

ESO Data Dictionary Project Phase 2

Final Report: Section D

Deliverable 3 – Data Dictionary

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Section Control

Section Purpose

This document represents the third deliverable of Phase 2 of the ESO Data Dictionary Project being the ESO Data Dictionary.

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Version History

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2	24 October 2011	Deliverable 3 Second Draft
3	30 November 2011	After endorsement by the Steering Committee
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1. OVERVIEW

1.1 The Project

The National Disaster Mitigation Program has initiated a Project to develop a Data Model, Data Classification Scheme and Data Dictionary to support collection of common, consistent and relevant data for Prevention, Preparedness, Response and Recovery activities.

Phase 1 of this Project developed three draft, high level data models (core class models) and associated environmental scan and gap analysis.

Phase 2 of the Project has reviewed the Phase 1 draft data models and merged the business content of these models into a single overall model. This model has then been extended to include a detailed classification model and data dictionary for activity related data.

Phase 2 is introducing revised terminology to remove ambiguity that remained after Phase 1. The deliverables resulting from Phase 2 include the following:

- The Core Class Model: representing the high-level classes of data.
- The Initial Classification Model
- The Data Dictionary, which is the subject of this document.

1.2 This Document

This document defines an overall Data Dictionary, which identifies a set of data items necessary for an ESO to report on its Activities in a manner that is consistent across all jurisdictions. This data dictionary will be available for reference purposes, and, where desired, for adoption in full or in part for use by ESOs.

This document should be read in conjunction with Section B – The Core Class Model and Section C – The Classification Model.

This document contains the following sections:-

- **Chapter 1** (this Chapter) introduces the document.
- **Chapter 2** identifies the outcomes of the Project, and describes their position in the development lifecycle of a potential activity reporting system.
- **Chapter 3** introduces the structure of the Data Dictionary.
- **Chapter 4** displays the content of the Data Dictionary.
- **Chapter 5** identifies key code tables associated with the Data Dictionary.

The project methodology is described in detail in **Section E** – Methodology.

2. INTRODUCTION TO THE DATA DICTIONARY

Deliverable 3 of Phase 2 of the ESO Data Dictionary Project is defined as “an agreed data dictionary to provide a standardised format for the collection of data on, and reporting of, PPRR activities and ensure efficient and effective reporting, analysis and interpretation”.

2.1 Fields and Contents

A data dictionary consists of the identification and description of a set of data fields, appropriate to the data subjects being addressed.

Data fields are present throughout an information system. They appear as areas on a screen or a paper form where data can be input, as areas in a database where items of data are stored, or areas on a printed report where a particular item of information is printed or displayed. A particular item of data, for example, a person’s name, will appear many times as fields in an information system. It could be input to a particular field in a form or screen, stored in a database field and printed in a field in a report. The name could be a customer name, an employee name or many other types of name.

It is therefore useful to document, when specifying the requirements of an information system that will make use of a person’s name, (a) the fact that it is necessary to store a person’s name and (b) the format (number of characters etc) of how we will store the person’s name.

In some cases it is also possible to indicate a set of values that the field can contain. For example, if another field in our information system was ‘gender’ then we could specify that the field can contain either ‘male’ or ‘female’. Further, we could indicate that we will use a code, say ‘M’ and ‘F’ for the possible values.

A data dictionary, then, consists of a list of data items. For each data item we specify its name, its definition, information about its format, and in some cases an indication of the values that it can take.¹ This ‘data about data’ is referred to as metadata.

Data dictionaries can be used to specify the contents of a database, the contents of reports or other useful grouping of data items. In the case of the ESO data dictionary, the data fields in the dictionary are those that, together, are sufficient to provide the basis for *all ESO’s to report on their activities in a consistent manner*.

The implication of this is that *all ESO’s agree as to the selection, definition, coding and business rules (if any) of the data fields in the data dictionary*.

Detailed collaboration and review of a data dictionary by all ESO’s has not been possible within the scope of the project. Therefore, to achieve a meaningful result within the timescale of the project, a dictionary *framework* has been developed. This framework will define the structure of the dictionary and define metadata for the basic fields required for activity reporting. The framework forms the basis of further work needed in order to achieve cross-ESO agreement as to the metadata associated with fields within the dictionary and, possibly, to extend the dictionary with additional fields.

The ESO data dictionary framework will focus quite specifically on defining fields necessary to report details of the ESO *Activity* itself, as against fine details of the events being attended, materials being used etc.

¹ As a project progresses through an enterprise view, a business system view and eventually an application view, a data dictionary contains more and more information about the data item.

2.2 Activity Reporting

An ESO Data Dictionary defines specific data items that could form the basis of activity reports. If these data items are consistent in their meaning and structure (definition, coding and business rules) across all ESO's, then the reports derived from them will be consistent.

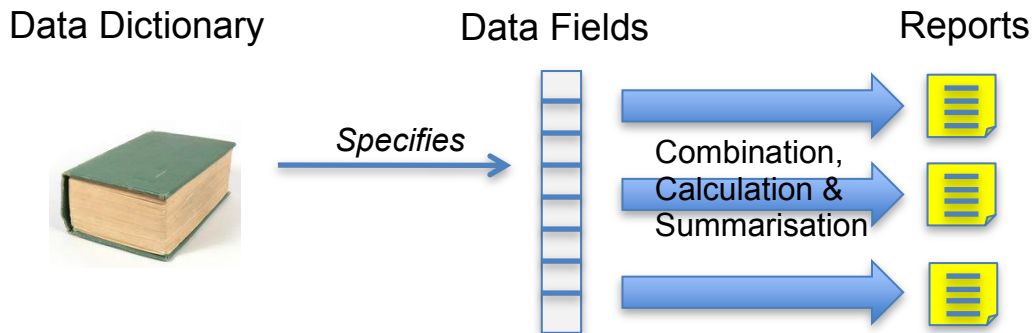


Figure 2. Use of the Dictionary in Reporting

When reporting on its activities, an ESO will need to know, for each activity:-

- Which activity is being described
- What type of activity it was
- A brief description of the activity
- Other activities directly related to the activity at hand
- When and where the activity occurred
- Who was involved in the activity
- What were the event(s) that the activity was responding to or related to
- What equipment was involved in carrying out the activity. (Material).
- What buildings, other structures and areas of natural environment were involved in the activity. (Material).

If this basic set of data is available, then a wide variety of reports can be generated.

The ESO Core Class model (Deliverable 1 of the ESO Data Dictionary Project Phase 2) identified 6 core classes. The content of the Data Dictionary can be summarised in terms of these 6 core classes, by the diagram below. Notice the Activity Core Class, with its descriptors, classifications and relationships, becomes the focus of the dictionary.

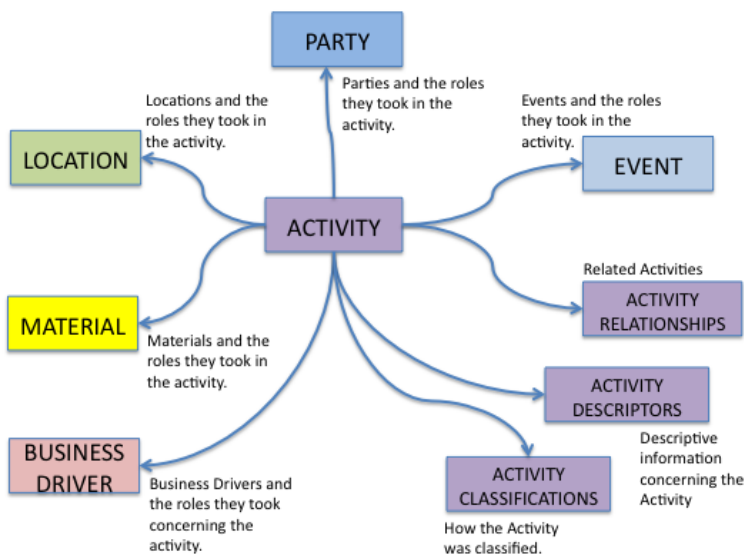


Figure 3. Activity as the focus of the Dictionary

The Data Dictionary focuses on defining the data items that we would need to maintain about *each specific Activity*. If we maintain information about each specific activity, then we can create a wide range of reports by assembling and summarising data concerning selected groups of activities.

As discussed in the methodology chapter of the Classification Model deliverable, the nature of an item of data is that it is either:-

- A classifier (it classifies a core class),
- A relationship (it defines the relationship between core classes), or,
- A descriptor (it describes a core class).

The Classification Model provided an insight as to classifiers and relationship data for ESO's. Types of descriptive data can be summarised by the classification structure below:-

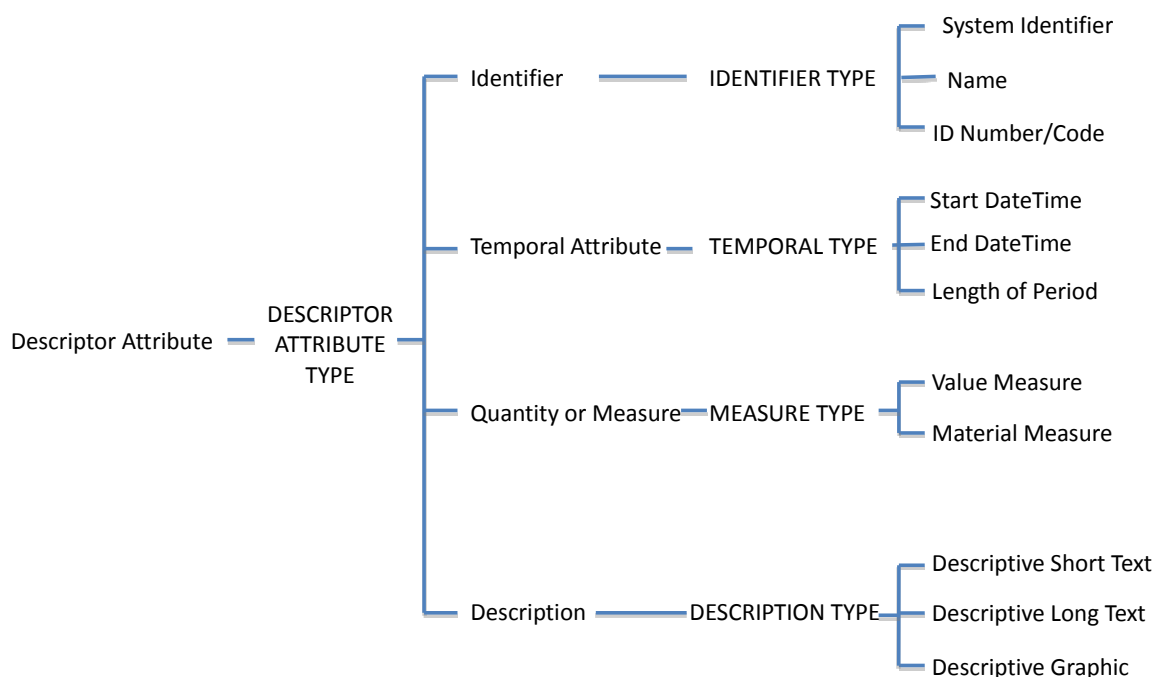


Figure 4. A simple classification of Descriptors

As will be seen below, these fundamental aspects of data are reflected in the Data Dictionary Framework.

2.3 Framework for the Data Dictionary

When developing a detailed Data Dictionary for activity reporting it is valuable to create a framework or structure within which the dictionary can be built. The ESO Data Dictionary Framework specifies this structure and documents a basic set of data items (fields) required in the Dictionary.

The Framework divides the Data Dictionary into Sections where each section corresponds to the data items (fields) included in the dictionary for a particular Core Class in the ESO Core Class Model.

Within these 'Core Class Sections', fields are grouped into 'Field Groups' where each field group contains a set of Fields which serve a specific purpose in describing the Core Class.

For each Field, a set of characteristics, e.g. datatype, minimum length etc is documented. The Framework refers to these as 'Defining Characteristics'.

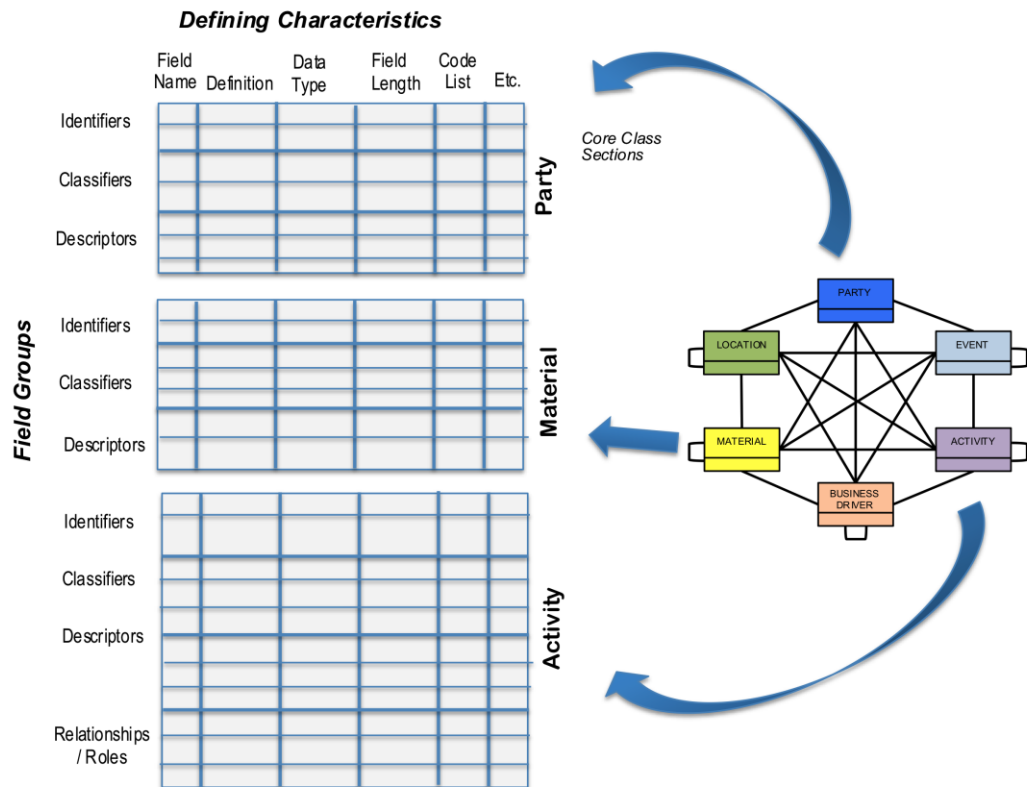


Figure 5. Structure of the Data Dictionary Framework

The following section describes each of the components of the Framework:

- Core Class Sections
- Field Groups
- Defining Characteristics

2.4 Components of the Framework

Core Class Sections

The ESO Core Classes are:-

- **Activity** An ACTIVITY is anything that the Emergency Services Organisation does, either in delivering services or supporting its own business.
- **Business Driver** A BUSINESS DRIVER is an aspect of an Emergency Services Organisation's nature or environment that defines the manner and circumstances under which it will carry out its business.
- **Event** An EVENT is a happening or occurrence that is of interest to the Emergency Services Organisation. An INCIDENT is considered to be sub-type of EVENT.
- **Location** A LOCATION is any point, line, or area of interest to the Emergency Services Organisation.
- **Material** A MATERIAL is any item or substance of interest to the Emergency Services Organisation.
- **Party** A PARTY is any individual, organisation, animal, or group of animals, that is of interest to the EMERGENCY SERVICE Organisation.

Field Groups

Fields are grouped into 'Field Groups' where each field group contains a set of Fields which serve a specific purpose in describing the Core Class.

Identifiers

These are fields that serve to identify a specific instance of a core class. The important aspect of these fields is that they **uniquely identify an instance** of the Core Class. For example, an Event Identifier field must contain a value that is unique to a particular Event. Often these fields will contain a system imposed identifier or a name.

Classifications

These are fields which indicate that the instance of the Core Class belongs to a particular subtype of core class, e.g. a particular type of Activity. Note that the classification schemes, and the consequent subtype values are documented in the Classification Model.

In the simple case, the Core Class is classified by a classification scheme which results in a set of subtype values. Here, the classification scheme from the Classification Model becomes the name of a field in the data dictionary and the subtype values become the values that can be placed in the field (referred to as the value domain or logical codeset). These values are typically implemented in an information system as a set of short codes, each code item corresponding to a classification value.

In the more complex case, the subtype values, themselves, have classification schemes. These schemes form a further breakdown of the overall concept into narrower classification values. This is particularly apparent in the 'Type' schemes within the Classification Model. In the Data Dictionary, the highest level classification scheme is referred to as the 'level 1' scheme, the next level down are referred to as a 'level 2' schemes, and finally, the lowest level schemes are referred to as the 'level 3' schemes.

The ESO Classification Model does not necessarily subset concepts into three levels of classification. To implement a three level coding system in the Data Dictionary Framework, classification schemes and values in the Classification Model have been restructured to create a three level structure, and code tables are created which define codes to be used to represent each classification value.

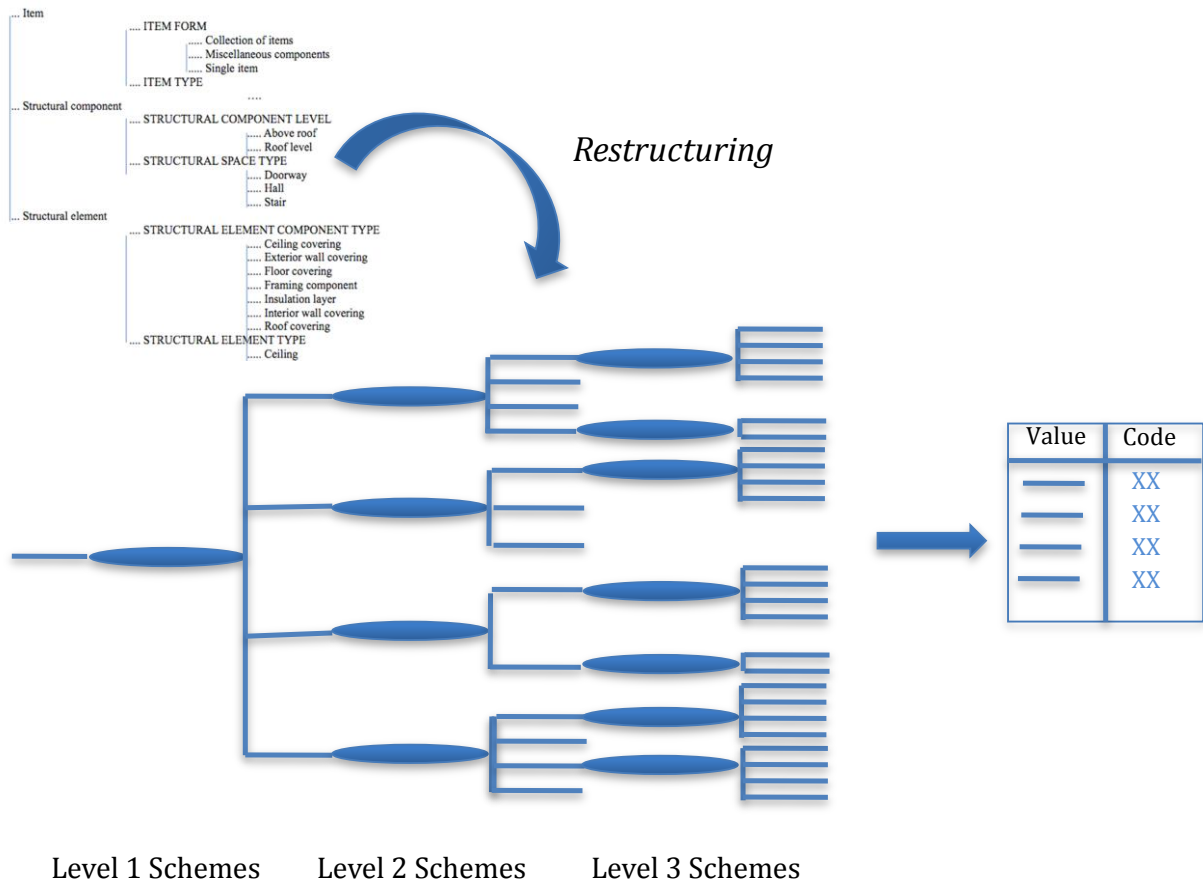


Figure 6. Restructuring Classifications

Relationship Identifiers (found in core class ‘Activity’ and ‘Event’ only).

These are fields that identify a particular instance of a Core Class that is related to the instance of Activity (or Event). Relationship Identifiers comprise a repeating group of fields. The repeating group consists of an identifier of the instance of the related core class together with a field that indicates the role the instance of the related Core Class takes with respect to the specific activity. Quantities and times may also be included in the group of repeating fields.

Temporal Attributes

These are fields which provide information as to the point or period in time the instance of the core class took place or existed.

Quantity Attributes

These are fields which provide information as to a quantity of some resource (other than time) that was relevant to when the core class was involved with the Activity.

Description Attributes

These are fields which provide free-form textual or graphical descriptions or definitions of the instance of the core class.

Timestamp

These are fields which indicate the date, time of recording and party who created the record. (These would typically be automatically generated by the system).

Defining Characteristics

A set of defining characteristics is documented for each field in the data dictionary. Technical personnel refer to these characteristics as ‘metadata’ (data about data).

- **Field Name:** A unique name for the field.
- **Definition:** A textual description of the business meaning of the field.
- **Purpose:** A textual description of the contribution the field makes to activity reporting.
- **Data Type:** The format of the field, e.g., text, number, date
- **Minimum Characters:** Minimum number of characters (if relevant)
- **Maximum Characters:** Maximum number of characters (if relevant)
- **Business Rule:** A rule which relates values in this field to values in another field (if relevant)
- **Code List:** An indication that a list of logical codes used in the field is available
- **Examples:** Examples of use (optional)

2.5 Reporting Ramifications

Placing ‘Activity’ at the focus of the Dictionary means that activities can be reported/summarised by:-

- Type of Activity
- Time/Date or Period of Activity
- Parties involved in Activity
- Location of Activity
- Event involved in activity
- Material involved in Activity
- Business Driver of Activity

... and a combination of any or all of the above.

Note that:

- Not all possible fields for a particular core class are included in the Data Dictionary Framework as presented in Section 4 of this report. The set of fields is a suggested minimum set necessary to achieve uniform reporting of Activities across jurisdictions.
- The scope of reporting is restricted to the activities themselves - “what we did when and where”. It does not include the evaluation of the results of Activities or causes of events or effectiveness of procedures and so on.

2.6 Comments on Specific Fields & Defining Characteristics

For purposes of the data dictionary framework, a number of assumptions have been made.

Identifiers

To achieve consistent reporting across ESO's, including the ability to report *across* ESO's (i.e. a national view), it is necessary for instances of Core Concepts (particularly Activity, Location and Event) to be uniquely identifiable across all ESO's. For example, it will be necessary to identify all individual Activities no matter which ESO carried out the activity. A number of strategies could be employed to achieve this. A numbering system could be devised which allocated every activity a unique number across the nation. More practically, the activity identifier could consist of a concatenation of a code for each ESO and a code (or number) given to individual activities by the relevant ESO.

Obtaining an agreed solution to Australia-wide identification of Activities, Events, Locations, (and possibly, Locations, Parties and Business Drivers) is a substantial task and could be the focus of a later project.

Description Attributes

The technical format of description attributes will require further evaluation and agreement across ESO's. In its simplest form, a description field could be defined as being a character string of, typically, 128, 256, 512 or 1024 characters. However, today's technology and usage suggests that descriptors could include graphics and audio information (maps, photographs, movies etc) which implies the need for additional metadata including file formats etc. Different standards will already exist within each ESO in their current systems. Obtaining an agreed solution to these issues is a substantial task and could be the focus of a later project.

Classifications

Classification values have been identified within the Classification Model and used to populate Code Tables (in Section 5).

Code tables comprise lists of business names with their associated short codes. Short codes would be specified in a business systems view.

Purpose

This field is not completed in all cases in the data dictionary framework.

Examples

This field is not completed in all cases in the data dictionary framework.

3. DATA DICTIONARY

3.1 Annotations

The following annotations are used in the data dictionary presented below.

U/D = Undefined at this time

N/A = Not applicable at this time

B/C = Binary Code (a code with only 2 values)

CODE = Classification Code (comprises 2 alphanumeric characters)

DATE = Date format

TIME = Time Format

OP = Optional

MA = Mandatory

ALPHA = Alphanumeric

BIOB = Binary Object

NUM = Numeric

Notes in italics relate to fields requiring further analysis in subsequent projects. Some details have been identified as requiring specification during a Business System View, as described in Section 2.2.

3.2 Dictionary Content

See following pages.

ACTIVITY	An ACTIVITY is anything that the Emergency Services Organisation does, either in delivering services or supporting its own business.
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Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Example
Identifiers	Activity ID	Unique identifier for an activity.	<i>The detailed specification for an Activity ID will draw on formats used in existing operational systems (e.g. CAD for emergency activities, and other activity IDs from non-emergency systems). Should a national identifier be required in the future, collaboration will be required across jurisdictions. This may result in a national identifier or a concatenation of a jurisdiction field with local activity identifiers.</i>						
	Activity Name	Unique title for an Activity.	<i>This is an optional field, which could be replaced by activity descriptor (see below).</i>						
Classifications	Activity Type Level 1	Specifies the class (classification or type) of the Activity at the broadest level of classification according to the business function of the Activity.	To group Activities of a similar nature for reporting and analysis purposes.	CODE	2	2		YES	See Section 5.2
	Activity Type Level 2	Specifies the class (classification or type) of the Activity at the middle level of classification according to the business function of the Activity.	To group Activities of a similar nature for reporting and analysis purposes.	CODE	2	2	Defined Parent	YES	

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Example
Classifications (continued)	Activity Type Level 3	Specifies the class (classification or type) of the Activity at the narrowest level of classification according to the business function of the Activity.	To group Activities of a similar nature for reporting and Analysis purposes.	CODE	2	2	Defined Parent	YES	
	Activity Focus	A classification scheme that flags an Activity according to its purpose in the PPRR paradigm.	To group Activities of a similar focus for reporting and analysis purposes.	CODE	2	2		YES	
	Activity Mutual Aid	A classification scheme that differentiates between Activities based on whether aid from a third party was received.	To group Activities of a similar mutual aid classification for reporting and analysis purposes.	CODE	2	2		YES	
	Activity Nature	A binary classification scheme that differentiates between Activities according to whether they are planned or unplanned.	To group Activities of a similar planned/unplanned nature for reporting and analysis purposes.	B/C	1	1		YES	
	Activity Participation	A classification scheme that differentiates between participants in an Activity, based on participants that are involved.	To group Activities involving similar participants for reporting and analysis purposes.	CODE	2	2		YES	
	Activity Phase	A classification scheme that differentiates between Activities based on the business stage that the activity has reached.	To group Activities that have reached a similar business stage for reporting and analysis purposes.	CODE	2	2		YES	
	Activity Priority	A classification Scheme that differentiates Activities according to their relative priority.	To group Activities by their relative priority for reporting and analysis purposes.	CODE	2	2		YES	

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Example	
Relationship Identifiers (Repeating)	((Party ID	<i>See Party ID in Party section.</i>								
	Party Role	The role that the Party or Party Class takes in the Activity.	Identifies a classification of role played by a party involved in the Activity.	CODE	1	1		YES		
	Duration of involvement in Activity))	The amount of time the party or party class spent on the Activity while carrying out their role.	Supports reporting on resource usage.	TIME	0	10				
	((Event ID	<i>See Event ID in Event section.</i>								
	Event Role))	The role that the Event takes in the Activity.	Identifies a classification of role played by an event involved in the Activity.	CODE	1	1		YES		
	<i>Temporal, Quantity and Descriptive Attributes to be defined in a Business System View for all relationships</i>									
	((Location ID	<i>See Location ID in Location section</i>								
	Location Role))	The role that the Location or Location Class takes in the Activity e.g. start location, final location.	Identifies a classification of role played by an event involved in the Activity.	CODE	1	1		YES		
	((Material ID	<i>See Material ID in Material section.</i>								
	Material Role))	The role that the Material takes in the Activity	Report on the role of Materials in a particular Activity	CODE	1	1		YES		

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Example
Relationship Identifiers (Repeating)	((Activity ID	<i>See Activity ID above</i>							
	Activity Role))	The role that another Activity takes with respect to the current activity	Report on the relationship between Activities. relationships might be: <ul style="list-style-type: none"> • Parent or supportive activity • Preceding or subsequent activity • etc 						
Temporal Attributes	Activity Start Date	The date the Activity started	To identify and/or group Activities that commenced on a particular date for reporting and analysis purposes.	DATE	10	10	Mandatory field		
	Activity Start Time	The time the Activity started	To identify and/or group Activities that commenced at a particular time within a day for reporting and analysis purposes.	TIME	0	8	Linked to Activity Start Date		
	Activity Finish Date	The date the Activity finished	To identify and/or group Activities that commenced on a particular date for reporting and analysis purposes.	DATE	10	10			
	Activity Finish Time	The time the Activity finished	To identify and/or group Activities that commenced at a particular time within a day for reporting and analysis purposes.	TIME	0	8	Linked to Activity Finish Date		

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Example
Quantity Attributes		<i>This is a placeholder. Quantitative information relating to the Activity would normally be held in the relationship between Activity and the resources consumed (e.g. Material, Party).</i>							
Description Attributes	Activity Textual Description	Textual description of the Activity.		ALPHA	0	1024			
	Activity non-Textual Description	A representation of the Activity in graphical or pictorial form	<i>This could take the form of media files in standard file formats (e.g. .PNG, .MPEG, .AVI)</i>						
	Activity non-Textual Description format	The format of the Activity non-textural description	<i>This could take the form of media files in standard file formats (e.g. .PNG, .MPEG, .AVI)</i>						
Timestamp	Creator ID	Unique identifier of party responsible for the creation of the record	Used for audit and quality control purposes.	<i>Format dependent upon local installation.</i>					
	Timestamp Date	The date the record was created.	Used for audit and quality control purposes.	DATE	10	10			
	Timestamp Time	The time the record was created.	Used for audit and quality control purposes.	TIME	0	8			

EVENT	An EVENT is a happening or occurrence that is of interest to the Emergency Services Organisation.
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Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Identifiers	Event ID	Unique identifier for an Event.	<i>Events are currently identified by each individual jurisdiction. Due to the multi-jurisdictional significance of many Events, when moving to a national reporting environment, there will be a need to uniquely identify events affecting multiple jurisdictions.</i>						
	Event Name	Unique Title for an event	<i>This is an optional field, which could be replaced by event descriptor (see below).</i>						
Classifications	Event Type L1	A classification of Events that distinguishes incidents from other types of events at the broadest level that is of interest to the ESO.	To group Events of a similar nature for reporting and analysis purposes.	CODE	2	2		YES	See Section 5.3
	Event Type L2	A classification of Events that distinguishes incidents from other types of events at the middle level that is of interest to the ESO.	To group Events of a similar nature for reporting and analysis purposes.	CODE	2	2	Defined Parent	YES	
	Event Type L3	A classification of Events that distinguishes incidents from other types of events at the lower level that is of interest to the ESO.	To group Events of a similar nature for reporting and analysis purposes.	CODE	2	2	Defined Parent	YES	

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples	
Classifications	Event Nature	A binary classification scheme that distinguishes Events according to whether they are planned or unplanned.	To group Events of a similar nature for reporting and analysis purposes.	B/C	1	1		YES		
	Event Temporal Nature	A classification scheme that distinguishes Events according to their chronology.	To group Events of a similar nature for reporting and analysis purposes.	CODE	2	2		YES		
Relationship Identifiers (Repeating)	((Event ID	<i>See Event ID in this section</i>								
	Event Role))	The role that another Event takes in relation to the current Event. A particular example would be Trigger Event to Incident (Event)	Report on the role of an Event in the occurrence of another Event, such as causation.	CODE	1	1		YES		
	((Location ID	<i>See Location ID in Location section</i>								
Location Role))	The role that the Location takes in the Event.	Report on the role of Location in a particular Event.	CODE	1	1		YES			

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Temporal Attributes	Event Start Date	The date the Event started.	To identify and/or group Events that commenced on a particular date for reporting and analysis purposes.	DATE	10	10	Mandatory field		
	Event Start Time	The time the Event started.	To identify and/or group Events that commenced at a particular time within a day for reporting and analysis purposes.	TIME	8	8	Linked to Event Start Date		
	Event Finish Date	The date the Event finished.	To identify and/or group Events that commenced on a particular date for reporting and analysis purposes.	DATE	10	10			
	Event Finish Time	The time the Event finished.	To identify and group Events that commenced at a particular time of day for reporting and analysis purposes.	TIME	8	8	Linked to Event Finish Date		

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Description Attributes	Event Description	Textual description of the Event.		ALPHA	0	1024			
	Creator ID	Unique identifier of party responsible for the creation of the record.	Used for audit and quality control purposes.	<i>Format dependent upon local installation.</i>					
Timestamp	Timestamp Date	The date the record was created.	Used for audit and quality control purposes.	DATE					
	Timestamp Time	The time the record was created.	Used for audit and quality control purposes.	TIME					

LOCATION A LOCATION is any point, line, or area of interest to the Emergency Services Organisation.

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Identifiers	Location ID	Unique identifier for a Location.	To uniquely identify a Location across all ESO's	<i>A Location ID is conventionally defined by one or more standards (e.g. Lat/long). For effective reporting, it will be important to standardise on the location identification method used across all jurisdictions.</i>					
	Location Name	Unique title for a Location.	<i>This is an optional field, which could be replaced by location descriptor (see below).</i>						
Classifications	Location Type	Specifies the class (classification or type) of the Location according to the business function of the location.	To group Locations of a similar nature for reporting and analysis purposes.	CODE	2	2		YES	
	Location Characteristic	A classification scheme that differentiates between Locations according to the setting of the Location.	To group Locations of a similar nature for reporting and analysis purposes.	B/C	1	1		YES	
	Location Jurisdiction	A classification of Location according to whether it is inside/outside the jurisdiction of the reporting ESO.	To group Locations of a similar nature for reporting and analysis purposes.	B/C	1	1		YES	

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Quantity Attributes	<i>Location quantitative information could include: height, area, gradient, distance, etc.</i>								
Description Attributes	Location Description	Textual description of the Location.		ALPHA	0	1024			
Timestamp	Creator ID	Unique identifier of party responsible for the creation of the record	Used for audit and quality control purposes.	<i>Format dependent upon local installation.</i>					
	Timestamp Date	The date the record was created.	Used for audit and quality control purposes.	DATE	10	10			
	Timestamp Time	The time the record was created.	Used for audit and quality control purposes.	TIME					

MATERIAL	A MATERIAL is any item or substance of interest to the Emergency Services Organisation.
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Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Identifiers	Material ID	Unique identifier for a Material.	To uniquely identify a Material across all ESO's	<i>Unique identification of Materials will be particularly important for Appliances and other mobile equipment. A formalised national standard for the unique identification of all materials may not be required.</i>					
	Material Name	Unique title for a Material.	<i>This is an optional field, which could be replaced by material descriptor (see below).</i>						
Classifications	Material Type L1	A classification of Material at the highest level that is of interest to the ESO. (Material will probably be explicitly broken into 'Equipment', Structure', Material' 'Natural environment etc when the Dictionary Framework is extended.)	To group Materials of a similar nature for reporting and analysis purposes.	CODE	2	2		YES	
	Material Type L2	A classification of Material at the middle level that is of interest to the ESO.	To group Materials of a similar nature for reporting and analysis purposes.	CODE	2	2	Defined Parent	YES	

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Classifications	Material Type L3	A classification of Material at the lower level that is of interest to the ESO.	To group Materials of a similar nature for reporting and analysis purposes.	CODE	2	2	Defined Parent	YES	
	Material Utilisation Status	A classification scheme that differentiates between Materials based on whether the Material is in active use.	To distinguish between Materials involved in Activity according to their utilisation status.	CODE	2	2		YES	
	Material ESO Use Type	A classification scheme that differentiates between the purposes for which the ESO uses Material; includes Natural environment, Structures.	To distinguish between Materials involved in Activity according to how the ESO made use of it.	CODE	2	2		YES	
	Material Insurance Status	A classification scheme that differentiates between Materials according to whether the Material is insured.	To report on the insurance status of Materials involved in an Activity.	B/C	1	1			

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Classifications	Material Ownership Type	A binary classification scheme that differentiates between Materials, based on whether or not the ESO is the owner.	To distinguish between Materials involved in the Activity which are owned by the ESO.	B/C	1	1		YES	
	Material State	A classification scheme that differentiates between Materials according to the physical state of the Material.	Report on the state of the Materials involved in the Activity.	CODE	2	2		YES	
	Material Storage Method	A classification scheme that differentiates Material according to the manner in which it is stored.	Report on the manner of storage of Materials involved in the Activity.	CODE	2	2		YES	
Temporal Attributes	Material Start Date	The date at which the Material became involved in the Activity.	To report on the duration of use of the Material in the activity.	DATE	10	10			
	Material Start Time	The time at which the Material became involved in the Activity.	To report on the duration of use of the material in the Activity.	DATE	8	8			

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Temporal Attributes	Material Finish Date	The date at which the Material ceased to be involved in the Activity.	To report on the duration of use of the material in the Activity.	DATE	10	10			
	Material Finish Time	The time at which the Material ceased to be involved in the Activity.	To report on the duration of use of the material in the Activity.	DATE	8	8			
Quantity Attributes	Quantity of Material	The quantity of Material used involved in the Activity	Defines the amount of Material involved in the Activity.	NUM	0	Infinite			
	Unit of Measure of Quantity	The unit of measure used to qualify the quantity of Material.	Defines the unit of measure to be used when reporting.	CODE			Linked to Quantity of Material	YES	
Description Attributes	Material Description	Textual description of the Material.		ALPHA	0	1024			

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Timestamp	Creator ID	Unique identifier of party responsible for the creation of the record.	Used for audit and quality control purposes.	<i>Format dependent upon local installation</i>					
	Timestamp Date	The date the record was created.	Used for audit and quality control purposes.	DATE					
	Timestamp Time	The time the record was created.	Used for audit and quality control purposes.	TIME					

PARTY	A PARTY is any individual, organisation, animal, group of animals, that is of interest to the EMERGENCY SERVICE Organisation.
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Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Identifiers	Party ID	Unique identifier for a Party.	To uniquely identify a Party across all ESO's	<i>For individuals especially, a unique national identification scheme is highly desirable, in order to facilitate skill sharing and resourcing over extended periods.</i> <i>This may require synchronisation with existing human resource systems.</i>					
	Party Name	Unique title for a Party.	<i>This is an optional field, which could be replaced by party descriptor (see below).</i>						
Classifications	Party Type	A classification of Party at the broadest level that is of interest to the ESO.		CODE	2	2		YES	
Description Attributes	Party Description	Textual description of the Party.		ALPHA	0	1024			

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Timestamp	Creator ID	Unique identifier of party responsible for the creation of the record	Used for audit and quality control purposes.	<i>Format dependent upon local installation</i>					
	Timestamp Date	The date the record was created.	Used for audit and quality control purposes.	DATE	10	10			
	Timestamp Time	The time the record was created.	Used for audit and quality control purposes.	TIME	8	8			

BUSINESS DRIVER	A BUSINESS DRIVER is an aspect of an Emergency Services Organisation’s nature or environment that defines the manner and circumstances under which it will carry out its business.
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Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
Identifiers	Business Driver ID	Unique identifier for a Business Driver.	To uniquely identify a Business Driver across all ESO’s	<i>This is most likely to be required at a jurisdictional level only.</i>					
	Business Driver Name	Unique title for a Business Driver	<i>This is an optional field, which could be replaced by Business Driver descriptor (see below).</i>						
Classifications	Business Driver Type	A classification scheme that differentiates between Business Drivers according to the aspect of the business being addressed.	To identify the type of Business Driver affecting the Activity.	CODE	2	2		YES	
Description Attributes	Business Driver Description	Textual description of the Business Driver.		ALPHA	0	1024			
Timestamp	Creator ID	Unique identifier of party responsible for the creation of the record.	Used for audit and quality control purposes.	<i>Format dependent upon local installation</i>					

Field Group	Field Name	Definition	Purpose	Data Type	Min Char	Max Char	Business Rule	Code List	Examples
	Timestamp Date	The date the record was created.	Used for audit and quality control purposes.	DATE					
	Timestamp Time	The time the record was created.	Used for audit and quality control purposes.	TIME					

4. CODE TABLES

Classification fields in the Dictionary Framework correspond to classification schemes, or groups of classification schemes in the Classification Model.

The classification values of classification schemes in the Classification Model provide the domain of values that can be represented in the Classification fields in the Dictionary framework.

Illustrative code tables have been developed below for key portions of the classifications for Activity and Event. A complete specification of code tables would occur following complete specification of the classifications in a Business Systems View.

4.1 Classifications and Codes

These classification values can be represented by a code. The code could consist of the name of the value from the Classification model, or another, (often shortened), set of characters designed for convenience of implementation within an information system.

Simple classifications

A simple example of a classification is the field “Activity Focus”. This field corresponds to the Classification Scheme *ACTIVITY FOCUS* which has Classification values: *Preparedness, Prevention, Recovery, Response* in the Classification Model.

Therefore a code table for Activity Focus could look like:-

Activity Focus code table²

Classification Value	Code
Prevention	~~
Preparedness	~~
Response	~~
Recovery	~~

Similar tables can be constructed for the other single level classification fields described for Activity in the Dictionary Framework, specifically:

- Activity Mutual Aid
- Activity Nature
- Activity Participation
- Activity Phase
- Activity Priority

² Specification of actual code values for each classification value (the ‘code’ column in the table) is a subject of subsequent project(s). Specification of code values is strongly dependent on the existence of codes currently being employed in operational systems and the degree to which classification information is to be shared amongst jurisdictions.

More complex codes - 'Type' classifications

The major “type” classification schemes for each Core Concept (e.g. ACTIVITY TYPE or EVENT TYPE) involve multiple levels of classification schemes and values within the Classification Model. These business focussed classifications must be restructured to reflect the need for efficient coding of these classifications in an operational environment.

Best practice suggests that up to three levels of classification is optimum for the classification of complex concepts by operational staff. Consequently, this area of the Classification Model is restructured to enable a three level classification (and thus coding) scheme to be employed.

4.2 Activity Type

Activity Type restructuring within Classification Model

The result of the restructuring of Activity Classifications is shown in the following diagrams.

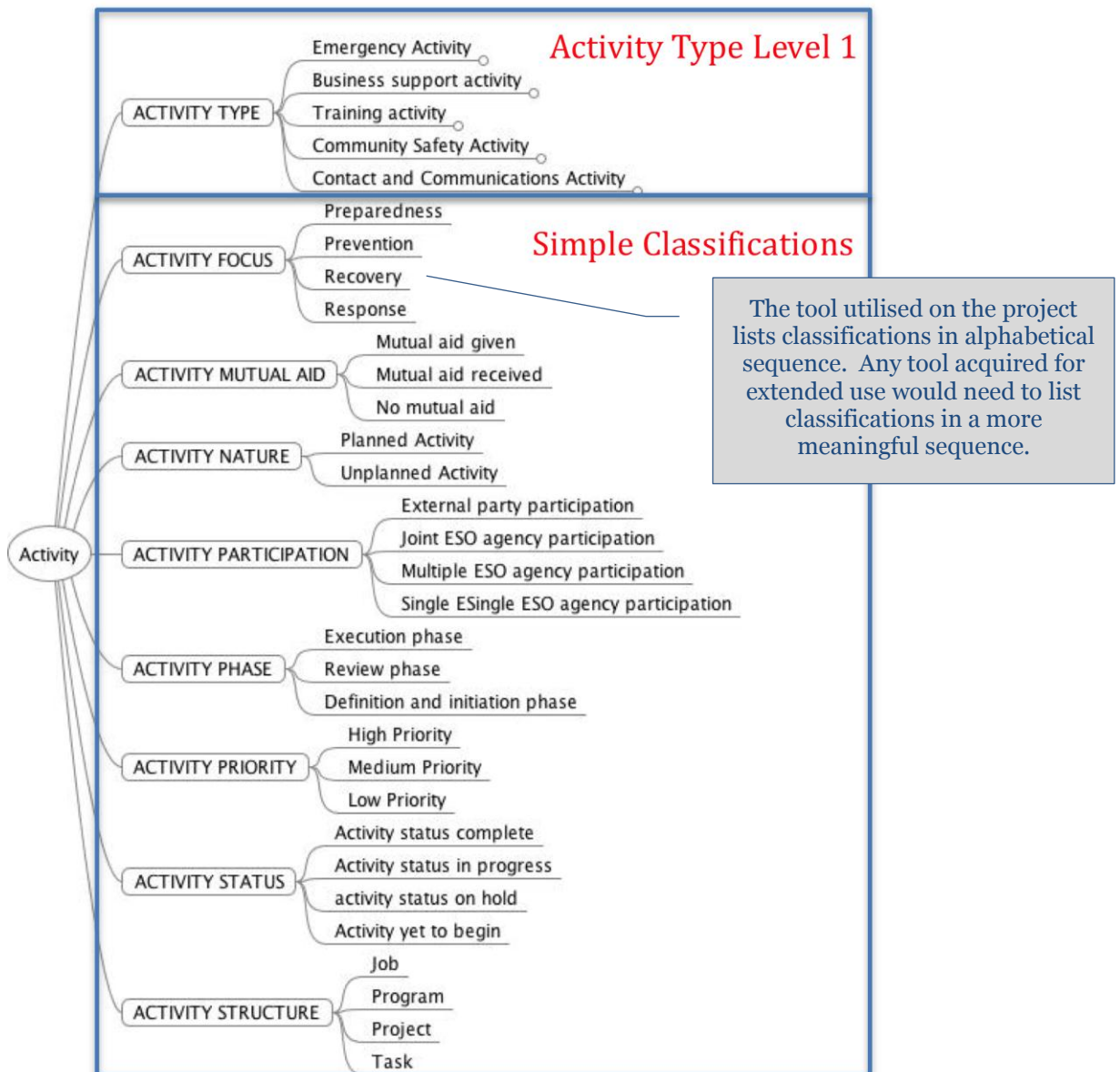


Figure 7. Activity Type Level 1 (Restructured Classification Model)

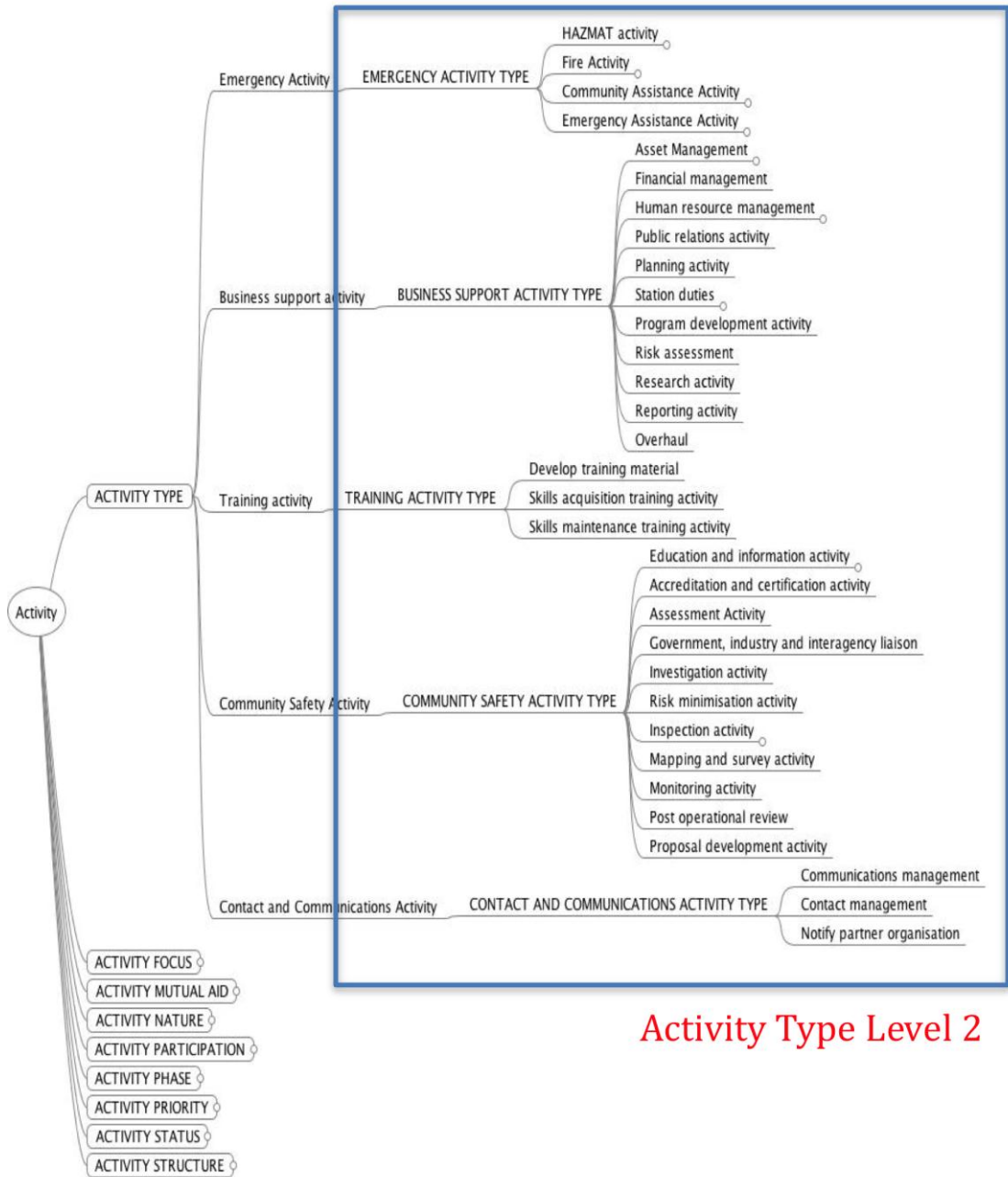


Figure 8. Activity Type Level 2 (Restructured Classification Model)

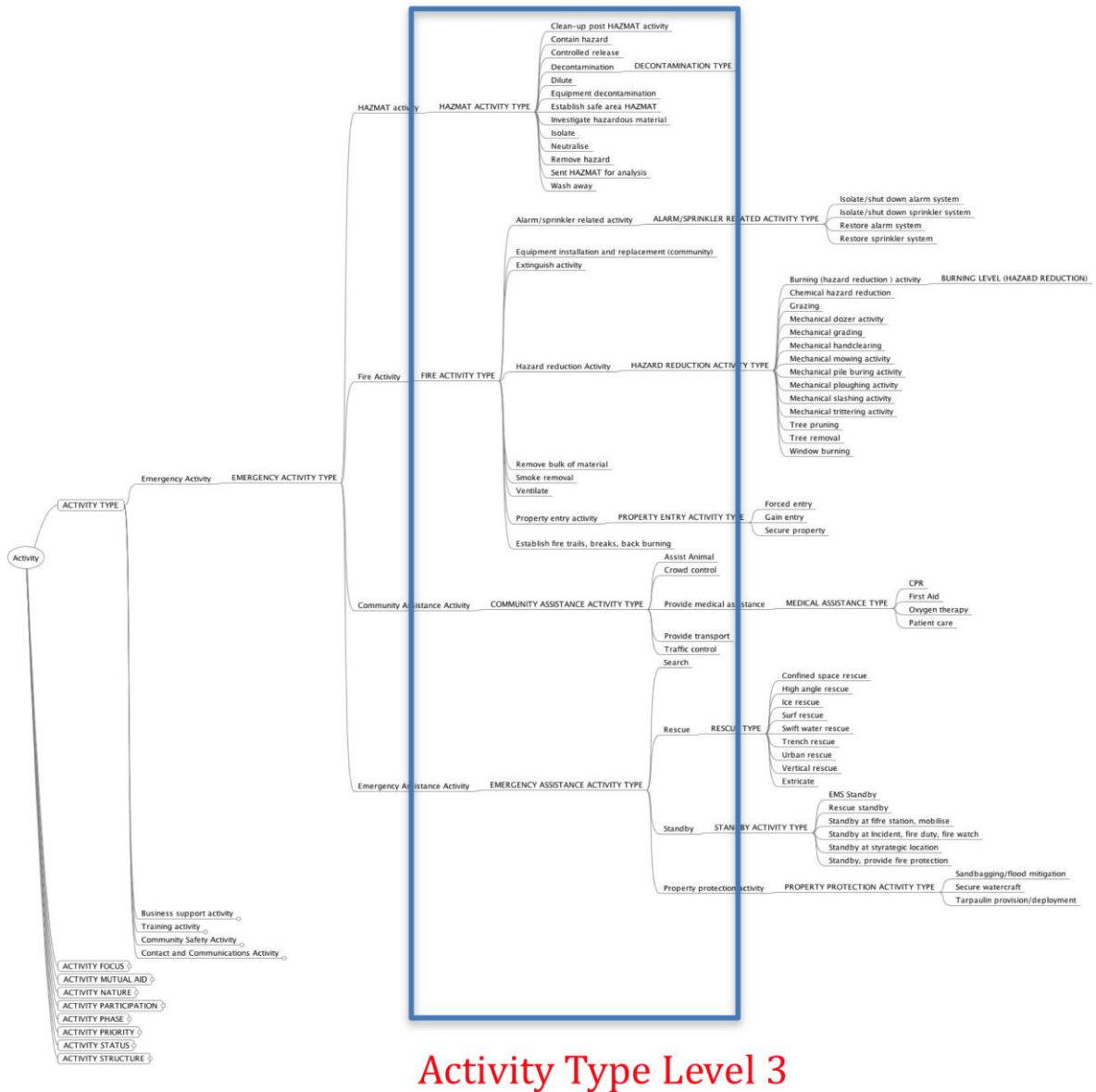


Figure 9. Activity Type Level 3 (Restructured Classification Model) Showing Emergency Activity

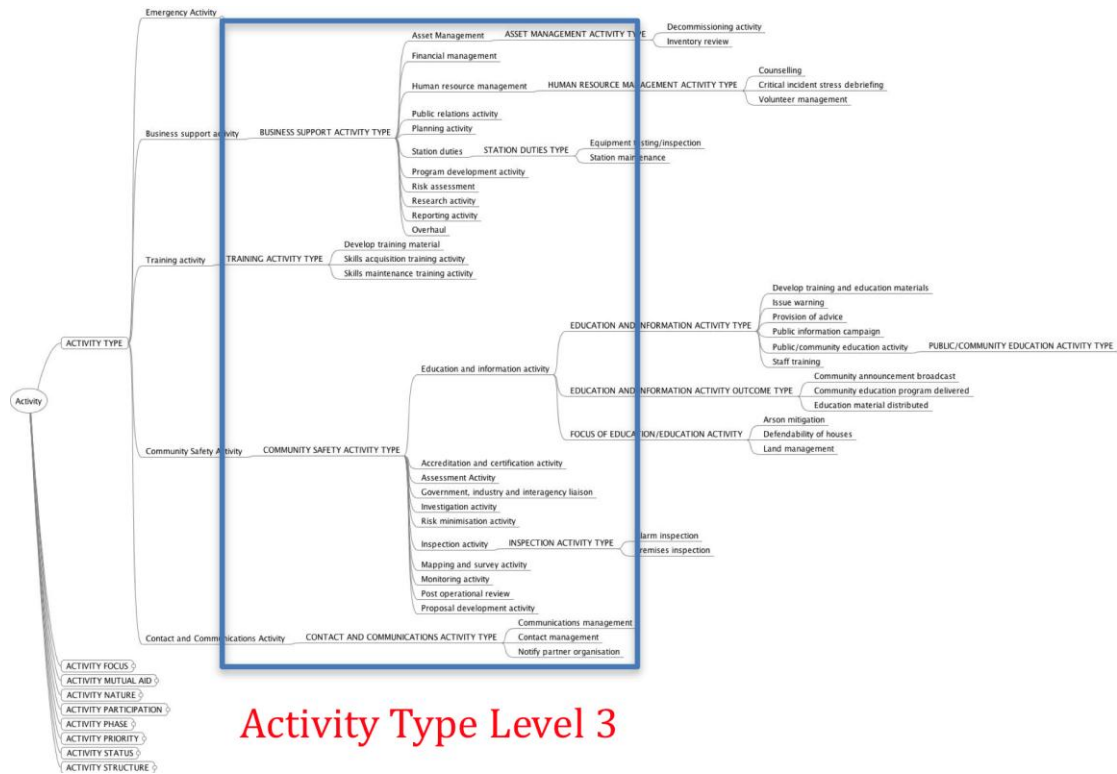


Figure 10. Activity Type Level 3 (Restructured Classification Model) Showing other Level 1 Activities

Activity Type Code Tables

a) Code Table for the Field - Activity Type Level 1.

The Field 'Activity Type Level 1' contains the codes corresponding to the classification values for ACTIVITY TYPE in the restructured Classification Model.

Classification Value	Code
Emergency activity	~~
Business Support activity	~~
Training activity	~~
Community safety activity	~~
Contact and communications activity	~~

b) Code Table for the Field – Activity Type Level 2. (Partial, for illustration)

The Field 'Activity Type Level 2' contains the codes that correspond to the classification values for EMERGENCY ACTIVITY TYPE, BUSINESS SUPPORT ACTIVITY TYPE, TRAINING ACTIVITY TYPE, COMMUNITY SAFETY ACTIVITY TYPE and CONTACT AND COMMUNICATIONS ACTIVITY TYPE.

Classification Value	Parent Value	Code
Fire activity	Emergency Activity	~~
HAZMAT activity	Emergency Activity	~~
Community assistance activity	Emergency Activity	~~
Emergency assistance activity	Emergency Activity	~~
Asset management	Business Support Activity	~~
Financial management	Business Support Activity	~~
Human resource management	Business Support Activity	~~
Public relations activity	Business Support Activity	~~
Planning activity	Business Support Activity	~~
Etc.....		~~

c) Code table for the Field – Activity Type Level 3. (Partial, for illustration).

Classification Value	Parent Value	Code
Alarm/Sprinkler Related Alarm	Fire activity	~~
Equipment installation and replacement (community)	Fire activity	~~
Extinguish activity	Fire activity	~~
Hazard reduction activity	Fire Activity	~~
Remove bulk of material	Fire activity	~~
Smoke removal	Fire activity	~~
Ventilate	Fire activity	~~
Property entry activity	Fire activity	~~
Establish fire trails, breaks, back burning	Fire activity	~~
Assist Animal	Community assistance activity	~~
Crowd control	Community assistance activity	~~
Provide medical assistance	Community assistance activity	~~
Provide transport	Community assistance activity	~~
Traffic control	Community assistance activity	~~
Search	Emergency assistance activity	~~
Rescue	Emergency assistance activity	~~
Etc.....		~~

4.3 EventType

Event Type restructuring within Classification Model

A restructured classification hierarchy for Event is shown below.



Figure 11. Restructured Event Classifications

Event Type Code Tables

a) Code Table for the Field - Event Type Level 1.

The Field 'Event Type Level 1' contains the codes corresponding to the classification values for EVENT TYPE in the restructured Classification Model.

Classification Value	Code
Incident	~~
Trigger Event	~~

b) Code Table for the Field – Event Type Level 2.

The Field ‘Event Type Level 2’ contains the codes that correspond to the classification values for INCIDENT TYPE and TRIGGER EVENT TYPE.

Classification Value	Parent Value	Code
Structure Incident	Incident	~~
Crime Incident	Incident	~~
Electrical Failure Incident	Incident	~~
Explosion Incident	Incident	~~
Fire Incident	Incident	~~
Flood Related Incident	Incident	~~
HAZMAT incident	Incident	~~
Medical Emergency	Incident	~~
Person trapped incident	Incident	~~
Transport Incident	Incident	~~
Calendar event	Trigger Event	~~
Contact	Trigger Event	~~
Environmental event	Trigger Event	~~
OH&S event	Trigger Event	~~
Public event	Trigger Event	~~

c) Code Table for the Field – Event Type Level 3. (Partial, for illustration)

The Field ‘Event Type Level 3’ contains the codes that correspond to the classification values for STRUCTURE INCIDENT TYPE, CRIME INCIDENT TYPE, EXPLOSION TYPE, FIRE INCIDENT TYPE, HAZMAT INCIDENT TYPE, TRANSPORT INCIDENT TYPE, CONTACT TYPE, and ENVIRONMENTAL EVENT TYPE.

Classification Value	Parent Value	Code
Damaged roof	Structure incident	~~
Door damage	Structure incident	~~
Structure collapse	Structure incident	~~
Window damage	Structure incident	~~
Tree down	Structure incident	~~
Tree threatening	Structure incident	~~

Bomb scare	Crime incident	~~
Terrorism incident	Crime incident	~~
Etc.....		

d) Code Table for the Field - Event Nature.

The Field 'Event Nature' contains the codes corresponding to the classification values for EVENT NATURE in the restructured Classification Model.

Classification Value	Code
Planned Event	~~
Unplanned Event	~~

e) Code Table for the Field - Event Temporal Nature.

The Field 'Event Temporal Nature' contains the codes corresponding to the classification values for EVENT TEMPORAL NATURE in the restructured Classification Model.

Classification Value	Code
Current Event	~~
Future Event	~~
Past Event	

4.4 Other Restructured Classifications

For broader reporting purposes (beyond Activity reporting), it may be necessary to restructure classification hierarchies from other of the six core concepts. In particular, the Dictionary Framework suggests that Material will require three levels of classification.

4.5 Roles in Relationships

The Data Dictionary indicates that instances of Activities are related to instances of other Core Concepts by a repeating group of fields, typically ((Core Class Identifier, Core Class Role)) e.g. ((Location Identifier, Identifier Role)), where the Role is specified to have a code list.

The values of this code list are obtained from the Classification Model as Classification Values of Core Concept to Core Concept Relationship Schemes. For example, the role of a Location in an Activity can be “Activity carried out in Location”, “Activity maintains Location” or “Activity occurs at Location”. These are the classification values of the classification scheme “ACTIVITY INSTANCE-LOCATION INSTANCE RELATIONSHIP TYPE”.

4.6 Granularity of Coding Levels

Defining three levels of coding based on the restructured classification hierarchies results in a level of granularity, at level 3, which is appropriate for **national reporting**.

For purposes of **jurisdictional reporting**, where a finer level of granularity is required, each level of activity classification can be raised one level. Here, the content of the Field ‘Activity Type Level 1’ is replaced with the content of Activity Type Level 2, and the content of ‘Activity Type Level 2’ is replaced with the content of ‘Activity Type Level 3’ then ‘Activity Type Level 3’ is allocated the values from the fourth level of values in the restructured classification hierarchy.

5. DOCUMENT SOURCES

The following documents were sources for the Initial Classification Model & Data Dictionary:

Title	Filename	Date (where applicable)
AIRS Codes	AIRS Codes.xls	27 Oct 2009
AIRS Manual	AIRS Manual.zip	
BRIMS Schema	BRIMS Schema.vsd	
BRIMS User Guide	BRIMS_BFMCUserGuice_3.16.zip	
Draft Data Model Phase 1	Draft Data Model R.doc	
NDMP Gap Analysis	NDMP Data dictionary Project. Reference Guide of Phase 1. Attachment 2. Comparative Gap Analysis	January 2010
SMS Tasking	SMA_TASKING.xls	