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**SAMOA SECOND INFRASTRUCTURE AND ASSET  
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**COMPONENT 5.01: LAND ADMINISTRATION AND SURVEY**

**PROPOSED GEOSPATIAL METADATA  
STANDARD**

**PART 2**

**PROFILE GUIDELINES**

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# Profile Guide

## Geospatial Metadata Profile

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# Geospatial Metadata Profile

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## 1. The Purpose of the Profile Guide

The purpose of the profile guide is to illustrate how a metadata record / instance should be created for a given geospatial dataset. This guide will be reviewed regularly based on comments and feedback from user community. As part of an ongoing communication / education program it is anticipated that additional examples of completed geospatial metadata data records compliant with the profile will be made available.

## Contact Details

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## 2. Use of Profile Guide

### Overview

The purpose of this document is to provide a guide to people wanting to use the Samoa Geospatial Metadata Standard.

The standard is a profile of the international geospatial metadata standard, ISO 19115, and defines a geospatial metadata standard applicable for the gathering, describing and storing of geospatial metadata information by Samoan agencies. The aim of the metadata standard is to make it easier to find, use and share geospatial information.

What the profile does:

- Details a format for creating a metadata record for a geospatial data set.

What it doesn't do:

- Doesn't specify how to collect metadata or organise your metadata:
- Doesn't impose a standard for data transfer:
- Doesn't specify how to present or communicate metadata:

The Standard is not fixed / finished

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It is under constant review and revision as geospatial data creators and stewards use the standard to create metadata describing their data resources. This standard will enable agencies to locate and access available metadata resources and for individual agencies to capture and publish geospatial metadata describing information resources held within that agency.

### Relationship to other Parts of the Profile Description

This document is the second component of an overall description of this metadata profile. The first part defines the metadata profile. This second component is a guide and reference source for the creation and maintenance of metadata conforming this profile.

### Audience

These geospatial metadata guidelines are a technical document. It is aimed at an audience of geospatial data managers and software developers. Some knowledge of the Unified Modelling Language (UML) is necessary when reading and interpreting this profile.

### Structure of Profile Guide

The guide has 7 sections:

- 1 An Introduction to Metadata and this profile;
- 2 An overview to the process of creating metadata in terms of this profile;
- 3 An example of a completed Metadata Description in terms of this profile;
- 4 An outline of metadata maintenance requirements
- 5 A Comparison between the Samoa Geospatial Metadata Profile and ISO 19115 (in table-form)
- 6 Detailed descriptions of the 37 metadata elements comprising this Metadata Profile including definitions, corresponding metadata elements in the ISO 19115 metadata standards, encoding systems and refinements associated with each metadata element, the elements obligation status (Mandatory or Conditional), the purpose of each element, any default values for each element, the scope and how to interpret each element and an example for each element. It follows a similar format to the NZGLS Metadata Standard and Reference Manual<sup>1</sup> and some of the descriptions are sourced directly from this other manual, where appropriate.  
  
These descriptions would help to answer questions about individual elements and in particular how to populate the element with an appropriate value.
- 7 XML Example of stylesheets and an XML instance document for a Samoa metadata description (the Digital Cadastral Database (DCDB))

## References

- *“The New Zealand Government Geospatial Metadata Profile”, Land Information New Zealand, April 2004.*

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<sup>1</sup> <http://www.e-government.govt.nz/docs/nzglsv2/>

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- “Technical Paper No. 73 Environmental Metadata Framework”, MFE, Sept '02  
<http://www.environment.govt.nz/info/tech-reports/tr-73-info-management.pdf>
- “ANZLIC Metadata Guidelines Version 2”, ANZLIC, Feb '01  
(<http://www.anzlic.org.au/asdi/metaelem.htm>)
- “International Standard ISO 19115 Geographic information – Metadata”, ISO/TC 211, May '03
- “Working Draft 19139 Geographic information – Metadata Implementation Specification”, ISO/TC 211, Nov '03
- “Text for IS 19106 Geographic information – Profiles”, ISO/TC 211, Sept '03

## 3. Metadata Introduced<sup>2</sup>

### What is metadata?

Metadata are units of information about information. They are commonly used to provide descriptive information about the content, context and characteristics of data. Metadata can help to keep track of changes in data. It can also make other potential uses of the data aware of its existence and possible applications.

The most obvious example of metadata is a library catalogue system which provides a common set of summary information for books, journals and other library resources. Metadata deals with the what, when, who and how of data. Metadata needs to be collected at different levels of detail to satisfy different purposes.

Metadata doesn't just describe data, it tracks changes to it. In a networked environment, information may gain value as it changes hands but only if this history is known to the current holder. Metadata maintains the value of data for both the creator and the subsequent users by assuring its continued use.

Metadata for data discovery purposes represents the minimum amount of information required to convey to the inquirer the nature and content of the data resource. This falls into broad categories that answer the "what, when, who, where and how" questions about spatial data:

- *What* – title and description of the data set.
- *When* – when the data set was created and the update cycle, if any.
- *Who* – data set originator or creator and supplier.
- *Where* – the geographical extent of the data set based on lat / long coordinates, geographical names or administrative areas.
- *How* – how to obtain more information about the data set, how to order the data set, available formats, access constraints etc.

The Samoa Geospatial Metadata Profile has been developed to promote a consistent standard of description for 37 metadata elements that are generally common for all types of data. The metadata elements are designed to satisfy the needs of data discovery and fitness for purpose. Thus the metadata can be used to identify what data exists, to describe its content and geographic extent, to enable potential users to assess the suitability of the data for various purposes, and to indicate where more information about the data can be obtained. As well as satisfying these needs, the geospatial metadata elements also form the basis for agencies to develop additional metadata elements to provide more detailed metadata to assist the sharing and management of data.

### **Geospatial metadata**

Geospatial metadata incorporates the additional element of "where". A map legend is a common example of spatial metadata that provides information about the publisher and publication date, scale, accuracy, datum and other characteristics of the map. Metadata is also commonly used at the level of a series of printed maps. In a similar way, metadata is also applied to digital spatial data at the levels of series of datasets, individual datasets, tiles of datasets or even down to the feature level.

Such a standard will provide a basis from which agencies and data custodians will be able to further develop individual profiles or sub standards to meet their own detailed specific needs, particularly for data management within the agency. Standardisation and consistency are

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<sup>2</sup> This explanation is largely based on a similar description contained in "Environmental Reporting Technical Paper No 73 Information Management. Environmental Metadata Framework", Ministry for the Environment (2002)

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necessary to ensure that comparisons can be made by data users about the suitability of data from different sources.

Geospatial metadata discovery tools enable the searcher to find information through a spatial (map) interface rather than by using a text search alone.

## Costs and benefits of metadata

### **Costs**

Creating and managing metadata does involve a significant effort and hence introduces additional costs to managing an information resource. These costs can be reduced by ensuring metadata is produced at the same time and by the same people as the data is. The information needed to create metadata is often readily available when the data is collected.

An analysis which weighs the initial expense of documenting data against the potential costs of duplicated or redundant data generation will determine whether the documentation of metadata is justified. In general, investing the time and resources at the beginning of a new project will be found to pay dividends .

### **Benefits**

Metadata produces benefits for both producers and users of data. These are outlined below:

**Information Investment Management:** Metadata helps organise and maintain an organisation's investment in data and provides information about an organisation's data holdings in catalogue form.

**Greater Information Efficiency:** Coordinated metadata development avoids duplication of effort by ensuring the organisation is aware of the existence of data sets.

**Provide Complete Information:** Users can locate all available data relevant to an area of interest.

**Better Information Practice:** Collection of metadata reinforces good data management practices (including fitness for purpose assessments) and ensures the long term value of the investment in data creation and collection.

**Information Promotion:** Data providers are able to advertise and promote the availability of their data and potentially link to on line services (eg. e-government) that relate to their specific datasets. Reporting of descriptive metadata also promotes the availability of environmental data beyond the environmental community.

**Knowledge Management:** Metadata is an important knowledge management tool preserving understanding, and preventing data from losing its value due to personnel change in an organisation.

**Greater Information Longevity:** Metadata maintains the value of data for the creator by assuring its continued use and update over time.

**Users understand dataset:** Metadata enables users to understand the purpose and intention of the dataset, and so be better able to know how to use the data and also determine its fitness for a particular use.

### Metadata Standards

A metadata standard is simply a common set of terms and definitions known as elements that describe an information resource. Consistency in metadata is essential to ensure meaningful comparisons can be made quickly between datasets. Without standardisation of metadata, finding common elements in descriptions can be very difficult as it involves getting to grips with a range of different metadata management formats and definitions.

A metadata standard also allows for quick search and retrieval of a particular element. Using a consistent name for this element and a consistent meaning or level of information makes the process much easier.

Standards provide a common set of elements while often still allowing flexibility for additional elements to be produced to suit specialist needs. They are developed through a consultative process between experts and must be comprehensive enough that they can provide a sufficient level of detail, clarity and accuracy for users.

### Metadata Profiles

A metadata profile will use a selection of some or all of the metadata elements within a metadata standard to meet the needs of a community of interest or a specific purpose. The same reasons exist for using a standardised profile for a particular inventory as for using a metadata standard.

In the case of this Metadata Profile (the Samoa Geospatial Metadata Profile), the base standards is ISO 19115 (Geographic Information – Metadata).

The choice of which clauses, classes, options and parameters are chosen and included in each of the Metadata Profiles, decisions were made:

- to include all Metadata Elements identified as core elements in ISO 19115 (a requirement for any metadata profile claiming conformance with ISO 19115) – 22 elements;
- to include any Metadata Element that would facilitate discovery and determining fitness for purpose
- to exclude any other elements from ISO 19115 unless they had an obligation status of “mandatory” or “conditional”;

### ***ISO 19115 Structure***

The ISO 19100 series is a multi-part International Standard for Geographic Information developed by Technical Committee 211 Geographic information/Geomatics of the International Organisation for Standardisation (ISO). ISO 19115, Geographic information – Metadata is part of the ISO 19100 series.

ISO 19115 is the more comprehensive (and complex) of the two base standards and so the structure of this Metadata Profile is based on ISO 19115. The relationship of this Metadata Profile with NZGLS has been illustrated in table form below.

ISO 19115 consists of over 400 Metadata Elements. These elements include repeatable series of elements and there is also provision for metadata extension elements to be added to cover extra characteristics considered important for a particular function. All this adds up to an extremely complex structure that cannot be described easily in a series of tables. This is not necessarily a failure of ISO 19115. The effort required to master ISO 19115 is considered worthwhile. It is exceedingly comprehensive and flexible.

To deal with this complexity and to ensure unambiguous definitions, the ISO Technical Committee for Geographic Information (ISO/TC211) has decided to use a form of data modelling, called UML (Unified Modelling Language) as the authoritative definition of ISO 19115 and other geographic information standards. To demonstrate the conformance of these Metadata Profiles with ISO 19115 a set of UML Class Diagrams have been included in the Profile Definition (Part 1 of this document). As user's understanding of the Metadata Profiles increases, it is hoped they will find the UML diagrams offer a valuable shorthand and a useful tool to understanding the requirements and scope of this profile and for designing metadata extensions to meet their own specific requirements.

## 4. Creating Metadata

This section provides guidance on how to create a metadata description in terms of this Metadata Profile. It deals more with the content that needs to be included in the metadata description and does not specifically deal with metadata outside the scope of this profile (other ISO 19115 metadata elements or extensions to ISO 19115) or “tools” to capture maintain and provide access to the metadata. It assumes that metadata will be made available to potential users outside of the organisation that manages, distributes or has created the data resource.

### Purpose

When creating or maintaining a metadata description of a data resource it is useful to know that the purpose of this Metadata Profile is to improve interoperability and multiple use of government data resources through providing metadata descriptions that assist data discovery, fitness for purpose assessments and, provide a complete reference-like description of the data resource. Although these metadata descriptions can provide an in-house catalogue of data resources to assist the data management function, the primary aim is to provide the wider community a comprehensive catalogue of Government data resources to encourage use of these resources and discourage wasteful duplication.

### Who should create Metadata?

Geospatial data owners will be encouraged to take the element definitions provided and record values for their respective geospatial information assets and then publish these descriptions. The data format for publishing the information is XML. .

### Steps that will make creating metadata easier:

Assemble information before you begin:

#### **Inventory your data**

Spatial data sets have an ability to multiply and consume all available disk space. What's worse, they tend to spread beyond the initial source of creation. Never-the-less, when considering the resources invested in database development, the time spent maintaining an inventory is certainly justified.

#### **Know your data...**

As GIS tools become easier to use, data developers have less contact with rigors of geographic representation. Metadata provides an opportunity to recapture much of the knowledge lost to map and data automation.

#### **Identify what your data means**

Provide information regarding the data's intended use and purpose.

#### **Identify the time your data is valid**

#### **Identify the resources used to create the data**

Providing lineage makes getting answers easier.

#### **Identify what your data represents**

Knowledge about elements that compose the map, (i.e. *themes, features, attributes, queries, resolution, etc.*) makes metadata easy to complete.

#### **Identify how your data is represented**

Knowledge of geodetic elements such as *projection, datum, Scale Factor, and coordinate system.*

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### Review other metadata examples

#### Examine other metadata records

Metadata can be collected in a variety of forms and varying levels of detail. Examining how other agencies document their data holdings may provide insight into the most appropriate strategy for your agency.

#### Know the Samoa Geospatial Metadata Standard (SGMS)

The standard can be daunting to the un-initiated. By using available resources, compliant metadata does not have to require a lot of time to create.

#### What is planned

Geospatial metadata implementation requires additional guidance and educational resources. A separate project is to progress these initiatives.

### Metadata Modules<sup>3</sup>

The Metadata Profile is made of groups of metadata elements that are related or describe similar characteristics. The purpose of these modules is to simplify the number of UML Classes that ISO 19115 uses to group the metadata elements. This is to assist you to interpret the UML models that define ISO 19115 and this Metadata Profile and to emphasise that the context of a particular metadata element is very important. For instance the organisation name metadata element within the Metadata Identification module is likely to be different to the organisation name metadata element within the Data Quality module.

Below each of the Modules and Sub Modules are described in general terms.

#### Metadata Identification Module

This module unambiguously identifies the actual metadata, defines the language and character set used (which may be apparent through the encoding process), cross-references the metadata to any earlier metadata, identifies those responsible for the producing the metadata and notes any ISO 19115 profile it conforms to. These elements are important for the long term maintenance of the metadata inventory.

#### Resource Identification Module

This module describes the data resource itself and includes an abstract, and details on the purpose, mandate, an indication of the spatial resolution of the dataset, whether the dataset is vector or imagery based, topic category and keywords based on the ANZLIC Search Words. Distribution details are also outlined.

#### Spatial and Extents Module

The Spatial and Extent Module describes the Geographic, Temporal (when the data was captured/collected) and Vertical extents. The Geographic extents allow the extents to be described in terms of multiple geographic identifiers.

This module includes a reference to the Spatial Referencing System of the dataset.

#### Data Quality Module

The Data Quality Module describes the overview statement of the general lineage of the dataset.

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<sup>3</sup> This explanation is largely based on a similar description contained in "Environmental Reporting Technical Paper No 73 Information Management. Environmental Metadata Framework", Ministry for the Environment (2002) <http://www.environment.govt.nz/info/tech-reports/tr-73-info-management.pdf>

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### Data Characteristics Module

The Data Characteristics module describes any use limitations in addition to any other restraints that might apply to the dataset (including Government Copyright notice, if this is applicable). It also describes the formats the data is held in (as opposed to distribution formats).

### *Metadata Profile Interpretation Issues*

Although this Metadata Profile is a subset of the more comprehensive ISO 19115 standard, there are over 37 metadata elements and the consistent application of this Metadata Profile is not a trivial undertaking. A good knowledge of how the profile fits together will require a study of the UML models, the metadata examples and the use of the individual metadata element description (found later in this document) as a reference source during the creation and maintenance of metadata.

During the formulation of this Metadata Profile, a number of interpretation issues were identified. These are outlined with some suggestions as to how they can be solved:

#### Dates

Dates are used in three different ways within ISO 19115 (and hence this Metadata Profile):

- Within the citation of the data resource or a source for the data resource. In these cases it is possible to record multiple dates and each date is qualified as to what the date refers to (e.g. date of creation, date of revision)
- The Metadata Date element which is not qualified but refers to the date the metadata was created/last updated.
- The Resource Temporal Extent element which refers to the date or range of dates that describes the currency of the data resource.

#### Quality

A conscious decision has been made to limit quality descriptions to overview statements. ISO 19115 does include a very comprehensive manner for describing quality but this assumes that there has been a rigorous quality regime established.

In addition to the specific quality metadata elements there are other related elements that do contain quality information:

- The Resource Spatial Resolution Element (within the Resource Identification module) records the absolute spatial accuracy (ideally this should record the difference from the true position at a 95% confidence level)
- If there are other quality issues associated with the data resource they should be described the Lineage Statement (Data Quality Module).

#### Codelists

Where the value for a metadata element is identified as coming from a codelist, the "text" value and not the identifier number should always be recorded. See Pt 1 - Profile definition for the code lists. Where ever possible, a namespace had been identified representing the authoritative source of each codelist.

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### Multiple Values and Obligation Status

Those users who are not working from the UML diagrams should be aware that all elements have an “obligation status” and many elements can be repeated with multiple values being recorded.

Within this Metadata Profile, there are only two obligation status:

- **Mandatory**; and
- **Conditional**. Generally the condition is that there the metadata element applies to the data resource being described or it does not.

The Optional obligation status is not used in this Metadata Profile (even though it does in ISO 19115).

In the table definitions contained in this Metadata Description, it is not possible to anticipate how many values for a particular metadata element will apply for a data resource. Similarly with XML instance files automatically generated from an XML schema as a template for metadata recording. To overcome these problems, users should be guided by the UML diagrams, examples and their knowledge of what is appropriate to be recorded for a particular data resource. The UML diagrams identify implicitly where multiple values can be recorded.

An implication arising from this Metadata Profile being a profile of ISO 19115 is that when an element is included in this Metadata Profile this results in having to respect the ISO 19115 stated obligation status of all the other attributes within the same (UML) Class.

### Format

There are two metadata elements that describe the data format of the data resource and care needs to distinguish between the two. The Resource Format Name (and associated Resource Format Version element) record the “native” format of the resource only and this will in most cases be a single value. The Distribution Format Name (and associated Distribution Format Version) records the potentially multiple formats that can be distributed to users by way of an export from the system hosting the data resource.

### Inclusion / Exclusion

The Resource Extent Type metadata element has two possible values; “Inclusion” or “Exclusion”. This profile follows the ISO 19115 form for describing this element in the form of a Boolean variable (i.e. Inclusion = “true” or “1” and Exclusion = “false” or “0”)

### Roles

Role elements are used extensively in this Metadata Profile (and ISO 19115) to qualify any reference to an organisation. They should only be applied to the **organisation** and not a position within the organisation. Where several roles could be applied to the organisation being noted, the context of the specific metadata element (i.e. what module is being treated) should be considered. Where several roles could be applied, the more “senior” role should be used (i.e. custodian or owner rather than publisher).

### Raster Data Resources

Not all geospatial data resources are vector based; some are raster imagery (e.g. orthophotos, scanned paper maps). This Metadata Profile can cater for this category of data resources but for more detailed descriptions of raster data resources some of ISO 19115 metadata elements, outside of this profile may need to be used particularly if transformation details are to be recorded.

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### Namespaces

Namespaces are an important feature when metadata descriptions are encoded into XML instance documents. They are used to identify XML schema that define the encoding of metadata elements.

The XML schemas defining this metadata profile are the ISO 19139 schemas with a namespace of <http://www.isotc211.org/2005/gmd> and utilising the prefix of gmd:

### Possible Approaches

The approach taken to creating metadata will vary from organisation to organisation. The New Zealand Ministry of Environment has produced a publication<sup>4</sup> to help organisations choose an appropriate metadata profile to meet both internal and external business needs. This Metadata Profile addresses external/ data sharing needs and organisations will still need to consider their internal needs as well as specific external needs that apply to that organisation.

Once this preliminary analysis is complete, there will need to be a decision made as to what data resources require metadata. There will then need to be a collation exercise to gather all the details together. As part of this collation exercise decisions will need to be made as to how the geographic extents will be described and, more fundamentally, what is the primary spatial referencing system used by the organisation<sup>5</sup>.

The actual means of recording these details will also be influenced by how the metadata will be made available both within the organisation and also to external users outside the organisation.

The following lists reflect some options for the immediate requirement to record metadata in a digital form. Some of these options go beyond the creation stage to also providing the means to make metadata available to users. Others assume that making metadata accessible will be treated separately.

- A customised application to record xml formatted metadata on either a stand-alone workstation or as a networked application within the organisation using standard database. This application has the ability to export the resulting metadata in appropriately structured XML files. The SPREP Metadata Catalogue and the add-on 19115 Export software module is an example of this approach and seems likely to be the favoured approach in Samoa;
- An off-the-shelf metadata capture tool is purchased, this Metadata Profile is defined within that tool with the tool having the ability to export appropriately structured XML files. Tool may also have basic search capability;
- Standard GIS with metadata recording capability is used for initial capture of details. (Current versions of commonly used GIS software are not able to capture the complete set of metadata elements comprising this Metadata Profile or of exporting metadata in XML structures that are compliant with ISO 19115). Once initial capture is complete export in the XML structure that most closely correlates with ISO 19115<sup>6</sup>. Using an XML Editor/Parser software, produce a modified XML schema to incorporate the uncaptured relevant metadata elements. Using the same XML Editor software or XML stylesheets capture the remaining metadata elements. Create XML stylesheets to transform the

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<sup>4</sup> Environmental Metadata Framework, Environment Reporting Technical – Information Management Document 73, (2002)

<sup>5</sup> refer to Section 3 of Environmental Metadata Framework, Environmental Reporting – Information Management Technical Report 73, Ministry for the Environment (2002)

<sup>6</sup> refer to ISO 19139 Geographic Information – Metadata Implementation Specification (work under action as at April 2003)

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metadata to ISO 19115 compliant XML structures. Transform the metadata using these stylesheets and publish the metadata.

- All metadata capture is done in an on-line application based on XML documents.

In all approaches, metadata descriptions need to be encoded into XML instance documents and rigorously validated<sup>7</sup> against an XML schema to check conformance to this metadata profile.

## Logistics of Metadata

Agencies will need to nominate a primary contact person for geospatial metadata. This person should have good knowledge of all the geospatial information resources within their respective agency. This person will with the aid of additional resources (to be produced) communicated the requirements to other key players within their organisation. This will ensure agencies will administer the task effectively.

## 5. Maintaining Metadata

For there to be user confidence in metadata, it is important for metadata to be kept up to date. The process for maintaining metadata is likely to be similar to that used in the initial creation. However, the difference is that this is an on-going activity and responsibilities need to be allocated and metadata maintenance processes devised.

Where a data resource is maintained on an ongoing, record by record basis as part of a routine business operation, a regular review of the metadata must be undertaken and any deficiencies remedied at that time. The review cycle should be less than an annual occurrence.

Where a data resource is maintained by a dedicated once-off effort where part or all of an existing data resource is updated, metadata should be created for the update dataset. Once the main data resource has been updated then its metadata should be updated using the details from the update dataset metadata. Version control (using the Resource Version element) is advisable.

Previous comments on the need to ensure a regime of rigorous XML validation apply equally to metadata maintenance as it does to metadata creation.

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<sup>7</sup> "rigorous validation" should involve the use of more than 1 XML parser. Only well recognised XML parsers should be used in this validation process

## 6. Metadata Example

This example is of the Digital Cadastral Database (DCDB) created by the Draughting Section of the Ministry of Natural Resources, Environment & Meteorology. It is described in the table format used in **Part 1 – Profile Definition** to define the Metadata Profile.

Name	Example Values	Obligation Status
<b>Metadata Identification Module</b>	<b>This module defines metadata about a resource or resources</b>	
fileIdentifier (2) <i>mdFileID</i>	Value is a metadata file name following naming convention defined by organisation	Mandatory ISO 19115 Core Element
language (3) – refer ISO 639-2 <i>mdLang</i>	en	Default Value Mandatory
characterSet (4) – refer CodeList B.5.10 <i>mdChar</i>	utf8	Mandatory Default Value
<b>contact (8)</b> <b><i>mdContact</i></b>	<b><i>Party responsible for the metadata</i></b>	<b>ISO 19115 Mandatory</b>
<b>CI_RespParty(374)</b> <b><i>RespParty</i></b>		
<b>pointOfContact (29)</b> <b><i>idPoC</i></b>		<b>Mandatory</b>
<b>contactInfo (387)</b> <b><i>Contact</i></b>		<b>Mandatory</b>
<b>CI_Contactaddress (389)</b> <b><i>cntAddress</i></b>		<b>Mandatory</b>
electronicMailAddress(386) <i>eMailAdd</i>	dcd@mnre.gov.ws	Mandatory
role (379) – ref Codelist B.5.5 <i>role</i>	custodian	ISO 19115 Mandatory
dateStamp (9) refer B.4.2 ISO 8601 <i>mdDateSt</i>	2005-10-20	ISO 19115 Mandatory
metadataStandardName (10) <i>mdStanName</i>	ISO 19115 Geographic Information – Metadata, Samoa Geospatial Metadata Profile	ISO 19115 Core Element Default Value
metadataStandardVersion (11) <i>mdStanVer</i>	1.0	Mandatory Default Value

## Metadata Example

Name	Example Values	Obligation Status
<b>Resource Identification Module</b>		
<b>MD_Distribution (17/270)</b> <i>disInfo</i>	<b>Distribution details to be added by distributing organisation</b>	
<b>distributionFormat (271)</b> <i>distFormat</i>		<b>ISO 19115 Mandatory</b>
name (285) <i>formatName</i>	Mapinfo Tables	ISO 19115 Mandatory
version (286) <i>formatVer</i>	6.5	ISO 19115 Mandatory
<b>MD_DigitalTransferOptions (273)</b> <i>distTranOps</i>		
unitsOfDistribution (275) <i>unitsOfDist</i>	MapInfo Tables with countrywide coverage	Mandatory
transferSize (275) <i>transSize</i>	1MB	Mandatory
<b>MD_Identification (15/23)</b> <i>dataIDInfo</i>		<b>ISO 19115 Mandatory</b>
<b>citation (24)</b> <i>idCitation</i>		<b>ISO 19115 Mandatory</b>
title (360) <i>resTitle</i>	Digital Cadastral Database	ISO 19115 Mandatory
<b>date (362/394)</b> <i>resRefDate</i>	<b>Reference date for the data resource</b>	<b>ISO 19115 Mandatory</b>
date (394) <i>refDate</i>	2005-10-01	ISO 19115 Mandatory
dateType (395) – ref Codelist B.5.2 <i>refDateType</i>	creation	ISO 19115 Mandatory Default value
identifier (365) <i>citId</i>	1	Mandatory SPREP Metadata Catalogue ID
presentationForm (368) – ref Codelist B.5.4 <i>presForm</i>	mapDigital	Mandatory
abstract (25) <i>idAbs</i>	<i>The DCDB is a digital map that contained a vector based representation of all land parcel boundaries for all freehold and government land in Samoa. It also contains other related features including a centerline representation of all legal roads. It reflects the current cadastral pattern and is maintained through the processing of new subdivision plans.</i>	ISO 19115 Mandatory

## Metadata Example

Name	Example Values	Obligation Status
<b>Resource Identification Module</b>		
purpose (26) <i>idPurp</i>	<i>The DCDB was developed to replace the hardcopy record sheet maps and support the efficient recording of cadastral surveys. It also provides other GIS applications with an authoritative geospatial dataset of freehold and government land parcels.</i>	Mandatory
<b>pointOfContact (29/374)</b> <i>idPoC</i>	<b>Contact details for the Party responsible for the Resource</b>	<b>ISO 19115 Core Element</b>
organisationName (376) <i>rpOrgName</i>	Ministry of Natural Resources, Environment and Meteorology	Mandatory
role (379) – ref Codelist B.5.5 <i>role</i>	custodian	ISO 19115 Mandatory Default Value
<b>resourceMaintenance (30)</b> <i>resMaint</i>	<b>Details on the maintenance of the resource (not the metadata)</b>	<b>Mandatory</b>
maintenanceAndUpdateFrequency (143) ref Codelist B.5.18 <i>maintFreq</i>	continual	Mandatory
<b>descriptiveKeywords (33)</b> <i>descKeys</i>	<b>Where keywords have been identified by subject matter experts utilising ANZLIC, FONZ or SONZ keywords</b>	<b>Mandatory</b>
<b>ANZLIC Search Words</b>		<b>Optional</b>
keyword (53) <i>keyword</i>	LANDTenure	ISO 19115 Mandatory
type (54) - refer CodeList B.5.17 <i>keyTyp</i>	theme	Mandatory
thesaurusName (55) <i>thesaName</i>	SPREP compilation of ANZLIC Search Words	Mandatory
<b>MD_DataIdentification (36)</b> <i>DataIdent</i>	<b>Details specific to a data resource</b>	
spatialRepresentationType (37) refer CodeList B.5.26 <i>spatRpType</i>	vector	Mandatory ISO 19115 Core Element
<b>spatialResolution (38)</b> <i>dataScale</i>	<b>Described as either a scale (representative fraction) or as a distance at ground scale.</b>	<b>Mandatory</b> <b>ISO 19115 Core Element</b>
equivalentScale (60) <i>equScale</i>	1:1,000	Conditional when distance is not populated
language (39) <i>dataLang</i>	en	ISO 19115 Mandatory Default Value
characterSet (40) – refer CodeList B.5.10 <i>dataChar</i>	utf8	Default Value

## Metadata Example

Name	Example Values	Obligation Status
<b>Resource Identification Module</b>		
topicCategory (41) – refer CodeList B.5.27 <i>tpCat</i>	planningCadastre	ISO 19115 Mandatory

Name	Description	Obligation Status
<b>Spatial and Extents Module</b>		
MD_ReferenceSystem (13/186) <i>refSysInfo</i>	Identifies the spatial referencing system applying to the Resource	Mandatory ISO 19115 Core Element
referenceSystemIdentifier (187) <i>refSysID</i>		ISO 19115 Mandatory
code (207) <i>identCode</i>	SIG	ISO 19115 Mandatory
MD_Identification (15/23) <i>dataIDInfo</i>	Details applicable to both a data or service resource	ISO 19115 Mandatory
MD_DataIdentification (36) <i>DataIdent</i>	Details specific to a data resource	ISO 19115 Mandatory
extent (45) <i>dataExt</i>	Details defining the geographical, temporal and vertical extent of the resource	
geographicElement (336)	Details defining the geographical extent	Mandatory
geographicIdentifier (349) <i>geolD</i>	Samoa	ISO 19115 Mandatory
temporalElement (337) <i>tempEle</i>		Mandatory
extent (351) – refer B.4.6 <i>exTemp</i>	2005-11-01	ISO 19115 Mandatory

## Metadata Example

Name	Description	Obligation Status
<b>Data Quality Module</b>		
<b>dataQualityInfo (18)</b> <i>dqInfo</i>	Details describing the quality of the resource	Mandatory
<b>scope (79)</b> <i>dqScope</i>	Defines the scope of the quality information supplied	ISO 19115 Mandatory
level (139) – refer CodeList B.5.25 <i>scpLvl</i>	dataset	ISO 19115 Mandatory Default Value
<b>lineage (81)</b> <i>dataLineage</i>	Describes how the resource was created	Mandatory
statement (83) <i>statement</i>	The DCDB was derived from digitising a series of cadastral record sheets at scales varying from 1:500 to 1:50,000. The digitising was started in 1995 but not completed until 2005. The initial digitising was using a digitising tablet but the final conversion effort was by on-screen digitising of scanned images of the record sheets. It is now maintained by on-screen digitising of scanned images of all new approved survey plans.	Mandatory ISO 19115 Core

Name	Description	Obligation Status
<b>Data Characteristics Module</b>		
<b>MD_Identification (15/23)</b> <i>dataDInfo</i>		ISO 19115 Mandatory
<b>resourceFormat (32/284)</b> <i>dsFormat</i>	A description of the format of the resource	Conditional – If data resource
name (285) <i>formatName</i>	MapInfo	ISO 19115 Mandatory
version (286) <i>formaVert</i>	6.5	ISO 19115 Mandatory
<b>MD_Constraints (35/67)</b> <i>resConst</i>	Identifies any use limitations, access constraints or use constraints (such as copyright or IP) that apply to the resource	

## Metadata Example

	userLimitation (69) <i>useLimit</i>	There are potential issues with the spatial referencing of the DCDB because of inherent coordinate discrepancies in the original record maps based on the Lemuta plane coordinate system. Although local transformation parameters will be calculated following the completion of new third order GPS control surveys, it is highly likely that these calculations will indicate local discontinuities.	Conditional – if use limitation is known
	<b>MD_LegalConstraints (69)</b> <b><i>LegConsts</i></b>	<b>Identifies (legal) access constraints or use constraints (such as copyright or IP) that apply to the resource</b>	
	useConstraints (71) refer CodeList B.5.24 <i>useConsts</i>	copyright	Conditional if Government Copyright applies Default Value
	otherConstraints (72) <i>othConsts</i>	Government of Samoa Copyright, 2003	Conditional if Government Copyright applies Default Value
	otherConstraints (72) <i>othConsts</i>	A schedule of fees for the supply of DCDB data is available from the MNREM	Conditional if other constraints apply

## 7.ISO 19115 & the Samoa Metadata Modules

The following table shows how elements from ISO 19115 are used

- Fit with the 5 major modules and the extension element module
- You will note that some elements are repeated within modules. This is because the requirement for common elements such as date, addressing and phone numbers occur in multiple modules
- Although these elements are similar the values may differ. The values are specific to the need of the particular module.

Metadata Element	Metadata Identification	Spatial & Extents	Resource Identification	Data Characteristics	Data Quality	Metadata Extensions
MD_Metadata (1)						
fileIdentifier (2)						
language (3)						
characterSet (4)						
parentIdentifier (5)						
contact (8)						
CI_RespParty (374)						
pointOfContact (29)						
organisationName (376)						
positionName (377)						
contactInfo (387)						
CI_Contactaddress (389)						
electronicMailAddress(386)						
role (379)						
dateStamp (9)						
metadataStandardName (10)						
metadataStandardVersion (11)						
datasetURL (11.1)						
MD_SpatialRepresentation (12/156)						
MD_VectorSpatialRepresentation (176)						
topologyLevel (177)						
MD_GridSpatialRepresentation (157)						
numberOfDimensions (158)						
axisDimensionsProperties (159)						
dimensionName (180)						
dimensionSize (181)						
dimensionName (180)						
dimensionSize (181)						
cellGeometry (160)						
transformationParameterAvailability (161)						
MD_Georectified (162)						
checkPointAvailability (163)						
checkPointDescription (164)						
cornerPoints (165)						
diagonal1NorthEndNorthing						
diagonal1NorthEndEasting						
diagonal1SouthEndNorthing						
diagonal1SouthEndEasting						
diagonal2NorthEndNorthing						
diagonal2NorthEndEasting						
diagonal2SouthEndNorthing						
diagonal2SouthEndEasting						
pointInPixel (167)						
transformationDimensionDescription (168)						

# ISO 19115 & the Metadata Modules

Metadata Element	Metadata Identification	Spatial & Extents	Resource Identification	Data Characteristics	Data Quality	Metadata Extensions
transformationDimensionMapping (169)						
MD_Georeferencable (707)						
controlPointAvailability (171)						
orientationParameterAvailability (172)						
parameters (174)						
MD_ReferenceSystem (13/186)						
referenceSystemIdentifier (187)						
code (207)						
codeSpace (208.1)						
MD_Identification (15/23)						
citation (24)						
title (360)						
alternateTitle (361)						
date (362/394)						
edition (363)						
editionDate (364)						
identifier (365)						
presentationForm (368)						
ISBN (372)						
ISSN (373)						
abstract (25)						
purpose (26)						
status (28)						
pointOfContact (29/374)						
organisationName (376)						
positionName (377)						
contactInfo (387)						
CI_Contactphone (388)						
voice(408)						
facsimile(409)						
CI_Contactaddress (389)						
deliveryPoint(381)						
city(382)						
country(385)						
electronicMailAddress(386)						
CI_OnlineResource(390)						
linkage (397)						
role (379)						
MD_MaintenanceInformation (30/142)						
maintenanceAndUpdateFrequency (143)						
dateOfNextMaintenance (144)						
maintenanceNote (148)						
resourceFormat (32/284)						
name (285)						
version (286)						
descriptiveKeywords (33)						
keyword (53) [ANZLIC Search Words]						
type (54)						
thesaurusName (55)						
title (360)						
date (362)						
.otherCitationDetails (370)						
MD_Usage (34/62)						
specificUsage (63)						
userDeterminedLimitations (65)						
userContactInfo (66)						
CI_RespParty(374)						
pointOfContact (29)						
organisationName (376)						
positionName (377)						

# ISO 19115 & the Metadata Modules

Metadata Element	Metadata Identification	Spatial & Extents	Resource Identification	Data Characteristics	Data Quality	Metadata Extensions
contactInfo (387)						
CI_Contactaddress (389)						
electronicMailAddress(386)						
role (379)						
MD_Constraints (35/67)						
useLimitation (68)						
MD_LegalConstraints (69)						
accessConstraints (70)						
useConstraints (71)						
otherConstraints (72)						
MD_DataIdentification (36)						
spatialRepresentationType (37)						
spatialResolution (38)						
equivalentScale (60)						
distance (61)						
language (39)						
characterSet (40)						
topicCategory (41)						
extent (45)						
geographicElement (336)						
extentTypeCode (340)						
geographicBox (343)						
westBoundLongitude(344)						
eastBoundLongitude(345)						
southBoundLatitude(346)						
northBoundLatitude(347)						
geographicIdentifier (349)						
polygon (342)						
temporalElement (337)						
extent (351)						
verticalElement (338)						
minimumValue (355)						
maximumValue (356)						
unitOfMeasure (357)						
verticalDatum (358)						
MD_ContentInformation (16/234)						
MD_FeatureCatalogueDescription (235)						
includedWithDataset (238)						
featureCatalogueCitation (240)						
title (360)						
date (362)						
edition (363)						
MD_Distribution (17/270)						
distributionFormat (271)						
name (285)						
version (286)						
distributor (272)						
distributorContact 280)						
organisationName (376)						
positionName (377)						
contactInfo (387)						
phone (388)						
voice (408)						
facsimile (409)						
address (389)						
deliveryPoint(381)						
city(382)						
country(385)						
electronicMailAddress(386)						
online (277)						

# ISO 19115 & the Metadata Modules

Metadata Element	Metadata Identification	Spatial & Extents	Resource Identification	Data Characteristics	Data Quality	Metadata Extensions
linkage(397)						
role (379)						
.distributorFormat (282)						
name (285)						
version (286)						
distributionOrderProcess (281/296)						
fees (299)						
orderingInstruction (301)						
turnaround (302)						
MD_DigitalTransferOptions (273)						
unitsOfDistribution (275)						
transferSize (276)						
online (277)						
linkage(397)						
protocol (398)						
name (400)						
description (401)						
function (402)						
offline (278/291)						
name (292)						
mediumFormat (296)						
mediumNote (297)						
dataQualityInfo (18)						
scope (79)						
level (139)						
report (80)						
DQ_Element (101)						
nameOfMeasure (100)						
measureIdentification (99)						
authority (206)						
organisationName (376)						
positionName (377)						
role (379)						
code (207)						
measureDescription (102)						
evaluationMethodType (103)						
evaluationMethodDescription (104)						
dateTime (106)						
result (107/128)						
DQ_ConformanceResult (129)						
specification (130)						
title (360)						
date (362)						
explanation (131)						
pass (132)						
DQ_QuantitativeResult (133)						
valueUnit (135)						
value (137)						
lineage (81/82)						
statement (83)						
processStep (84)						
description (87)						
rationale (88)						
dateTime (89)						
processor (91)						
organisationName (376)						
role (379)						
source (85)						
scaleDenominator (94)						
sourceReferenceSystem (95)						

## ISO 19115 & the Metadata Modules

Metadata Element	Metadata Identification	Spatial & Extents	Resource Identification	Data Characteristics	Data Quality	Metadata Extensions
referenceSystemIdentifier (187)						
code (207)						
sourceCitation (96)						
title (360)						
date (362)						
edition (363)						
citedResponsibleParty (367)						
organisationName (376)						
role (379)						
sourceExtent (97)						
geographicIdentifier (349)						
MD_ApplicationSchemaInformation (21/322)						
name (321)						
title (360)						
date (362)						
edition (363)						
citedResponsibleParty (367/374)						
organisationName (376)						
positionName (377)						
role (379)						
schemaLanguage (322)						
graphicsFile (325)						

### Comparison of Samoa Geospatial Metadata Profile with ISO 19115

## 8. The Metadata Element Descriptions

The following sections contain individual metadata element descriptions for each metadata element within the Metadata Profile. These element descriptions are organised into modules being a group of elements describing similar metadata characteristics. These element descriptions should be used as a reference source.

### Explanation of element description table format

Name	Name of metadata element
Short Name	Short name of metadata element
Superior Entities in ISO 19115 UML Structure	Identifies UML path to the parent entity(ies)
Definition	The definition of the metadata element being described
Purpose	A short explanation of the metadata element
Obligation	Indication of element status in regarding to completing the metadata record. Element may be mandatory or conditional
Element refinements	Element refinements help to qualify a metadata element to control the format (syntax) of the value entered.
Encoding Schemes	These show where a specific set of controlled values can be sourced. These are the only permissible values for this element. These are referred to as CodeLists. To access CodeLists please refer to <b>Part 1 Profile Definition</b> . Namespaces identifying authoritative source for these codelists have been identified. These values should be used when metadata descriptions are encoded as XML instance documents utilising the optional "codeSpace" attribute structure within the XML instance document.
Default Value	This is the default value for the metadata element (if available).
Scope and Interpretation	This gives a broad explanation on the reason and method to complete and accurately describe the metadata element in terms of the resource being defined

# Metadata Identification Module

## The Metadata File Identifier Element

### Purpose of this Section

Contains the rules for metadata element number 2 (ISO 19115 number series):  
*fileIdentifier*

### Rules on the Metadata File Identifier Element

Name	file Identifier
Short Name	mdFileID
Superior Entities in ISO 19115 UML Structure	MD_Metadata
Definition	The unique identifier of the metadata file.
Purpose	To differentiate one metadata file from another metadata file
Obligation	Mandatory.
Element refinements	None mandated. Organisations may define file naming conventions which identify refinements to distinguish and contain links between files pertaining to the same resource. For instance, file category (resource, metadata, feature catalogue, application schema), resource name and resource version.
Encoding Schemes	None
Default Value	None
Scope and Interpretation	This element must correctly identify the metadata file describing the current resource. Any refinements specified by an organisation must be consistently applied.

### Examples

Metadata File Identifier = SamDCDBmetv01-0.xml

### Possible Refinements

"<fname>" describes the nature of the data resource – to be defined by the data steward. Naming should be as descriptive as possible.	Characters 1 –7
"<file category" = "met"	Characters 8 - 10
"v"	Character 11
Version number in "real number" format. 0-n only to be used for preliminary data supplies. First initial "official" supply to be "01-0". New versions resulting from maintenance updates reflected by incrementing previous version by 0-1. Significant data improvements to dataset to be marked by a new whole number (e.g. 2-0). Where maintenance is a systematic process, the anniversary of the initial supply/compilation of the dataset should be marked with a new version identified with a new whole number.	Characters 12 – 16 (including dash to represent decimal point)
".xml" to reflect data encoding	Characters 17 - 20
Example: <SamDCDBmetv01-2.xml>	Characters 1 - 20

# The Metadata Language Element

## Purpose of this Section

Contains the rules for metadata element number 3 (ISO 19115 number series):  
*language*

## Rules on the Metadata Language Element

Name	language
Short Name	mdLang
Superior Entities in ISO 19115 UML Structure	MD_Metadata
Equivalent NZGLS Element	None
Definition	Language used for documenting metadata.
Purpose	This element allows a search to be restricted to resources where the metadata has been created in a specific language. It is not intended to be a primary search point. For example, "find all metadata for data resources of Upolu where the metadata is published in Samoan".
Obligation	Conditional – required if language cannot be inferred from data encoding system.
Element refinements	None
Encoding Schemes	Compulsory – ISO 639 Part 2 "Codes for the representation of names of languages"
Default Value	eng
Scope and Interpretation	<p>Language values are chosen from a standard set. The language value "eng" should be used in preference to "en-nz" unless a knowledge of New Zealand colloquial English is required to make sense of the resource. The language value is a two letter language code from the standard resource, which can have a two letter country code following it as an option. For example, "eng" means English, and "en-gb" means English with the United Kingdom influence or colloquial style. A full list of language codes is available at <a href="http://lcweb.loc.gov/standards/iso639-2/langcodes.html">http://lcweb.loc.gov/standards/iso639-2/langcodes.html</a></p> <p>Where a single resource contains more than one language, repeat the Language element to cover each language. Where a resource exists separately in a different language, it is treated as a separate resource. Each version gets its own metadata record.</p>

## Examples

[iso639-2]	eng	English
[iso639-2]	en-nz	English as used in New Zealand
[iso639-2]	mao	Maori
[iso639-2]	smo	Samoan
[iso639-2]	ton	Tongan
[iso639-2]	tkl	Tokelau

# The Metadata Character Set Element

## Purpose of this Section

Contains the rules for metadata element number 4 (ISO 19115 number series):  
*characterSet*

## Rules on the Metadata Character Set Element

Name	characterSet
Short Name	mdChar
Superior Entities in ISO 19115 UML Structure	MD_Metadata
Definition	Full name of the character coding standard used for the metadata set.
Purpose	This element allows a search to be restricted to resources that the user can use and view on their system.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	Compulsory – ISO 19115 – B.5.10 MD_CharacterSetCode <<CodeList>> Namespace – <a href="http://www.isotc211.org/2005/gmx">http://www.isotc211.org/2005/gmx</a> Location - ./resources/codeList.xml#MD_CharacterSetCode
Default Value	utf8 (8-bit variable size UCS Transfer Format, based on ISO/IEC 10646) appears to be one of the more commonly used character sets incorporated in XML tools).
Scope and Interpretation	
CharacterSet values are chosen from a standard set and are usually defined as part of the data encoding standard.	

## Examples

[iso19115]	ucs2
[iso19115]	ucs4
[iso19115]	utf7
[iso19115]	utf8
[iso19115]	utf16

# The Metadata Email Contact Element

## Purpose of this Section

Contains the rules for metadata element number 386 (ISO 19115 number series):  
*electronicMailAddress*

## Rules on the Metadata Email Contact Element

Name	electronicMailAddress
Short Name	eMailAdd
Superior Entities in ISO 19115 UML Structure	MD_Metadata /CI_RespParty/pointOfContact / CI_ContactAddress
Definition	The electronic mailbox address for metadata communications at the organisation responsible for the creation and management of this metadata.
Purpose	This element allows the user to communicate with the organisation responsible for metadata management. This element will not be used as a search criteria.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None.
Default Value	None.
Scope and Interpretation	
Email values must accurately describe a valid email address.	

### Examples

Metadata Email Contact = metadata@mnre.gov.ws

# The Metadata Contact Role Element

## Purpose of this Section

Contains the rules for metadata element number 379 (ISO 19115 number series): *role*

## Rules on the Metadata Contact Role Element

Name	role
Short Name	role
Superior Entities in ISO 19115 UML Structure	MD_Metadata /CI_RespParty/pointOfContact
Definition	The function that empowers the organization to manage this metadata.
Purpose	This element informs the user of the reason why the designated contact organization for the metadata is fulfilling that role. This may become important during the early days of metadata where data distributors may generate metadata for a data resource that they distribute on behalf of the owner or data steward because no metadata is available to them as distributors but there is a demand from users for metadata. In such a situation, the data distributor may be a little removed from the day to day management and maintenance of the data resource and hence their assessments of the quality, lineage and other metadata characteristics may be incomplete and should be treated with a little caution. This element will not be used as a search criteria.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	Compulsory – B 5.5.CI_RoleCode <<CodeList>> Namespace – <a href="http://www.isotc211.org/2005/gmx">http://www.isotc211.org/2005/gmx</a> Location - ./resources/codeList.xml#CI_RoleCode
Default Value	None.
Scope and Interpretation	
Role values must be derived from CI_RoleCode CodeList	

## Examples

[iso19115]	resourceProvider	party that supplies the resource
[iso19115]	custodian	party that accepts accountability and responsibility for the data and ensures appropriate care and maintenance of the resource
[iso19115]	owner	party that owns the resource
[iso19115]	user	party who uses the resource
[iso19115]	distributor	party who distributes the resource
[iso19115]	originator	party who created the resource
[iso19115]	pointOfContact	party who can be contacted for acquiring knowledge about or acquisition of the resource
[iso19115]	principallInvestigator	key party responsible for gathering information and conducting research
[iso19115]	processor	party who has processed the data in a manner such that the resource has been modified

# The Metadata Date Element

## Purpose of this Section

Contains the rules for metadata element number 9 (ISO 19115 number series):  
*dateStamp*

## Rules on the Metadata Date Element

Name	dateStamp
Short Name	mdDateSt
Superior Entities in ISO 19115 UML Structure	MD_Metadata
Definition	Date that the metadata was created.
Purpose	This element allows the user to make an assessment as to the validity, in particular timeliness, of the metadata. In the case where there are a number of metadata files for a resource, the user can use the date to determine what is the most recent. This element will not be used as a search criteria.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	ISO 8601 – the list of acceptable formats is in this section
Default Value	None.
Scope and Interpretation	
This date should be to record the last update of the metadata (not the data resource). Initially this will be the date the metadata was created but, over time, this date will be replaced by the date the metadata was updated..	

## Examples

2002-08-14 - i.e. 14 August 2002

# The Metadata Standard Element

## Purpose of this Section

Contains the rules for metadata element number 10 (ISO 19115 number series):  
*metadataStandardName*

## Rules on the Metadata Standard Element

Name	metadataStandardName
Short Name	mdStanName
Superior Entities in ISO 19115 UML Structure	MD_Metadata
Definition	Name of the metadata standard (including profile name) used.
Purpose	This element allows the user to identify which metadata profile has been used to compile this particular metadata file. This element will not be used as a search criteria.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None
Default Value	ISO 19115 Geographic Information – Samoa Metadata Geospatial Metadata Profile
Scope and Interpretation	
All metadata complying with this Metadata Profile should use the default value unmodified.	

## Examples

See default value above.

# The Metadata Standard Version Element

## Purpose of this Section

Contains the rules for metadata element number 11 (ISO 19115 number series):  
*metadataStandardVersion*

## Rules on the Metadata Standard Version Element

Name	metadataStandardVersion
Short Name	mdStanVer
Superior Entities in ISO 19115 UML Structure	MD_Metadata
Definition	Version of the metadata standard or profile (refer previous definition) used.
Purpose	This element allows the user to ascertain whether the metadata conforms to the latest version of this metadata standard. This element will not be used as a search criteria.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None
Default Value	None.
Scope and Interpretation	
The version value should be the one that defined the content and structure of the metadata. In the case where a XML schema document provides that definition, the version of the Metadata Profile it conforms to should be clearly annotated within the XML schema document	

## Examples

1.0

# The Resource Identification Module

## The Resource Title Element

### Purpose of this Section

Contains the rules for metadata element number 360 (ISO 19115 number series): *title*

### Rules on the Resource Title Element

Name	title
Short Name	resTitle
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/CI_Citation
Definition	The name by which the cited resource is known.
Purpose	Searchers will use this element if they know the title of the resource or words in the title of the resource.
Obligation	Mandatory.
Element refinements	None mandated.
Encoding Schemes	None
Default Value	None
Scope and Interpretation	<p>Where there is an official name used for the resource, this should be used in the Resource Title element.</p> <p>If the resource is a text document, use the full title as it appears on the title page. If the document has another common usage name, add this to the end of the title in brackets.</p> <p>In some situations where there is no formal name associated with the resource, the author might need to make up the most useful name for the resource, using the name which it is most commonly known by, and most likely to be searched by.</p> <p>If a version statement is attached to the record to distinguish this resource from others of the same title in a time series, then the version statement should be included at the end of the title.</p>

### Examples

Geographic Place Name Database
Digital Cadastral Database

# The Resource Identifier Element

## Purpose of this Section

Contains the rules for metadata element number 365 (ISO 19115 number series):  
*identifier*

## Rules on the Resource Identifier Element

Name	identifier
Short Name	citId
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/CI_Citation
Definition	Value uniquely identifying the resource within a namespace.
Purpose	To provide a further mechanism to aid searching and locating the resource.
Obligation	Mandatory
Element refinements	None
Encoding Schemes	None
Default Value	None
Scope and Interpretation	
The SPREP Metadata Catalogue Dataset identifier is the only valid value for the Samoa Geospatial Metadata Profile.	

## Examples

123467

# The Resource Citation Date Element

## Purpose of this Section

Contains the rules for metadata element number 363 (ISO 19115 number series): *date*

## Rules on the Resource Citation Date Element

Name	date	
Short Name	resRefDate	
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/CI_Citation	
Definition	Reference date for the cited resource.	
Purpose	This element allows the user to qualify a search for suitable resources. For instance "Find all rainfall data resources for Otago in the last 5 years".	
Obligation	Mandatory.	
Element refinements	Event used for the Resource Citation Date should be used to qualify the date value. These qualifiers must be B.5.2 CI_DateTypeCode <<CodeList>> i.e.	
		Creation
		Publication
		Revision
Encoding Schemes	ISO 8601 Date Encoding Scheme	
	<p>ISO 8601 is the International Standard for the representation of dates and times. ISO 8601 describes a large number of date/time formats. To reduce the scope for error and the complexity of software, it is useful to restrict the supported formats to a small number. This profile replicates NZGLS (Section K.2) and defines some date/time formats which are likely to satisfy most requirements.</p> <p>The formats are as follows. Exactly the components shown here must be present, with exactly this punctuation. Note that the 'T' appears literally in the string, to indicate the beginning of the Time element, as specified in ISO 8601.</p> <p>Date Formats  Year: YYYYY (e.g. 1997)  Year and month: YYYYY-MM (e.g. 1997-07)  Complete date: YYYYY-MM-DD (e.g. 1997-07-16)  Periods of Time when start and end dates are known:  YYYY-MM-DD/YYYY-MM-DD (eg1997-07-16/1997-08-17)  Periods of Time when the start or end date are not known:  YYYY-MM-DD/- OR -/YYYY-MM-DD (e.g. 1997-07-16/-OR-/1997-08-17)  Abbreviations used above are::  YYYYY = four-digit year  MM = two-digit month (01=January, etc.)  DD = two-digit day of month (01 through 31)</p>	
Default Value	None	
Scope and Interpretation	<p>If metadata is created directly using an XML Schema incorporating the ISO 19115 UML structure, users should be aware the date type qualifier will be treated as a separate element to the ISO 8601 compliant date format value.</p>	

## Examples

(creation)	2002-08-08
(publication)	2002-09-06
(revision)	2003-01-30

# The Resource Presentation Form Element

## Purpose of this Section

Contains the rules for metadata element number 368 (ISO 19115 number series):  
*presentationForm*

## Rules on the Resource Presentation Form Element

Name	presentationForm
Short Name	presForm
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/CI_Citation
Definition	Mode in which the resource is presented.
Purpose	This element allows the user to locate different categories of resources (such as types of documents or services), or for results to be displayed in useful groups. The element allows a search to be restricted to resources of a certain kind. For example, "find all digital imagery of Otago".
Obligation	Conditional – if data resource and not a service
Element refinements	None.
Encoding Schemes	Compulsory – B.5.4 CI_PresentationFormCode <<CodeList>> Namespace – <a href="http://www.isotc211.org/2005/gmx">http://www.isotc211.org/2005/gmx</a> Location - ./resources/codeList.xml#CI_PresentationFormCode
Default Value	None.
Scope and Interpretation	
Resource Presentation Form values must be derived from CI_PresentationFormCode CodeList	

## Examples

[iso19115]	documentDigital
[iso19115]	imageDigital
[iso19115]	imageHardcopy
[iso19115]	mapDigital
[iso19115]	mapHardcopy

# The Abstract Element

## Purpose of this Section

Contains the rules for metadata element number 25 (ISO 19115 number series):  
*abstract*

## Rules on the Abstract Element

Name	abstract
Short Name	idAbs
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification
Definition	Brief narrative summary of the content of the resource.
Purpose	The Abstract element amplifies the results of resource searches to permit users to obtain a better appreciation of the resource and assist determine fitness for purpose. This element will not be used as a search criteria.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None.
Default Value	None.
Scope and Interpretation	Care should be taken to make sure that the abstract describes all the content of the resource but at the same time is a summary of that content.

## Examples

The DCDB is a digital map that contained a vector based representation of all land parcel boundaries for all freehold and government land in Samoa. It also contains other related features including a centerline representation of all legal roads. It reflects the current cadastral pattern and is maintained through the processing of new subdivision plans.

# The Purpose Element

## Purpose of this Section

Contains the rules for metadata element number 26 (ISO 19115 number series):  
*purpose*

## Rules on the Purpose Element

Name	Purpose
Short Name	idPurp
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification
Definition	Summary of intention for which the resource was developed
Purpose	The Purpose element is like the Abstract element in that it amplifies the results of resource searches to permit users to obtain a better appreciation of the resource and assist determine fitness for purpose. This element will not be used as a search criteria.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None.
Default Value	None.
Scope and Interpretation	
This element may duplicate the details recorded for the Mandate Reference Element but also allows secondary purposes to be recorded and for private sector agencies to record a non-mandatory purpose.	

## Examples

The DCDB was developed to replace the hardcopy record sheet maps and support the efficient recording of cadastral surveys. It also provides other GIS applications with an authoritative geospatial dataset of freehold and government land parcels.

# The Resource Contact Organisation Element

## Purpose of this Section

Contains the rules for metadata element number 376 (ISO 19115 number series):  
*organisationName*

## Rules on the Resource Contact Organisation Element

Name	organisationName
Short Name	rpOrgName
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification
Definition	The name of the organisation primarily responsible for the content of the resource, or the provision of the service.
Purpose	The Creator element allows searchers to find resources based on the creator of those resources. For example, it allows a searcher to discover all resources or services created by the Ministry of Natural Resources, Environment & Meteorology
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None
Default Value	None
Scope and Interpretation	For resources created by government, this element value contains the name of the agency responsible for on-going operation or maintenance of the resource or the service. Where there are a number or organizations involved in the operation or maintenance of a service or resource, the agency mostly responsible for that service or resource is designated as the Resource Contact Organisation. This element always refers to the primary agency. Other agencies may also be noted in other metadata elements (Error! Reference source not found., Error! Reference source not found., Error! Reference source not found. <b>and</b> Error! Reference source not found.). Organisation name is always given in full with no abbreviations.

### Examples

Ministry of Natural Resources, Environment & Meteorology
Ministry of Health

## Resource Mail Address Contact Element

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### The Resource Mail Address Contact Element

#### Purpose of this Section

Contains the rules for metadata element number 381, 382 & 385 (ISO 19115 number series): *deliveryPoint*, *city* & *country*

#### Rules on the Resource Mail Address Contact Element

Name	deliveryPoint, city, country
Short Name	delPoint, city, country
Superior Entities in ISO 19115 UML Structure	MD_Metadata/ MD_Identification
Definition	The mail address for the organization responsible for the resource.
Purpose	This element allows the user to communicate with the organisation responsible for the resource. This element will not be used as a search criteria.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None
Default Value	country: Samoa. Other sub-elements : none
Scope and Interpretation	
Address values must accurately describe a valid street or mail address.	

#### Examples

Beach Road, Apia, Samoa.

# The Resource Contact Role Element

## Purpose of this Section

Contains the rules for metadata element number 379 (ISO 19115 number series): *role*

## Rules on the Resource Contact Role Element

Name	role
Short Name	role
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/CI_RespParty/pointOfContact/
Definition	The function that empowers the organization to manage this resource or service.
Purpose	This element informs the user of the reason why the designated contact organization for the resource or service is fulfilling that role. This may become important during the early days of metadata where data distributors may generate metadata for a data resource that they distribute on behalf of the owner or data steward because no metadata is available to them as distributors but there is a demand from users for metadata. In such a situation, the data distributor may be a little removed from the day to day management and maintenance of the data resource and hence their assessments of the quality, lineage and other metadata characteristics may be incomplete and should be treated with a little caution. This element will not be used as a search criteria.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	Compulsory – B5.5 CI_RoleCode <<CodeList>> Namespace – <a href="http://www.isotc211.org/2005/gmx">http://www.isotc211.org/2005/gmx</a> Location - ./resources/codeList.xml#CI_RoleCode
Default Value	None.
Scope and Interpretation	
Role values must be derived from CI_RoleCode CodeList	

## Examples

[iso19115]	resourceProvider	party that supplies the resource
[iso19115]	custodian	party that accepts accountability and responsibility for the data and ensures appropriate care and maintenance of the resource
[iso19115]	owner	party that owns the resource
[iso19115]	user	party who uses the resource
[iso19115]	distributor	party who distributes the resource
[iso19115]	originator	party who created the resource
[iso19115]	pointOfContact	party who can be contacted for acquiring knowledge about or acquisition of the resource
[iso19115]	principalInvestigator	key party responsible for gathering information and conducting research
[iso19115]	processor	party who has processed the data in a manner such that the resource has been modified

# The Keyword Element

## Purpose of this Section

Contains the rules for metadata element number 52 (ISO 19115 number series):

*MD\_Keyword*

## Rules on the Keyword Type Element

Name	MD_Keyword (keyword/ type / thesaurusName)
Short Name	Keywords (keyword/ keyTyp/ thesaName)
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_Keywords
Definition	Commonly used words or formalized words or phrases used to describe the subject as well as the subject matter used to group similar keywords and the name of the authoritative source of keywords.
Purpose	This element is one of the main search elements. It incorporates the ANZLIC Search Words (From the ANZLIC Metadata Guidelines Version 2)
Obligation	Conditional (if applicable) for ANZLIC Search words
Element refinements	The keyword metadata element is described in several components.

Component	Definition
keyword	Commonly used word, formalized words or phrases to describe the subject
type	The subject matter used to group similar keywords
thesaurus	Name and brief citation details of the authoritative source of keywords
Encoding Schemes	<p>Compulsory for <b>keyword</b> component – must be from the SPREP version of the ANZLIC Search Words            Compulsory –anzlicSearchWordsCode &lt;&lt;CodeList&gt;&gt;            Namespace – <a href="http://www.mnre.gov.ws/metadata/ws">http://www.mnre.gov.ws/metadata/ws</a>            Location - ./ws/anzlicSearchWordCodeList.xml#anzlicSearchWord</p> <p>Compulsory for <b>type</b> component – must be from B.5.17 MD_KeywordTypeCode &lt;&lt;CodeList&gt;&gt; and the value “theme”.</p> <p>Compulsory for <b>thesaurus</b> component :</p> <ul style="list-style-type: none"> <li>• [title] must be “SPREP compilation of ANZLIC Search Words”;</li> <li>• [date] – 2001-02 date of publication for ANZLIC search words</li> <li>• [dateType] – “theme” (default)</li> </ul>
Default Value	Keyword component – None Type component – theme Thesaurus component – “SPREP compilation of ANZLIC Search Words” – “2001-02”
Scope and Interpretation	<p>ANZLIC Search Words</p> <p>The ANZLIC Search Words include qualifier words that are intended to allow the searcher to be very specific. For instance, a search using WATER Groundwater Research would collect only those datasets where all of those three criteria were entered.            Do not list a major Search Word i.e. “WATER” when a more detailed Search Word i.e. “WATER Rivers” is provided. That is, a metadata record would not be described by the Search Words “WATER” and “WATER Rivers”; preferably the latter.</p>

## Keyword Element

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### *Examples*

<b>Keyword</b>	<b>Type</b>	<b>Thesaurus</b>
WATER Rivers	discipline	[title] "SPREP compilation of ANZLIC Search Words" [date] "2001-02" [dateType] "publication"

# The Resource Language Element

## Purpose of this Section

Contains the rules for metadata element number 39 (ISO 19115 number series):  
*language*

## Rules on the Resource Language Element

Name	language
Short Name	dataLang
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_DataIdentification
Definition	Language used for documenting a resource or service.
Purpose	This element allows a search to be restricted to resources where the resource or service is in a specific language. It is not intended to be a primary search point. For example, "find all the German language data resources of Otago".
Obligation	Conditional – required if language cannot be inferred from data encoding system.
Element refinements	None.
Encoding Schemes	Compulsory – ISO 639 Part 2 "Codes for the representation of names of languages" (This is the same as the NZGLS specified encoding system of RFC3066 – tags for the identification of languages which is based on ISO 639-2)
Default Value	eng
Scope and Interpretation	<p>Language values are chosen from a standard set. The language value "eng" should be used in preference to "en-nz" unless a knowledge of New Zealand colloquial English is required to make sense of the resource.</p> <p>The language value is a two letter language code from the standard resource, which can have a two letter country code following it as an option. For example, "eng" means English, and "en-gb" means English with the United Kingdom influence or colloquial style. A full list of language codes is available at <a href="http://lcweb.loc.gov/standards/iso639-2/langcodes.html">http://lcweb.loc.gov/standards/iso639-2/langcodes.html</a></p> <p>Where a single resource contains more than one language, repeat the Language element to cover each language. Where a resource exists separately in a different language, it is treated as a separate resource. Each version gets its own metadata record.</p>

### Examples

[iso639-2]	eng	English
[iso639-2]	en-nz	English as used in New Zealand
[iso639-2]	mao	Maori
[iso639-2]	smo	Samoan
[iso639-2]	tog	Tongan
[iso639-2]	tkl	Tokelau

# The Resource Character Set Element

## Purpose of this Section

Contains the rules for metadata element number 40 (ISO 19115 number series):  
*characterSet*

## Rules on the Resource Character Set Element

Name	characterSet
Short Name	dataChar
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_DataIdentification
Equivalent NZGLS Element	None
Definition	Full name of the character coding standard used for the data resource.
Purpose	This element allows a search to be restricted to resources that the user can use and view on their system.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	Compulsory - B5.10 MD_CharacterSetCode <<CodeList>> Namespace – “http://www.isotc211.org/2005/gmx” Location - ./resources/codeList.xml#MD_CharacterSetCode”
Default Value	utf8 (8-bit variable size UCS Transfer Format, based on ISO/IEC 10646) appears to be one of the more commonly used character sets incorporated in XML tools).
Scope and Interpretation	
CharacterSet values are chosen from a standard set and are usually defined as part of the data encoding standard.	

## Examples

[iso19115]	ucs2
[iso19115]	ucs4
[iso19115]	utf7
[iso19115]	utf8
[iso19115]	utf16

# The Topic Category Element

## Purpose of this Section

Contains the rules for metadata element number 41 (ISO 19115 number series):  
*topicCategory*

## Rules on the Topic Category Element

Name	topicCategory
Short Name	tpCat
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_DataIdentification
Equivalent NZGLS Element	None
Definition	The main (high-level) theme of the data resource.
Purpose	This element allows a search to be restricted to resources pertaining to a particular theme or topic. For instance "find all data resources to do with the environment"
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	Compulsory – B.5.27 MD_TopicCategoryCode <<CodeList>> Namespace – "http://www.isotc211.org/2005/gmx" Location - ./resources/codeList.xml#MD_TopicCategoryCode
Default Value	None
Scope and Interpretation	
Topic Category values must be derived from MD_TopicCategoryCode CodeList	

## Examples

[iso19115]	environment
[iso19115]	farming
[iso19115]	biota
[iso19115]	boundaries
[iso19115]	climatologyMeteorologyAtmosphere
[iso19115]	economy
[iso19115]	elevation
[iso19115]	geoscientificInformation
[iso19115]	health
[iso19115]	imageryBaseMapsEarthCover
[iso19115]	intelligenceMilitary
[iso19115]	inlandWaters
[iso19115]	location
[iso19115]	oceans
[iso19115]	planningCadastre

# The Spatial Representation Type Element

## Purpose of this Section

Contains the rules for metadata element number 37 (ISO 19115 number series):  
*spatialRepresentationType*

## Rules on the Spatial Representation Type Element

Name	spatialRepresentationType
Short Name	spatRpType
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_DataIdentification
Definition	Method used to spatially represent geographic information
Purpose	To assist potential users make a fitness for purpose assessment.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	Compulsory – B.5.26 MD_SpatialRepresentationTypeCode <<CodeList>> Namespace – “http://www.isotc211.org/2005/gmx” Location - .resources/codeList.xml#MD_SpatialRepresentationTypeCode
Default Value	None
Scope and Interpretation	

## Examples

vector

# The Resource Scale Element

## Purpose of this Section

Contains the rules for metadata element number 60 (ISO 19115 number series):  
*equivalentScale*

## Rules on the Resource Scale Element

Name	equivalentScale
Short Name	equScale
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_DataIdentification
Definition	The level of resolution/ detail expressed as the scale of a comparable hardcopy map or scale.
Purpose	To assist potential users make a fitness for purpose assessment.
Obligation	Conditional – if resolution is not expressed using Resource Spatial Resolution element.
Element refinements	None.
Encoding Schemes	None
Default Value	None
Scope and Interpretation	Where the resource is a hardcopy map or derived from a hardcopy map, the representative scale should be used. Alternatively, the Resource Spatial Resolution element should be used.

## Examples

10,000

# The Resource Spatial Resolution Element

## Purpose of this Section

Contains the rules for metadata element number 61 (ISO 19115 number series):  
*distance*

## Rules on the Resource Scale Element

Name	distance
Short Name	scaleDist
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_DataIdentification
Definition	The absolute positional accuracy or level of resolution/ detail of the data resource expressed as an "on the ground" distance. Where possible this should be the difference from the true position at a 95% confidence level
Purpose	To assist potential users make a fitness for purpose assessment.
Obligation	Conditional – if resolution is not expressed using Resource Scale element.
Element refinements	None.
Encoding Schemes	None
Default Value	None
Scope and Interpretation	Where the resource is a hardcopy map or derived from a hardcopy map, the Resource Scale element should be used and not this element. Where this element is applicable; the distance should be in metres and, where known, reflect the value that reflects the maximum difference from true position at a 95% confidence level (2.45 times the standard deviation).

## Examples

5

# The Distribution Format Name Element

## Purpose of this Section

Contains the rules for metadata element number 285 (ISO 19115 number series):  
*name*

## Rules on the Distribution Format Name Element

Name	name
Short Name	formatName
Superior Entities in ISO 19115 UML Structure	MD_Metadata/ MD_Distribution/MD_Format
Definition	Name of the format that describes the computer language construct that specifies the representation of data objects in a record and file storage device or transmission channel for the resource that can be distributed..
Purpose	This element allows a search to be restricted to resources that the user can use and view on their system.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None
Default Value	None
Scope and Interpretation	
With spatial data resources, the format is likely to be a proprietary format associated with one of the GIS vendors. However, this is not always the case and as GIS move towards more open systems including web-based spatial browsers, formats may included industry standard, non-proprietary formats such as LandXML.	
The format to be recorded in this metadata element is the "distribution" format of the data resource.	

## Examples

Mapinfo
ArcView

# The Distribution Format Version Element

## Purpose of this Section

Contains the rules for metadata element number 286 (ISO 19115 number series):  
*version*

## Rules on the Distribution Format Version Element

Name	version
Short Name	formatVer
Superior Entities in ISO 19115 UML Structure	MD_Metadata/ MD_Distribution/MD_Format
Definition	The version number of the format that describes the computer language construct that specifies the representation of data objects in a record and file storage device or transmission channel.
Purpose	This element allows a search to be restricted to resources that the user can use and view on their system.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None
Default Value	None
Scope and Interpretation	Although most proprietary GIS data formats are backwardly compatible, some versions have physical limitations that have been subsequently overcome. For instance the number of points making up an irregular line feature which means that a feature definition in earlier formats may be broken into a number of features where in more modern versions that same feature definition may be a single feature. An awareness of these differences may be useful to users in certain situations.

## Examples

8.1

# The Spatial and Extents Module

## The Spatial Reference System Element

### Purpose of this Section

Contains the rules for metadata element number 207 (ISO 19115 number series):  
*code*

### Rules on the Spatial Reference System Element

Name	code
Short Name	identCode
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_ReferenceSystem
Definition	Code for a Samoa recognized coordinate reference system.
Purpose	This element ensures users are aware of the coordinate system defining spatial objects in different data resources and can make assessments on how compatible data resources are that are based on different coordinate systems. The element allows a search to be restricted by the coordinate reference system. For example, "find all SIG based data resources".
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	Compulsory – ws_RefSys <<CodeList>> ws_RefSysCodelist Namespace – "http://www.mnre.gov.ws/metadata/ws" Location - ./ws/wsRefSysCodeList.xml#WS_RefSysCodelist
Default Value	SMG
Scope and Interpretation	Valid values are: <b>SMG</b> for Samoa Map Grid Zone 2 (SRS 2005 Datum) <b>SRS2005</b> for unprojected geographical coordinates based on Samoa Reference System, 2005 <b>SIG</b> for the Samoa Integrated Grid <b>WGS84</b> for uprojected, geographical coordinates based on the WGS 84 Datum, <b>WGS72</b> for uprojected, geographical coordinates based on the WGS 72 Datum, <b>Lemuta</b> plane coordinate system
Spatial Reference System values must be derived from WS_ReferenceSystems CodeList .	

### Examples

[WSmd]	SIG	Samoa Integrated Grid
[WSmd]	WGS84	Unprojected World Geodetic System 1984 (no map projection)
[WSmd]	LEMUTA	Lemuta Plane Coordinates

# The Resource Temporal Extent Element

## Purpose of this Section

Contains the rules for metadata element number 351 (ISO 19115 number series):  
*extent*

## Rules on the Resource Temporal Extent Element

### Name

extent

Short Name	exTemp
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_DataIdentification/EX_Extent/EX_TemporalExtent
Definition	The time and date (range) that describes the currency of the resource.
Purpose	This element allows a search to be restricted to resources about a certain time although it is not intended to be a primary search point. It can be specified as an additional element with the primary search criteria.
Obligation	Mandatory.
Element refinements	None.
Encoding Schemes	ISO 8601 Date Encoding Scheme
<p>ISO 8601 is the International Standard for the representation of dates and times. ISO 8601 describes a large number of date/time formats. To reduce the scope for error and the complexity of software, it is useful to restrict the supported formats to a small number. This profile replicates NZGLS (Section K.2) and defines some date/time formats which are likely to satisfy most requirements.</p> <p>The formats are as follows. Exactly the components shown here must be present, with exactly this punctuation. Note that the 'T' appears literally in the string, to indicate the beginning of the Time element, as specified in ISO 8601.</p> <p>Date Formats  Year: YYYYY (e.g. 1997)  Year and month: YYYYY-MM (e.g. 1997-07)  Complete date: YYYYY-MM-DD (e.g. 1997-07-16)  Periods of Time when start and end dates are known:  YYYY-MM-DD/YYYY-MM-DD (eg1997-07-16/1997-08-17)  Periods of Time when the start or end date are not known:  YYYY-MM-DD/- OR -/YYYY-MM-DD (e.g. 1997-07-16/-OR-/1997-08-17)  Abbreviations used above are::  YYYY = four-digit year  MM = two-digit month (01=January, etc.)  DD = two-digit day of month (01 through 31)</p>	
Default Value	None
Scope and Interpretation	The temporal extent should be defined in the format prescribed by ISO 8601 and should only incorporate days and time values if that level of precision is important to users of the data resource.

### Examples

2002-10/2003-04
-----------------

# The Resource Geographic Identifier Element

## Purpose of this Section

Contains the rules for metadata element number 349 (ISO 19115 number series):  
*geographicIdentifier*

## Rules on the Resource Geographic Identifier Element

Name	geographicIdentifier
Short Name	geoID
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_DataIdentification/EX_Extent/EX_GeographicExtent/EX_GeographicDescription
Definition	Describes the geographic area (extent) covered by the content of the resource by reference to existing authoritative sets of spatial locations.
Purpose	This element allows a search to be restricted to resources about a certain place. This is not intended to be primary search point but it does allow a search to be refined. When spatially displayed, this element assists the potential user to assess its fitness for purpose as to whether the resource covers the user's location of interest.
Obligation	Mandatory.
Element refinements	The following refinements will apply namely: – spatial coverage or locations or areas covered in the content of a resource – use values from one of recognized encoding schemes.  Note that this metadata profile does not include spatial refinements such as the geographic box type of definition or the adhoc bounding polygon definition permitted within ISO 19115 and other metadata standards.
Encoding Schemes	One of the following – TO BE CONFIRMED:  Index to Geographic Places – by reference to the unique RelatedID attribute from the MNREM National Mapping Gazetteer to Places database [WSgaz] Namespace yet to be defined  Map Series Sheet – by reference to the unique map sheet reference [WSmapSheets] Namespace yet to be defined
Default Value	Samoa
Scope and Interpretation	Note that this element always relates to the content of the resource, not to the users or the availability of the resource.  The refinement “spatial” refers to locations or areas that are covered by or discussed in the content of the resource. These are usually standard place names of a location. For services, this describes the geographical area covered by the service – as opposed to the legal jurisdiction.

## Examples

[WSmapSheets]	NEED SAMOA EXAMPLE
[WSgaz]	NEED SAMOA EXAMPLE

# The Data Quality Module

## The Data Quality Scope Level Element

### Purpose of this Section

Contains the rules for metadata element number 139 (ISO 19115 number series):  
*level*

### Rules on the Data Quality Scope Level Element

Name	level
Short Name	scpLvl
Superior Entities in ISO 19115 UML Structure	MD_Metadata/DQ_DataQuality/
Definition	The hierarchical level of the data described in the other data quality metadata elements within this metadata profile.
Purpose	This element confirms to the potential user of the resource that the other quality metadata elements pertain to the whole data resource or warns them that those elements only pertain to certain critical subset of the data resource.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	Compulsory – B.5.25 MD_ScopeCode <<CodeList>> Namespace – “http://www.isotc211.org/2005/gmx” Location - ./resources/codeList.xml#MD_ScopeCode
Default Value	dataset
Scope and Interpretation	In most cases, the quality scope will be the same as the resource or service. The most likely situations where only a subset of the resource is commented upon in the metadata quality elements will be where the data resource is a data series or a dataset. In these situations, the quality descriptions may be limited to critical dataset or feature types.

### Examples

[iso19115]	series
[iso19115]	dataset
[iso19115]	featureType
[iso19115]	service

# The Lineage Statement Element

## Purpose of this Section

Contains the rules for metadata element number 83 (ISO 19115 number series):  
*statement*

## Rules on the Lineage Statement Element

Name	statement
Short Name	statement
Superior Entities in ISO 19115 UML Structure	MD_Metadata/DQ_DataQuality/Lineage
Definition	A general explanation of the data producer's knowledge about the lineage of a data resource including general comments on the sources used to create the data resource and the processes used to create it.
Purpose	This element should provide the potential user with an appreciation of the sources and processes used to create the data resource. This understanding will help the user decide whether the data resource is fit for their particular purpose, and also, where there are two similar resources, which is the most appropriate one to use. In other situations, it may guide the user to find some other distinguishing characteristic where a search has returned a number of data resources that have been based on the same sources and created in the same fashion.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None
Default Value	None
Scope and Interpretation	This description should be brief but include reference to all significant sources and significant processes used to create and maintain the data resource. Where there are more than one source or process, these are individually described in two series of separate metadata elements. In this situation, the lineage statement should provide an abstract statement of the content within the these other metadata elements.

## Examples

The DCDB was derived from digitising a series of cadastral record sheets at scales varying from 1:500 to 1:50,000. The digitising was started in 1995 but not completed until 2005. The initial digitising was using a digitising tablet but the final conversion effort was by on-screen digitising of scanned images of the record sheets. It is now maintained by on-screen digitising of scanned images of all new approved survey plans.

# The Data Characteristics Module

## The Resource Format Name Element

### Purpose of this Section

Contains the rules for metadata element number 285 (ISO 19115 number series):  
*name*

### Rules on the Resource Format Name Element

Name	name
Short Name	formatName
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_Format
Definition	Name of the format that describes the computer language construct of the original host system for the resource that specifies the representation of data objects in a record and file storage device or transmission channel.
Purpose	This element allows the user to assess fitness for purpose and the likelihood of what aspects of the data resource may be lost as part of the reformatting into the distribution format.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	None
Default Value	None
Scope and Interpretation	With spatial data resources, the format is likely to be a proprietary format associated with one of the GIS vendors. However, this is not always the case and as GIS move towards more open systems including web-based spatial browsers, formats may included industry standard, non-proprietary formats such as GML. The format to be recorded in this metadata element is the "native" format of the data resource as it is held by the data custodian or data steward. The only exception to this situation is where there is a service that makes this resource available to external users directly – in this situation, the format supported by the service should be noted. Distribution formats, where the data resource has been reformatted for distribution purposes that format name value is recorded in the Distribution Format Name element and not this element.

### Examples

Mapinfo
ArcView

# The Resource Maintenance Update Frequency Element

## Purpose of this Section

Contains the rules for metadata element number 143 (ISO 19115 number series): *maintenanceAndUpdateFrequency*

## Rules on the Resource Maintenance Update Frequency Element

Name	Role
Short Name	maintFreq
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_MaintenanceInformation/MD_MaintenanceFrequencyCode
Definition	Frequency with which changes and additions are made to the resource after the initial resource is completed.
Purpose	This element informs the user how up to date the resource is. This element will not be used as a search criteria.
Obligation	Mandatory
Element refinements	None.
Encoding Schemes	Compulsory – B.5.18 MD_MaintenanceFrequencyCode <<CodeList>> Namespace – “http://www.isotc211.org/2005/gmx” Location - .resources/codeList.xml#MD_MaintenanceFrequencyCode
Default Value	user
Scope and Interpretation	
Role values must be derived from MD_MaintenanceUpdateFrequency CodeList	

## Examples

[iso19115]	continual	data is repeatedly and frequently updated
[iso19115]	asNeeded	data is updated as deemed necessary

# The Resource Format Version Element

## Purpose of this Section

Contains the rules for metadata element number 286 (ISO 19115 number series):  
*version*

## Rules on the Resource Format Version Element

Name	version
Short Name	formatVer
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_Format
Equivalent NZGLS Element	None
Definition	The version number of the format that describes the computer language construct of the original host system that specifies the representation of data objects in a record and file storage device or transmission channel.
Purpose	This element allows the user to assess fitness for purpose and the likelihood of what aspects of the data resource may be lost as part of the reformatting into the distribution format.
Obligation	Mandatory
Element refinements	None
Encoding Schemes	None
Default Value	None
Scope and Interpretation	Although most proprietary GIS data formats are backwardly compatible, some versions have physical limitations that have been subsequently overcome. For instance the number of points making up an irregular line feature which means that a feature definition in earlier formats may be broken into a number of features where in more modern versions that same feature definition may be a single feature. An awareness of these differences may be useful to users in certain situations.

## Examples

8.1

# The Use Constraint Type Element

## Purpose of this Section

Contains the rules for metadata element number 71 (ISO 19115 number series):  
*useConstraints*

## Rules on the Use Constraint Type Element

Name	useConstraints
Short Name	useConsts
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_Constraints/
Equivalent NZGLS Element	NZGLS Rights element (in part)
Definition	Categories of constraints applied to assure the privacy or intellectual property or any special restrictions or limitations on obtaining the resource.
Purpose	This element allows the user to be warned of any constraints applied to the access or use of a resource. This element would not be used for search purposes.
Obligation	Conditional – if constraints apply to this particular resource
Element refinements	None.
Encoding Schemes	Compulsory – B.5.24 MD_RestrictionCode <<CodeList>> Namespace – “http://www.isotc211.org/2005/gmx” Location - ./resources/codeList.xml#MD_RestrictionCode
Default Value	copyright
Scope and Interpretation	Most government data resources will be subject to Copyright. In the case of Copyright, the actual copyright notice would be included in the Use Constraint Notice metadata element. Similarly, if the “otherRestrictions” category is used in this metadata element, the description of the actual limitations should be included in the Use Constraint Notice metadata element.

### Examples

[iso19115]	copyright
[iso19115]	patent
[iso19115]	patentPending
[iso19115]	trademark
[iso19115]	license
[iso19115]	intellectualPropertyRights
[iso19115]	restricted
[iso19115]	otherRestrictions

# The Use Constraint Notice Element

## Purpose of this Section

Contains the rules for metadata element number 72 (ISO 19115 number series):  
*otherConstraints*

## Rules on the Use Constraint Notice Element

Name	otherConstraints
Short Name	othConsts
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_Constraints/
Definition	Other restrictions, limitations or legal prerequisites for accessing or using the resource.
Purpose	This element allows the user to be warned of the nature of any constraints pertaining to the access or use of a resource. This element would not be used for search purposes.
Obligation	Conditional – if constraints apply to this particular resource which include any specific notices or amplifications of what the constraint means to potential users.
Element refinements	Government Copyright to be noted as follows: “Government of Samoa Copyright, YYYY” where YYYY is the year the resource was published.
Encoding Schemes	None.
Default Value	copyright
Scope and Interpretation	
Most government data resources will be subject to Crown Copyright. If the “otherRestrictions” category is used in the Use Constraint Type metadata element, the description of the actual limitations should be included in this metadata element.	

## Examples

Government of Samoa Copyright, 2005
A schedule of fees for the supply of DCDB data is available from the MNREM

# The Use Limitation Element

## Purpose of this Section

Contains the rules for metadata element number 68 (ISO 19115 number series):  
*userDeterminedLimitations*

## Rules on the Use Limitation Element

Name	useLimitations
Short Name	userDetLim
Superior Entities in ISO 19115 UML Structure	MD_Metadata/MD_Identification/MD_Constraints/
Definition	Limitation affecting the fitness for use of the resource
Purpose	This element allows potential users to assess fitness for purpose.
Obligation	Conditional – if a limitation of the resource is known
Element refinements	None.
Encoding Schemes	None
Default Value	None
Scope and Interpretation	
A brief description of any limitation	

## Examples

There are potential issues with the spatial referencing of the DCDB because of inherent coordinate discrepancies in the original record maps based on the Lemuta plane coordinate system. Although local transformation parameters were calculated following the completion of new third order GPS control surveys, these calculations indicate local discontinuities.

## 9. XML Examples

### *XML Instance*

Samoa DCDB

<http://www.mnre.gov.ws/metadata/examples/SamDCDB.xml>

### *Style Sheets*

For viewing the metadata extensions to ISO 19115 of a XML instance conforming to the Samoa Geospatial Metadata Profile: <http://www.mnre.gov.ws/metadata/stylesheets/SamoaGeospatialMDVersion1.xslt>

## 10. Glossary

Adapted From <http://www.e-government.govt.nz/docs/nzglsv2/chapter24.html> accessed 25 May 03

AGLS	The Australian Government Locator Service
ANZLIC	Australia New Zealand Land Information Council
ANZLIC SDI SC	ANZLIC Spatial Data Infrastructure Steering Committee
ASDD	Australian Spatial Data Directory
ASDI	Australia Spatial Data Infrastructure
CANRI	Community Access to Natural Resource Infrastructure
DGIWG	(US) Digital Geographic Information Working Group
e-GIF	e-Government Interoperability Framework
EGU	e-Government Unit
FGDC	(US) Federal Geographic Data Committee
FONZ	The "Functions of New Zealand" thesaurus.
GIS	Geographic Information System
HTML	HyperText Markup Language
ISO	International Standards Organisation
NSDI / SDI	(National) Spatial Data Infrastructure
NZGLS	New Zealand Government Locator Service standard
NZGO	New Zealand Government Online
OCGI	(NZ) Officials Committee for Geospatial Information
SONZ	The "Subjects of New Zealand" thesaurus
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
WALIS	Western Australia Land Information System
XML	eXtensible Mark-up Language
Z39.50	An ISO standard (ISO23950) for common access to repositories for metadata
MFE	(NZ)Ministry for the Environment
EMF	(NZ)Environmental Metadata Framework
TC211	Technical Committee 211 (Of ISO)
DCDB	Digital Cadastral Database

# 11. Change History

This section will record substantive changes to the profile. This will allow future users to see the rules for encoding that existed at the time the metadata was created. Each release will continue to be available from the Ministry of Natural Resources, Environment and Meteorology website ; URL <http://www.mnre.gov.ws/metadata/documentation/>