



NATIONAL ARCHIVES OF AUSTRALIA

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National Archives of Australia Archival Control Model

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1 PURPOSE

The Archival Control Model (ACM) for the National Archives of Australia (National Archives) is the Commonwealth Record Series (CRS) system. The purpose of this document is to describe the updated Archival Control Model. The model describes how records are defined, controlled and relationally described within their context by the National Archives, to inform the archival management systems adopted by the National Archives in the future.

Figure 1 shows the Archival Control Model. The rectangles represent entities, and the arrows represent relationships that exist between and within entities. A brief description of entity modelling concepts is given in Appendix A. A glossary for some of the terms used in this document is in Appendix B.

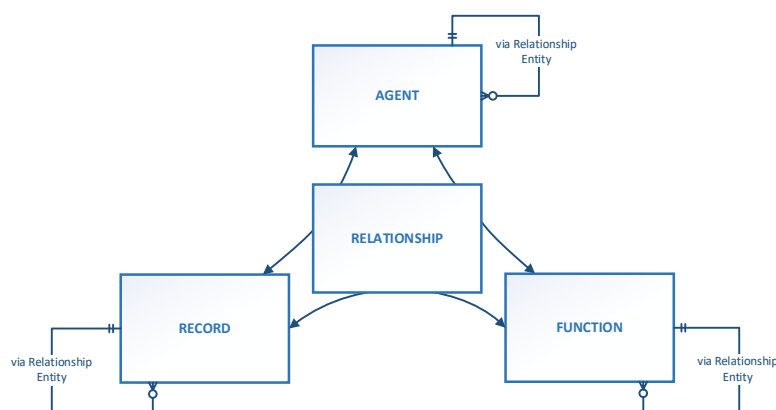


Figure 1: the National Archives Archival Control Model

2 BACKGROUND

In 2017-18 the National Archives conducted a review of existing archival control systems to determine their ability to manage digital records. This included the National Archives existing archival control system the Commonwealth Record Series (CRS) system, the International Council of Archives Records in Context Conceptual Model (RiC-CM), the Record Group and Archives Group models as applied by international archival organisations, PREMIS (**P**reservation **M**etadata: **I**mplementation **S**trategies) and AS/NZS 5478:2015 Recordkeeping Metadata Property Reference Set.

The review was prompted by views expressed internally and externally in other jurisdictions, that digital records pose a serious challenge to traditional ways of contextualising records. As we move towards more granular levels of control and access, we need more effective and complex ways of describing, representing and making accessible the relationships between records in both the analogue and digital domains.

Overall the review found that CRS Policy was sound and recommended that it remain the basis of the National Archives Archival Control Model. However, implementation as reflected in the CRS Manual and internal archival management systems was not always reflective of the CRS policy in practice. In particular it noted that:

- The CRS Manual contains detailed procedural/implementation information that is too prescriptive and is often out-of-date.
- The policy elements in the CRS Manual, for example the definitions of 'Item', 'Series' have not been reviewed since 2004.

- The definitions of item relationship concepts in the CRS Manual, such as ‘sub item’, ‘aggregate item’, and ‘constituent item’ are problematic, and in practice have been applied inconsistently, often to situations for which these concepts were not designed.

In October 2018 the National Archives commissioned Recordkeeping Innovation to assess an updated schema designed to address some of these issues and provide recommendations for progressing the project. One of the recommendations was to document the archival control model implicit in the schema.

3 CONTEXT

The Archival Control Model provides a framework for the archival management system of the National Archives. It allows for the registration, description, preservation and management of the Australian government records and the documentation of their context. It also provides for access to records in the National Archives’ custody.

The model also defines the National Archives approach for describing storage and preservation events related to the management of records over time, a key aspect of maintaining the provenance of records and of ensuring their authenticity and integrity. In addition, the model defines how different representations of a record are managed and linked, for example negatives, prints, preservation master copies, access copies etc.

4 PRINCIPLES

- The model is conceptual, system agnostic, and designed to inform the technology or technical standards that may be used to implement it in practice.
- The model identifies and describes four entity types: Record, Function, Agent and Relationship.
- The model represents all records consistently, irrespective of whether they are digital or physical. Physical and digital concepts only apply to Record entities, not their related contextual entities i.e. Agents, Functions.
- All relationships are reciprocal i.e. a relationship documented applies in both directions between the linked entities.
- Although some relationships will be explicitly documented (an Agent created a Record), some can be inferred (a Record was created by an Agent) by users (people and/or software systems), i.e. the relationships are reciprocal and only need to be documented once.
- The implementation of the model requires the National Archives to take a necessarily pragmatic approach to managing existing metadata, as this metadata will need to be mapped to the model, and will not always map easily.

5 DATA MODEL

This section describes the entities in the model in more detail. The model does not impose strict hierarchical structures, instead it allows for relationships between entities to be documented to record such structures. Breaking the notion of strict hierarchy frees the data model to deal with records in all formats more easily, and facilitate semantic web approaches while not negating the existing documentation. It also allows greater conformance with other models in archival theory and practice and is based on the AS/NZS 5478 standard. Detailed definitions, creation and description rules for all entities are documented in the CRS Manual (Version 2004 to be revised to align with the Archival Control Model).

5.1 Agent entity

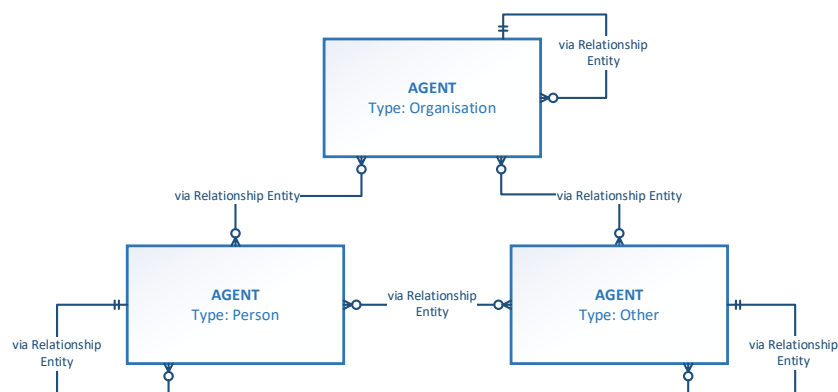


Figure 2: Agent entity

5.1.1 Agent Definition

A person, organisation, or system responsible for the performance of some business activity, including actions on records.

5.1.2 Primary Agent Types

The current model allows for, but is not limited to the documentation of the following Agent entity types:

- Organisation¹: a means of representing a high level administrative context, such as a department of state, Australian Government agency, or a non-Commonwealth business.
- Person: can include someone who created or accumulated records during their association with the Commonwealth, a staff member of the National Archives, or a member of the public.
- Other: can include systems and environments, such as software or hardware.

5.1.3 Agent Purpose

The Agent entity is documented to provide context for any Record's provenance and to capture information about the custody, control, management and use of a Record(s) by its Agent over time. Links between Agents serve to illustrate the systems, such as a government or a jurisdiction, that were in place at a point in time.

5.1.4 Agent Rules

- An Agent entity must be linked to at least one other entity by a Relationship entity.
- An Agent entity may be linked to Record, Function or other Agent entities.
- Where an Agent entity is linked to a Record entity that is the highest level of aggregation, the relationship is inherited by all records in that aggregation.

¹ Note: this is a generic, and changed use of 'organisation' in the current CRS System.

5.2 Function entity

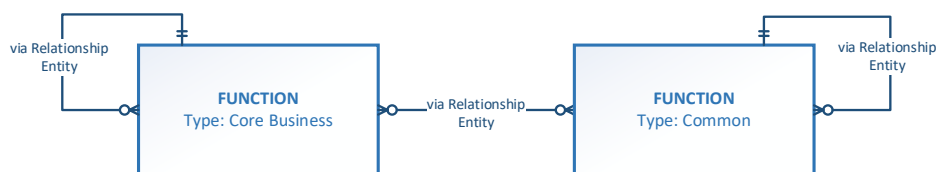


Figure 3: Function entity

5.2.1 Function Definition

Functions are the responsibilities that are managed by an Agent to fulfil its mandated purpose and business requirements.

A function is specific to the time in which the responsibility it represents exists and can move from one Agent to another over time.

5.2.2 Primary Function Types

The current model allows for, but is not limited to the documentation of the following Function entity types:

- Core business function: the main activities performed by an Agent to fulfil its legislative requirement, enterprise strategy or community goal, e.g. Defence Strategic Policy, Community Education, Spatial Information Research.
- Common function: the activities performed by an Agent in order to support or facilitate their main activities, e.g. Financial Management, Procurement, Information Management.

5.2.3 Function Purpose

The Function entity documents the business and legislative context in which records are created by Agents. It allows categorisation of government business into manageable units of action, and can be used as a tool to track administrative change. Functions form the basis of the selection of records for transfer and disposal, and provide a primary access point into the records of the Australian Government.

5.2.4 Function Rules

- A Function entity must be linked to at least one Agent or Record entity by a Relationship entity.
- A Function entity may be linked to any number of Agent, Record or Function entities.
- There is no fixed hierarchy for Functions.
- Functions must be described with date information, which can be derived from linked Agent or Record entities.

5.3 Record entity

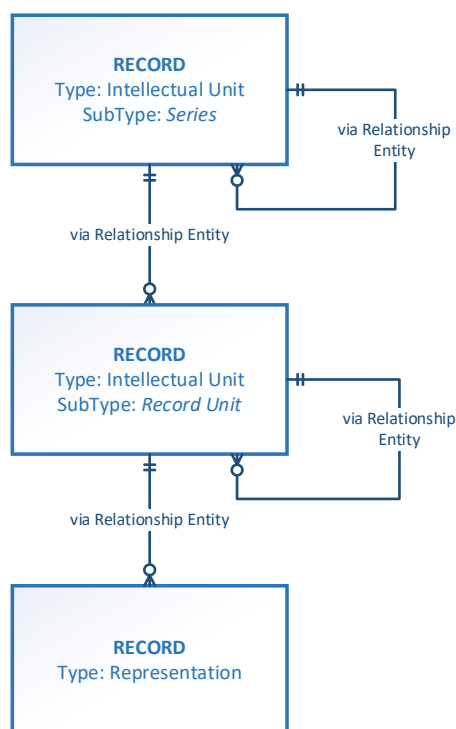


Figure 4: Record entity

5.3.1 Record Definition

Information in any format created, received and maintained as evidence of activity by an Agent.

The Record entity represents Australian Government records. A Record is an Intellectual Unit with zero, one or more Representations (forms).

The concepts of Intellectual Unit and Representation allow for the flexible description and management of records that have multiple manifestations (representations).

5.3.2 Primary Record Types

The current model allows for, but is not limited to the documentation of the following Record entity types:

- **Intellectual Unit:** a description of content within a system of created content.

There are two primary types of Intellectual Units:

- *Series:* group of records created or maintained by an Agent that, regardless of currency, value or present custody:
 - are in the same numerical, alphabetical, chronological, or other identifiable sequence; or
 - result from the same accumulation or creation process and are of similar function, format or informational content.

A series may be recorded by successive Agents, or by several Agents simultaneously.

- **Record Unit:** a discrete record of information within a series. Generally, a Record Unit will consist of a document (e.g. a letter, memorandum, report, image or sound recording), or a group of documents (e.g. a file) that comprise a record item identified for the purposes of archival care, management and retrieval of the record unit.

Record units are an integrated accumulation of information that are created, managed and kept by an Agent's business system as evidence of action of the Agent and its business. For the management of record items, please refer to section 7 of this document titled 'Governance'.

- **Representation:** one or more digital objects or physical objects –instance or embodiment of an Intellectual Unit, for example a physical document, a microfilm, a digital image etc.

There are two types of Representations:

- **Original:** the primary physical or digital archival record from which other representations may be created².
- **Created:** physical or digital object created by an Agent or the National Archives for purposes of access, including indexing and transcription, or preservation.

5.3.3 Record Purpose

The Record entity documents Australian Government information within the context of its creation and accumulation. Records, the Agents that create and manage them and the Functions they document are registered as separate entities. This allows the multiple relationships between these various entities to be captured over time.

5.3.4 Record Rules

- A Record entity is an Intellectual Unit which may have one or more levels of aggregation and may have zero, one or more Representations.
- A Record entity must be linked to at least one other entity by a Relationship entity.
- A Record entity may be linked to Function, Agent or other Record entities.
- Where a Record entity is the highest level of aggregation in a chain of record entities, it must be linked to an Agent entity.

5.4 Relationship entity

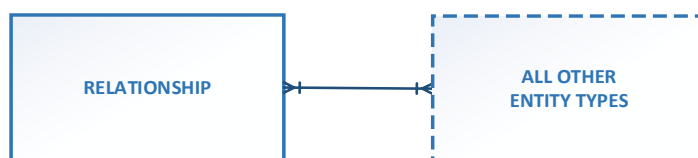


Figure 5: Relationship entity

5.4.1 Relationship Definition

A link within or between entities establishing provenance and records context.

² This includes records created under *General Records Authority 31: Destruction of source or original records after digitisation, conversion or migration*

Relationships can provide context to the creation of entities, such as control or succession. They can document an action or activity carried out by an Agent or on a Record, such as classification, sentencing, preservation or transfer.

5.4.2 Primary Relationship Types

The current model allows for, but is not limited to, the documentation of the following Relationship entity types:

- **Contains:** denotes levels of aggregation within an entity or relationships between the primary Record entity types. For example for the Record entity it can document levels of aggregation within sub types such as *Series contains Item*, *Item contains Item*. As well as the relationship between the Record entity types Intellectual Unit and Representation.
- **Controls:** denotes rules within and between entity types. For example *Agent controls Agent* documents administrative hierarchy, *Agent controls Record* documents responsibilities for access and disposal.
- **Succeeds:** denotes transfer of responsibility within an entity. For example *Agent succeeds Agent* documents transfer of responsibility for administrative functions, *Record succeeds Record* may be used to document transfer of responsibility for a function or activity between Series.
- **Creates:** denotes responsibility for establishment within and between entities. For example *Agent creates Record* documents administrative context of a Series, *Record creates Record* documents the production of a derivative for access or preservation.
- **Mandates:** denotes source of responsibility for a business requirement or purpose within and between entities. Business requirements may include legislation, regulation, policy or standard. A purpose may be defined by an Agent that does not, by definition through its links to other Agent(s), create records. For example *Agent type Person mandates Agent type Agency* may be used to document Ministerial responsibilities for a Commonwealth Agency; *Agent type Organisation mandates Agent type Agency* may be used to document responsibilities defined by Parliament for a Parliamentary Body.
- **Event:** denotes actions or activity carried out within and between entities. These may include classification, sentencing, preservation or transfer.

5.4.3 Relationship Purpose

The Relationship entity documents the links between all other entities providing context to the creation of Australian Government information. It allows the capture of multiple relationships between entities over time, and provides detail as to the nature of the actions through which entities are linked.

5.4.4 Relationship Rules

- A single Relationship must occur between at least two other entities.
- Relationships between entities can occur in any combination (i.e. Function-Agent, Agent-Agent, Agent-Record, Record-Record etc.).
- Relationships between entities are confined by time.
- Relationships between entities must be described with date information, which can be derived from linked Agent, Function or Record entities.

6 METADATA SCHEMA

Crucial to implementation of the Archival Control Model within any system is agreement of the key attributes for each entity type. It will not always be possible to implement the Archival Control Model in the same way in each archival management system used by the National Archives. By documenting the key attributes for each entity type, informed decisions can be made in regard to alternate implementation pathways. This will assist in cross mapping of metadata between the various internal archival management systems.

The CRS Policy and the *Archives Act 1983* both emphasise the importance of managing records from the point of creation. The review undertaken noted that within the Australasia region an increasing trend has developed over the past decades, whereby recordkeeping metadata standards and archival descriptive standards are converging. In order to reflect this change and the increased need for interoperability, the updated CRS schema is being designed based on widely used industry standards, in particular AS/NZS 5478 (*Recordkeeping Metadata Property Reference Set*) and PREMIS, the default metadata standard for digital preservation metadata.

Key principles informing its development include:

- Where possible base the schema on industry standards, such as AS/NZ 5478 and PREMIS.
- As much as possible, ensure consistency with the CRS System.
- Provide support for the National Archives' business practices.
- As much as possible remain backwards compatible with the previous archival control model applied in practice.

The National Archives may also create custom extensions to capture unique metadata from an Agent as required. This will occur where the data is considered important to the context of the record and thus understanding of the business of the Australian government.

7 GOVERNANCE

The Archival Control Model documented here has been determined as appropriate for the National Archives to adopt and use now and in the near future. It is however a living model and to remain fit for purpose, it will require continuous review, change control and updates.

The National Archives will establish a Reference Group made up of subject matter experts from key functional areas. The Reference Group will have Terms of Reference that clearly outline its purpose, membership and role. Core amongst its responsibilities will be to maintain the Archival Control Model and metadata schema, including:

- Reviewing and documenting proposed changes or updates,
- Ensuring alignment with CRS Policy and descriptive practice and procedure, and
- Coordinating implementation pathways within internal archival management systems to maximise the flexibility of the model.

All substantial changes are subject to approval by the National Archives Executive Board.

The Archival Control Model is conceptual; management of entities will be determined through policy and procedure.

APPENDIX A: ENTITY MODELLING

In an entity-relationship figure, entities – Agents, Records, Functions – are represented by rectangles. The lines connecting them represent Relationships between the entities. Each line and endpoint has a style, to indicate cardinality and ordinality.

Cardinality specifies how many instances of an entity relate to one instance of another entity, i.e. the maximum number of relationships.

Ordinality describes the relationship as either mandatory or optional, i.e. the absolute minimum number of relationships.

The key below shows the different line endings used in the Archival Control Model.




	1 : zero or more
	1 or more : 1 or more
	Reciprocal relationship

Figure 6: notation

An entity can be related to itself – this is called a recursive relationship. For example, Figure 4 shows that Records can be related to other Records. In practice, this means that Records form a hierarchy, where one Record contains other Records, each of which contain further Records and so on. The last Record has no further Records relationships, so the Relationship line shows that each Record contains zero, one or many Records.

APPENDIX B: GLOSSARY

Entity: a distinct thing in the Archival Control Model. There are four types of entity: Agent, Function, Record, Relationship.

CRS: Commonwealth Record Series system

AS/NZS 5478:2015 Recordkeeping Metadata Property Reference Set: Developed to provide a reference set of recordkeeping metadata to support systems interoperability and records sustainability. Prepared by the Joint Standards Australia/Standards New Zealand Committee IT-021, Records and Document Management Systems.

*PREMIS (**P**reservation **M**etadata: **I**mplementation **S**trategies)*: a core set of implementable preservation metadata, broadly applicable across a wide range of digital preservation contexts and supported by guidelines and recommendations for creation, management and use.