

NZGMS Metadata Extension for ArcGIS Discussion Paper

Prepared by

ESRI User Group Committee

Version Control

Version	Date	Explanation
Version 2	20/12/2004	Revisions suggested by the NZ user group committee included. Released for comment by the NZ ESRI Users group.
Version 1	14/12/2004	Draft release for discussion by NZ user group committee.

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1 Introduction

1.1 Background

After the announcement of the pricing structure for the NZGMS Metadata Extension for ArcGIS by Eagle Technology, a number of ESRI user group members voiced their opinions and concerns on the GISUser e-mail list. The User Group Committee believes metadata is an important issue and offered to:

- Coordinate the discussion.
- Collate information from individuals and organizations.
- Summarise the information into theme.
- Provide recommendations for discussion.

This report provides information on the scope of the submissions.

1.2 Resources

There are a number of useful metadata documents referred to during the preparation of this report.

- New Zealand Government Locator Service (NZGLS) Metadata Standard and Reference Manual <http://www.e-government.govt.nz>
- New Zealand E-government Interoperability Framework (NZ e-gif) <http://www.e-government.govt.nz/interoperability/index.asp>
- Draft Geospatial Metadata standard, consisting of the Profile, Guidelines and XML schema. <http://www.linz.govt.nz/rcs/linz/pub/web/root/core/Topography/ProjectsAndProgrammes/geospatialmetadata/index.jsp>
- Functions of New Zealand (FONZ) and Subjects of New Zealand (SONZ) thesaurus are important components that support NZGLS. Terms from both these thesauri are combined to describe government information, services and other resources in a consistent manner. Detail documents on FONZ and SONZ can be found at <http://www.e-government.govt.nz/nzxls/thesauri/downloads.asp>. **Note:** XML schemas for the thesauri are planned for the future.

2 Submissions

2.1 Procedure

The following is procedure used:

- 17/11/04, Eagle publishes the NZGMS Metadata Extension details and pricing for ArcGIS.
- 18/11/04, Rotorua District Council starts the metadata discussion.
- 18/11/04, NZ ESRI User group announces a “submission process” and approach for dealing with the issue.
- 22/11/04, NZ ESRI User group holds a meeting at ALGIM to discuss the issue.
- 26/11/04, Submissions close
- 20/12/04, Draft findings released to the NZ ESRI user group committee for comment.

2.2 Received

As at the closing date, submissions from 43 organisations/individuals had been received. The submissions represent a cross section of ESRI software users including:

- Individual users.
- Local government.
- Central government.
- Consultants.
- Education.
- Private sector.

The following are the organisations that provided submissions:

Auckland Regional Council	Hawke's Bay District Health Board	Palmerston North City Council
Austral Pacific Energy Limited	Hawkes Bay Regional Council	Papakura District Council
Beca	Horizons Regional Council	Paul Hughes
Boffa Miskell	Institute of Geological and Nuclear Sciences	Rotorua District Council
Crown Forest Rental Trust	Kenex Knowledge Systems	Ruapehu District Council
David Cook	Kiwi Forests Group	Timaru District Council
Environment Bay of Plenty	Landcare Research	Tasman District Council
Environment Southland	MAF	Taupo District Council
Explorer Graphics	Manukau City Council	Tauranga City Council
Forest Research Institute	Massey University	University of Canterbury, Geography Department
Gavin Treadgold	Nelson City Council	Wellington City Council
Geographic Business Solutions	New Zealand Defence Force, Joint Geospatial Support Facility	Wellington Regional Council
Geo-logic	New Zealand Fire Service	Whangarei District Council
Gisborne District Council	Oberdries Consulting Limited	
Greg Lauer	Ollivier & Co	

2.3 ALGIM Meeting

A conference was being held by the Association of Local Government Management (ALGIM) on the 22-24 November 2004 at Taupo. A number of ESRI user group members were in attendance at the meeting and it was seen as an opportunity to discuss this issue.

11 people attended the meeting. Eagle Technology did not attend the meeting at the request of the attendees. The themes raised during the meeting aligned with those of the e-mail submissions.

2.4 Responses

2.4.1 Introduction

The submission responses have been split into four parts:

- LINZ Draft Metadata Standard.
- Metadata application development.
- Eagle Technology Metadata Application.
- Other issues.

2.4.2 LINZ Draft Metadata Standard

For Government organisations the standard will become mandatory, and it is likely that local government will be required to meet the standard in the future. Adhering to the standard and ultimately making the resulting metadata “discoverable” through portals will be beneficial to the wider community.

Item	Issue	User Group Comment
1	Field level information does not appear to be included in the standard.	Often field names can be cryptic, particularly when dealing in formats that have field length restrictions eg shapefile. Documentation of the fields is important especially in the case of coded values or the use of domains. An alternative is for the metadata application to be compliant with the NZGMS, but to be "extended" to include field level information.
2	Concern was expressed that the current Geospatial metadata standard is currently in draft form, and any development work undertaken may be subject to change, with the extent of change unknown.	Unfortunately change is likely. The only answer is to evaluate the impact when known and respond in a non-freak out fashion. It is hoped future development will be "backward compatible" and would be additions rather than fundamental structural changes.
3	LINZ should be approached to develop applications to support and implement the standard.	It is unlikely LINZ would support this. However, utilising the development work already undertaken by Eagle may be a possibility or alternatively involving an interested third party.

2.4.3 Metadata Application Development

The application for capturing and searching metadata is different from the standard. The standard defines what is required, including mandatory fields; the application delivers those requirements.

Item	Issue	User Group Comment
4	A number of respondents indicated they would commit money to development of an alternative application. An alternative suggested was the development of an "Open Source" initiative.	When developing/adopting an application, consideration needs to be given to: <ul style="list-style-type: none"> • NZGMS compliant metadata is produced. • Ensuring applications are kept current with future upgrades of ArcGIS (if the metadata application is part of the GIS suite). • That metadata can be easily made available to existing and future portals. • Changes to the standard, particularly in the initial adoption are allowed for. • That metadata "goes with the data" by default when exchanging with other parties. • That the small and under resourced organisations are not forgotten in adopting an approach. • An RFP or coordination by the user group be considered for application development. • That application development is done in an united way. • Use of NZGLS thesauri and keywords. • Existing metadata created by FGDC or ISO metadata editors can be imported into the new application. Note: new fields would need to be populated. Implementation as an Open Source development should be considered.

Item	Issue	User Group Comment
5	Application development should be non-vendor specific for national metadata to be effective and inclusive.	<p>While this is a possible goal, the logistics of coordinating the GIS user community for the country in a timely fashion would be a challenge that should not be underestimated. An Open Source initiative may make this more achievable, but should not comprise the integration with ArcGIS.</p> <p>However, sharing of metadata between software via import/export should be a minimum capability.</p> <p>Currently the ArcGIS framework exists where metadata can be tightly integrated and key fields automated to make data easily discoverable via a spatial or attribute search. (Who has used the “search” capability in ArcCatalog on the menu Edit Search).</p> <p>Metadata developments also need to be considered:</p> <ul style="list-style-type: none"> • Automatic population eg spatial extents, coordinate system etc. • Tighter geo-processing history. • Future developments such as the Catalog explorer and feature level metadata
6	Organisations could extend or develop their own metadata applications.	<p>The development of internal metadata applications by organisations needs to consider the following.</p> <ul style="list-style-type: none"> • Development may be dependent on individuals within an organisation. • The sum of individual organisational cost will be more than a collective approach. • Modifications may not keep pace with standard and application changes. • The application design suggestions in Issue 1 above should be considered.
7	Interoperability of the metadata between GIS platforms is essential.	<p>The ability may not be possible to directly read other vendors metadata, but import/export capability to NZGMS should be at least possible.</p>

2.4.4 Eagle Technology Metadata Application

The following summarises the comments on the Eagle application.

Item	Summary	User Group Comment
8	A number of respondents commented on Eagles initiative for developing the tool. However, criticism was directed at the perceived lack of consultation with the wider group on design and technology selection.	Consultation with the user group on significant development issues such as metadata is an area that could be improved. The additional experience and input user group members would be beneficial. The consultation could also be used to set the level of expectation appropriately.
9	<p>From the submissions received, there was no support for the current Eagle Technology's proposed pricing model.</p> <p>A number of respondents pointed out they already pay significant maintenance and consider that the metadata application should be a core part of ArcGIS, as is the FGDC or ISO in ArcCatalog.</p> <p>Of particular concern was the maintenance cost. A number of respondents could appreciate the unknown component of development work required to meet any standard changes by LINZ. However, the level of annual maintenance fee was seen as excessive.</p> <p>Respondents were critical of the per seat license model and believe this approach is a barrier to metadata capture.</p>	<p>It is likely the current pricing model will reduce the use of the application.</p> <p>Small organisations may find the pricing unobtainable and develop their own application and systems, or do nothing.</p> <ul style="list-style-type: none"> • Rather than a "one price for all", a tiered pricing structure should be considered to allow for small organisations, local and central government and education. • An alternative to the annual maintenance fee could be distributing the actual cost of redevelopment. <p>Other options could include:</p> <ul style="list-style-type: none"> • LINZ funding the application development with a right to distribute. Since LINZ via central government will require metadata to the NZGMS for certain areas. • Approaching ESRI to include as part of the core product as is the FGDC and ISO model.

The following are specific notes from organisations that have been testing the Eagle application.

Item	Summary	User Group Comment
10	The editor doesn't capitalise on any of ArcCatalog's ability to extract relevant information directly from the dataset being described - these include such fundamental things as geographic extent and dataset location. The editor interface is distinctly inferior to the ISO wizard provided with ArcCatalog.	As previously discussed in the Metadata Application Development section, it is fundamental for the application to work in an automated and integrated way with the ArcGIS software. Minimising the amount of data entry will help ensure metadata collection is implemented in an organisation.

Item	Summary	User Group Comment
11	No facility is provided to inherit existing metadata gathered with the ISO editor, let alone the FGDC editor, so prior metadata gathering effort is effectively lost and the ArcCatalog/ArcToolbox's ability to track and log lineage activity is compromised.	It is important functionality to organisations who have previously captured metadata to be able to import it into the new framework.
12	The xsl style sheet provided with the editor doesnt report all the fields collected by the editor - eg <nzgMD:alternateTitle>	It appears that a more integrated testing program and design may have helped reduce these issues.
13	Use of the Eagle metadata editor precludes the use of any other ESRI metadata editors or stylesheets, and in practice invalidates the metadata already gathered using the editors provided with ArcCatalog - eg FGDC and ISO. These other ESRI metadata editors generate metadata that can coexist.	This may not be a requirement of many organisations, however the technical aspects of this should be investigated.

2.5 Other Issues

A number of other issues were indirectly raised during this process, and it was felt necessary to be discussed here.

Item	Summary	User Group Comment
14	Eagle geospatial portal. Is this supported by LINZ ie a national initiative, or is it likely to be a duplication of effort. What about other software users? Maybe LINZ should be driving this?	This is an issue that should be discussed more, particularly with LINZ. Duplication of effort is likely given the government mandates to implement a geospatial portal. It is unlikely geospatial portals will be used unless an incentive is provided ie It appears no information as been added since the launch of http://www.nzgos.co.nz a number of months ago.

3 Recommendations

3.1 LINZ Draft Metadata Standard

- 3.1.1 Contact LINZ to investigate extending the metadata standard to include field level information.
- 3.1.2 Contact LINZ to determine if the ESRI user group can get a member on its advisory groups.
- 3.1.3 Contact LINZ to discuss the concept of utilising the metadata application work developed by Eagle technology and/or other national initiatives.

3.2 Metadata Application Development

- 3.2.1 That the ESRI user group committee facilitate investigation into an Open Source metadata application.

3.3 Eagle Metadata Application

- 3.3.1 Representatives of the user group committee meet with Eagle Technology and discuss the following issues:
 - Application fees, site licensing and tiered level of purchasing.
 - Maintenance fees based on actual changes rather than yearly fee.
 - Application functionality/enhancements, including importing data from the existing FGDC and ISO editors.
 - Robust testing program.
 - Metadata interoperability between GIS platforms.

3.4 Other

- 3.4.1 Contact LINZ to determine the future development of a New Zealand wide geospatial portal.