans and land parcels and subsequently LandonLine from NZMG1949 to NZGD2000. This process will improve the quality of the meshblock pattern still further. Note: The definition of points in this section refers to vertices on an individual line, i.e. a line has two end points which are called nodes and any intermediate “bends” are signified by a vertex or point. Point reduction refers to the removal of these intermediate “bends” based on VISION* software definition of the tolerance setting used in “dbm_pt_reduce”.
	Attribute Accuracy	Although coordinates are specified to 1mm accuracy (with reference to data held in LINZ’s Landonline), current technology does not permit this level of accuracy. Level 2

		coordinates are rounded to the nearest 1 metre.
	Logical Consistency	Both level 1 and level 2 boundaries are 100% topologically correct. This is essential for the creation of derived boundaries such as area unit, territorial authority, regional council etc.

Category	Element	Comment
Data Quality - continued	Completeness	Meshblocks cover the land area of New Zealand, including the 12 mile limit, Chatham Islands, the Kermedecs, Ross Dependency and extend to the 200 mile economic zone. The meshblocks for the last three mentioned areas have not been digitised. The 12 mile limit is digitised.
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Metadata Date	Metadata Date	26 November 2007
Projection	Horizontal co-ordinate system	New Zealand Map Grid 1949 is used to generate the digital co-ordinates. As of 2006 the digital boundaries are also being made available in New Zealand Transverse Mercator (NZTM).
	Geodetic model	NZMG 1949
Raster Image	Raster type	Raster images are not available from this dataset.
Entity and attributes	Entity description	Meshblock: smallest land area for which statistics are produced. Area Unit: aggregations of meshblocks with coterminous boundaries to form a single land (or water body) mass.
	Attribute details	Meshblock number range: minimum value: 0000100 maximum value: 3194900 Area Unit number range: minimum value: 500100 maximum value: 627201

		(Note: only includes digitised, excludes the non-digitised: the Kermedecs, Ross Dependency and the 200 mile economic zone)
Conditions of Supply	Conditions of supply details	These conditions of supply apply to all users of Statistics New Zealand digital boundaries effective 1 July 2007. **Permitted uses** Statistics New Zealand must be acknowledged as the source of the boundaries. **Uses not permitted** Users are not permitted to change the accuracy of the boundaries and supply them to another party. **Liability** While care has been used in compiling these boundary coordinates, Statistics New Zealand gives no warranty that the data supplied is free from error. Statistics New Zealand shall not be liable for any loss suffered through the use, directly or indirectly, of any information, product or service.