

Police Corporate Data Model (CorDM)

Guide to Police Corporate Data Model

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AUTHOR: Information Standards Team


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Authors:	Information Standards Team	
Address:	National Policing Improvement Agency New Kings Beam House 22 Upper Ground London SE1 9QY	 mail to: isg@npia.pnn.police.uk

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1 INTRODUCTION

1.1 Purpose of the Document

The purpose of this document is to provide an overview of the content and structure of the CorDM. The CorDM is a large and complex UML class model, which is presented by means of several formats and a number of linked products. This document is intended to assist those who need to understand and use the CorDM to assimilate:

- the modelling notation used
- how the model is structured
- where on the web site one can find CorDM products, including the data structures and data standards that they need.

1.2 Scope

This document describes:

- the architecture of the CorDM, explaining how it is broken down into a number of related products
- the data structures of the CorDM, explaining how it is comprised of classes and how these classes are related to one another
- in summary the changes that have been made in Version 7.

The CorDM web site provides a number of other documents, which deal with other CorDM-related topics, such as XML schema, compliance, and change control. An overview of these documents can be found in The Guide to the CorDM Web site.

1.3 Audience

The CorDM is a model of the police business from the data perspective. It is essential that, within the police domain, it is understood by both business and technical people. This document is intended to provide background information that is relevant to all those who need to understand the CorDM. For those not familiar with data modelling, particularly using UML (Unified Modelling Language), section 4.2.3 provides an overview of the modelling notation.

2 Background

2.1 Why a Corporate Data Model?

The vision for the future Information Systems Strategy (ISS) for the Police Service within England, Wales and Northern Ireland was set out within the ACPO ISS4PS (Information Systems Strategy for the Police Service). The vision defines an integrated information environment that maximises the benefit of information management across internal Police and other organisation boundaries. One of the cornerstones of the ISS was the development of a Corporate Data Model (CorDM) to set the standard for data sharing and interchange.

2.2 Common Data Model (CDM)

The CDM is the forerunner and a major source for the CorDM. It dates back to 1995 and has been under constant development and maintenance since. The CDM is the existing standard for NSPIS applications and continues to be supported by the NPIA Information Standards Team.

2.3 CorDM Versions

2.3.1 Version 1 - July 2003

This version was released on CD and comprised an Object Catalogue and Business Area Views for 12 Business Areas. The model diagrams were constructed in Visio and were presented in a Strategic Framework document.

2.3.2 Version 2 - December 2003

This version was released on the CorDM web site and comprised Data Specifications, including Object Catalogue, Data Standards, and CV tables, together with Business Area Views for 26 Business Areas. The model was held in IBM's Rational Rose Professional Data Modeler Edition [™].

2.3.3 Version 3 - August 2004

This version was released on the CorDM web site and comprised Data Specifications, including Object Catalogue, Data Standards, CV tables, and XML schema definition for attributes and classes. Strategic classes were restructured and the number of Business Area Views reduced to 25 with the consolidation of Crime and Forensics. The model was held in IBM's Rational Rose Professional Data Modeler Edition [™].

2.3.4 Version 4 - March 2005

This version is released on the CorDM web site and comprises Data Specifications, including Object Catalogue, Data Standards, Data Types, and CV tables, together with restructured Business Area Views. The main strands of work for Version 4 have been to create a 26th Business Area View representing the data requirements of the National Intelligence Model (NIM) and to restructure the roles, which represent the relationships between the strategic classes. The model is held in IBM's Rational Rose Professional Data Modeler Edition[™]. Full details of the changes made are provided in the Change Report, which is available as a download on the web site.

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2.3.5 Version 5 – November 2005

The details of the additions, changes and deletions are documented in the Change Report.

2.3.6 Version 6 – November 2006

The details of the additions, changes and deletions are documented in the Change Report.

2.3.7 Version 7 – November 2007

This was a major restructuring of the CorDM. The Business Activity and Business Info base classes were replaced with a group of base classes with more specific and useful definitions. This produced a flatter (less hierarchical) and therefore less complex model.

2.3.8 Version 7.1 – April 2010

Most of the differences between version 7 and 7.1 are changes made to CorDM to enable closer alignment to PND.

Full details of the additions, changes and deletions are documented in the Change Report.

3 Model Architecture

The CorDM is held in several related repositories and is published as a number of related products. This section gives an overview of UML.

3.1 Terminology

This section of the document defines several key terms used within the CorDM:

Package

A package is a mechanism for organising model elements into groups. For example, the Person package holds the model elements that describe a person.

Class

A description of a set of objects that share the same attributes, operations, and semantics. For example, the Motor Vehicle class describes all motor vehicle objects as having (potentially) the same information recorded about them (attributes), the same relationships to other classes (e.g. Person) and the same meaning.

Attribute

A named property of a class that describes a range of values, which instances of the property may hold. For example, Physical Object.Primary Colour Class is an attribute of the Physical Object class, stating that all Physical Object occurrences can have a primary colour and defining what values may be used to define the colour of the object. DataTypes are used to define the valid values for an attribute.

Association

A means of expressing the link between classes.

Data Type

A means of expressing the characteristics that an attribute may have. For example, String250 limits an attribute to contain up to 250 characters of text. Other examples of data types are Date, Indicator, and DateTime.

3.2 UML Model

The data model is maintained in IBM's Rational Rose Professional Data Modeler Edition™ and is published on the CorDM web site using the publishing capabilities of that tool. The model is divided into two sections, the Strategic Class Model and the Business Area Views, both of which are described below.

3.2.1 Strategic Model

The strategic model is the central model of the CorDM. All classes and their associations reside in this model, organised into top-level packages, known as strategic classes.

Each of these is explained in its own section within Section 6 below and can be viewed on the web site from the Package View > Logical View > Strategic Class Models browser.

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3.2.2 Business Area Views

The CorDM provides a set of 28 Business Area Views, which together cover a large proportion of the business performed by the police service. A Business Area View uses the classes and associations that exist in the Strategic Model to present the likely scope and structure of the data required to support the business processes of that area. A Business Area View does not purport to be a definitive statement of the scope of a given business area.

Each Business Area View is provided as a package on the web site in the Package View > Business Area Views browser and as an individual download document with additional explanatory text, which can be found on the web site under the Downloads tab. In both cases, only the diagrams are presented. When viewing the download the reader must use either the Object Catalogue Report or the Strategic Class Models browser to see the meaning and content of the classes used on a Business Area View diagram. When viewing the web site the viewer may click on a class on the diagram to see its definition and attributes.

3.2.3 Modelling Notation

The CorDM is modelled in the Unified Modelling Language (UML). This section describes the meaning of the notation for those new to UML. The CorDM represents the data, and associations between the data, that are required by the police business. It is important that this information be provided in a form that is as accessible as possible to non-technical people as they are best placed to determine whether the CorDM is a true representation of the Police business.

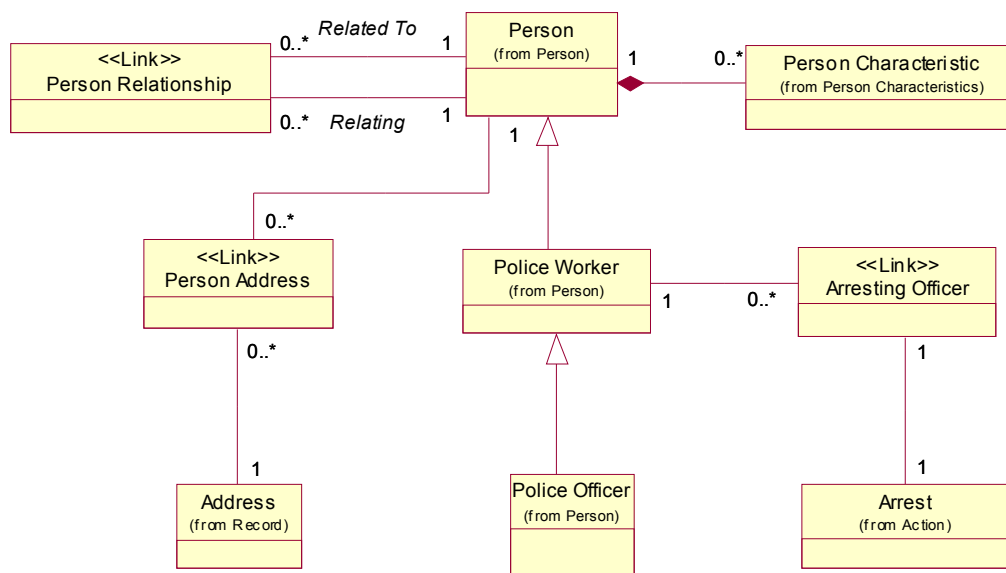


Figure 1

Figure 1 above contains examples of the main features of the notation used within the CorDM, which are explained below.

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Class

Each box represents a class.

Each class consists of three compartments (name, attributes and operations) but in the CorDM only two (those for name and attributes) are shown however the list of attributes is not shown in the diagrams. The operations compartment is suppressed because the CorDM is a data model only and so contains no operations.

The name compartment shows the name of the class and the package to which it belongs, e.g. Email Address. Where a diagram and the class shown on it are held in the same package, the package is omitted. The Role or <<Link>> classes do not show the source package name.

Where a class is used to represent a role (or relationship) between two other classes it is highlighted by the stereotype <<Link>>, as shown in Person Address. This is described in detail in Section 6.4 Roles.

If the name of the class is in italics, the class is an abstract class, meaning that the class will never be instantiated. For example, Party is an abstract class because a Party object will never be created since the actual object will always be a Person or an Organisation.

The attributes compartment is shown but the list of attributes is suppressed to make the diagrams easier to maintain and read.

Relationships

Relationships between classes are represented by lines. The relationships used in the CorDM can be summarised as follows.

Generalisation

When one class is a subclass of another, the relationship is represented by an unfilled arrow, as shown between Person and Police Worker, and Police Worker and Police Officer. A subclass inherits all of the attributes and associations of its parent. The parent class is known as the generalisation or superclass while the child is known as the specialisation or subclass. Apart from the diagrammatic representation of inheritance, it is also helpful to note that every class definition for a subclass begins with 'A subclass of ...'.

This is an important aspect of the CorDM to understand. Due to inheritance, if you are looking for an attribute that states the date on which a Crime started you will not find it in the Crime class. Crime is a subclass of Event and, since all Events need a similar attribute, a suitable attribute has been placed in Event, namely Event.Start.DateTime. If you want to find an attribute for Pedal Cycle Tyre.Colour, you can start by looking in Pedal Cycle but you will not find it there. Pedal Cycle Tyre is a subclass of Pedal Cycle Component, which is a subclass of Manmade Object, which is a subclass of Physical Object. Since all physical objects have a colour (regardless of whether in any particular circumstance it is relevant or useful for the police to record it!) the attributes you require are Physical Object Colour. Primary Class, Physical Object Colour.Secondary Class.

If you want to find the role played by a person as 'account holder' you will find that it has been modelled not as a Person Account Role but as Party Account Role because both people and organisations can hold bank (and other) accounts.

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Association

Associations between classes are represented by lines without arrows. An association shows that two classes are related and more information can be represented about an association by using Multiplicity and Constraints (see below).

Aggregation

An aggregation is a special form of association that specifies a whole-part relationship between the aggregate (or whole) and the component (or part). This structure is rarely used in the CorDM and is therefore not shown on Figure 1. It is represented by an unfilled diamond at the aggregate end of the association.

Composition

A composition is a special form of aggregation that means that the component class can only exist as part of the composite (containing) class. An example on Figure 1 is Person, which comprises Person Characteristics. This type of association is represented by a solid diamond at the end of the association meeting the containing class. The component class (in this case Person Characteristic) cannot exist independently of its container (in this case Person).

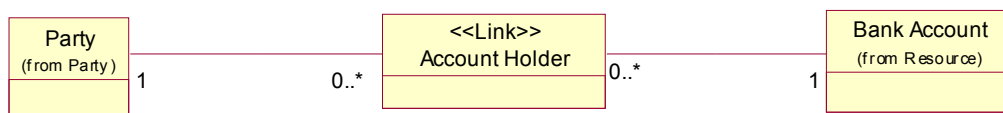
Multiplicity

This term refers to the rules regarding associations between classes. Some associations are mandatory while others are optional. For example, an Arrest must have one and only one Arresting Officer while a Party may own zero, one or many Motor Vehicles. These rules are represented by symbols that appear at both ends of each association or composition as follows:

- 1 mandatory - there must be one and only one
- 0..1 optional - there may be zero or one
- 0..* optional - there may be zero, one or many
- 1..* mandatory - there must be one or many
- 0..2 optional - there may be zero, one or two (any specific integers may be used as required)

There are examples of these in Figure 1 :

The example below shows a specific instance of how an Account is related to a Party (Person or Organisation).



- A Party may have zero, one or many Accounts
- An Account Holder must be one and only one Party
- An Account Holder must have one and only one Account
- An Account must have one and only one Account Holder

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Constraints

A constraint adds a further rule to an association. The CorDM uses an {xor} constraint to show that only one of two or more associations may or must exist. In Figure 1, a Person Address instance must be associated with either a Mail Address or an Email Address but not both. This does not stop a person from having both a mail address and an email address – this is achieved by creating two instances of Person Address.

Data Standards

Overview

All classes and attributes within the CorDM have metadata, that is data or information that tells you more about that class or attribute. This information is available to be viewed in the following sources within the CorDM.

The CorDM holds the classes and attributes in IBM's Rational Rose Professional Data Modeler Edition™ but further metadata are held in Access™ database tables,

The content of these tables is presented in the form of the CorDM Object Catalogue Report and CorDM Data Standards Report, which are available as downloads on the CorDM web site.

A further table holds the DataTypes that are used to define the valid values or domain of an attribute and this is available on the web site as a download in the form of the DataTypes Report.

When viewing a Strategic Class on the web site one may click on a class contained in the package to see its definition, attributes, and then click on an attribute to see its definition and data type.

The following information will guide you through the different elements of metadata that apply to CorDM Classes and Attributes and will provide an explanation of this information.

Class and Attribute Names and Definitions

Class Name

This short title identifies the Class. Each Class Name which need only be unique within a package, however within the CorDM usage, it is unique and cannot be shared with any other Class or Attribute.

Class Definition

This piece of text explains:

The purpose of the class.

The information held within the class.

The place of that class within the strategic hierarchy into which that class falls. If the class is a subclass, the definition includes a reference to the class to which it belongs.

A specific case is when the class is a composite part of another class and is referred to as a Composite.

Attribute Name

This short title identifies the attribute in respect of the class to which it belongs. Each attribute name is unique within its class. We have adopted the ISO11179 standard for naming attributes; that is, the full unique name of each one is prefixed with its parent class, followed by a qualifier to indicate the purpose of the attribute within the class, and a suffix that is an indication of the representation under which the attribute falls, e.g. Text, Date. Therefore, Animal Species.Text is the species of the animal in the form of text.

Although the attribute is so named, the way it is viewed is somewhat different. The attribute name does not show the Class name, this is obtained from the class that contains the attribute. The representation is not illustrated if it is not part of the meaning of the attribute. It is illustrated via the Stereotype aspect of the Attribute.

Attribute Definition

This piece of text explains the purpose of the attribute and the information held within that attribute with relevance to the class to which it belongs. The style of the definition follows a template that has been developed for each representation.

The following table describes the representations that are used for the attributes and the associated definition templates.

Data Type Definition

There are three basic variations of Data Type used :

Technical – where the characteristic restriction is mechanical e.g. PositiveInteger2

Business – where the restriction is set by business rules e.g. GunClass (CV list).

External – where another body's standard (e.g. GDSC) is used e.g. PostCode

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Representation Term	<p>A classification system that groups attributes, and distinguishes them from other attributes, by their common characteristics and behaviours. The representations, in order of frequency, used in Version 5 of the CorDM are as follows:</p> <p>Class: CV Table Text: String Ind: Y/N Date: Calendar e.g. yyyy-mm-dd ID: Unique Identifier DateTime: Date + Time Quantity: Capacity or Amount (non-monetary) Measure: Dimensions expressed per unit e.g. 10 cm Value: CurrencyAmount Graphic: Diagrams or Graphs Time: Time of Day or Duration e.g. HH:MM:SS Rate: Value expressed in a complex unit e.g. 10 miles per hour Object: A large amount of unidentified data Amount: Numeric part of CurrencyAmount</p>
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3.2.4 External Standards

Many CorDM standards are tied into standards maintained by other organisations. The mapping to e-GIF (GDSC) is documented in the GDSC Mapping report, while the mapping to CJIT’s Data Standards Catalogue is included in the Object Catalogue Report. Mappings to PNC and CDM but are not yet ready for publication.

3.2.5 Constrained Variables Tables

Many attributes define their valid contents, by reference to a Constrained List. Generally, in this case, an attribute’s name will end with ‘Class’ and a table of values relating to the attribute is recorded. The values are stored and maintained within the Code List Management Service (CLMS). This application holds values used by police forces, in several areas across the Criminal Justice community and potentially across a much wider audience.

3.2.6 XML Namespace

The CorDM namespace is PDM, denoting Police Data Model. See CorXML Tools Web Site for information about the CorDM XML Schema.

3.3 Supporting Documents

A number of other documents dealing with different aspects of the CorDM and the XML Schema are available on the CorDM and CorXML web sites.

4 Strategic Classes

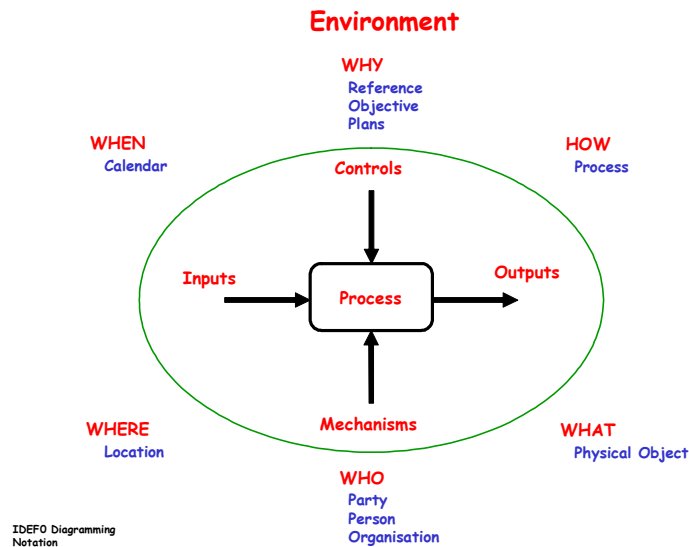
This section provides an overview for each of the twenty three strategic classes, which are (alphabetically):

- Action
- Application
- Case
- Circulation
- Collection
- Communication
- Event
- Instruction
- Licence
- Location
- Log
- Operation
- Organisation
- Party
- Person
- Physical Object
- Police Offence Disposal
- Process
- Record
- Reference
- Report
- Resource
- Utility

There is also a section which covers the concept of Role.

4.1 Environment

The first classes to be looked at are those which describe the environment in which the police work.



The diagram above illustrates the basic process structure, the inputs and outputs of the process, the controls and mechanisms that drive the process and the surrounding environment that contributes to the process.

Who

We begin with Party, which is a term used to describe a Person or Organisation, and then turn to the Person class, which is perhaps the most used class within the police business. We move on to Organisation, which covers all organisational units at any level both within and without the police service.

4.1.1 Party

Description

The Party class is a superclass or generalisation of Person and Organisation. The class contains no attributes since our analysis suggests that there are no attributes common to both Person and Organisation. However, it is useful because it simplifies the model when either a Person or an Organisation can play a role in respect of another class. For example, either a Person or Organisation can hold a bank account.

4.1.2 Person

Description

The Person class is a subclass of Party used to represent all kinds of people, whether living or dead. It covers a person who works for the police service, a person who has dealings with the police (e.g. a convicted criminal or firearms certificate holder) and a person wanted by the police, who exists only as a suspect description in a witness statement. There are many more examples too numerous to mention.

Figure 3 shows the high-level information held for a person.

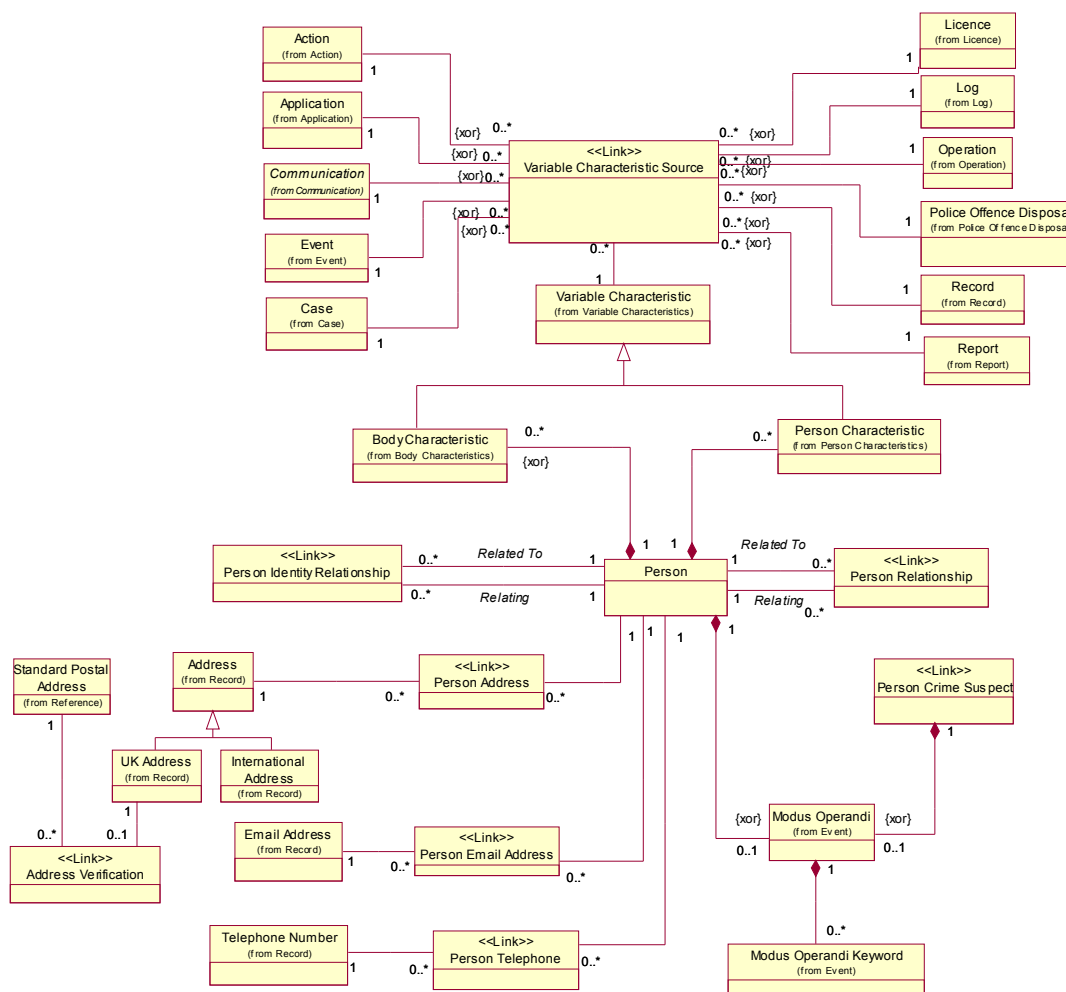


Figure 3

Logically, it is intended that only one Person object be created to represent one real person. However, given the nature of the police business and frequent uncertainty as to identity, it is accepted that there will be occasions when either two Person objects unwittingly exist for the same person or else two Person objects for the same person are linked via the Person Identity Relationship role, which shows them to be identical. Person Relationship is used to show the relationship between two different people.

The Person class contains no attributes. This is because even the apparently static information about a person can change over time, especially when one is dealing with criminals for whom deceit is often part of the job description. For this reason, we have used a class named Variable Characteristic to record the details of a person, which can change over time.

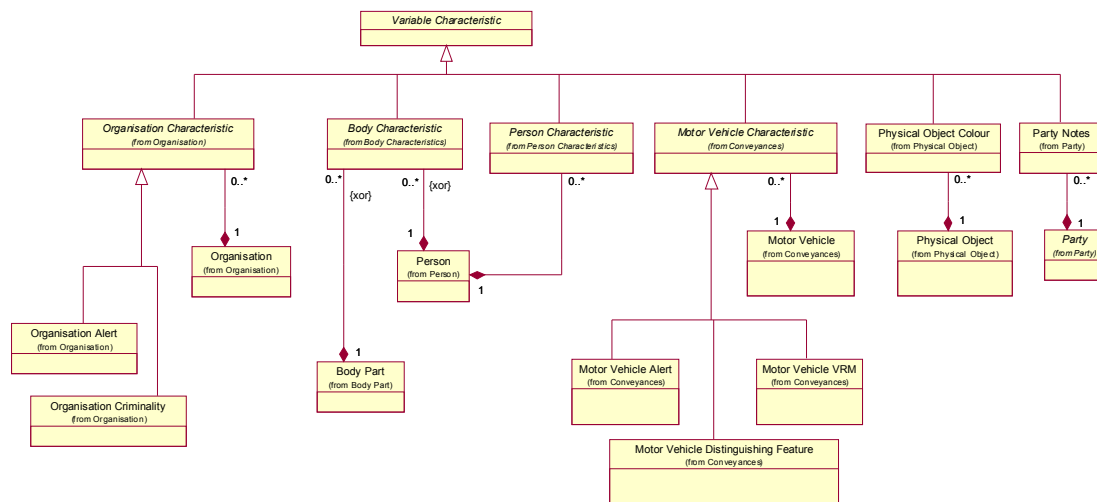


Figure 4

4.1.2.1 Variable Characteristic

Variable Characteristic, held in the Utility package (Section 6.1.6), is a very generic class, which is used to record variable details for parties, people, organisations, physical objects and motor vehicles. In this context, we will consider its use for people.

Figure 4 shows that a Person has Body Characteristics and Person Characteristics and that both of these are subclasses of Variable Characteristic. Variable Characteristic provides an optional link to one or more source classes. This enables us to link these characteristics, either to the information or activity that provided them to the police service, or to information that is produced using the details. For example, information about a person might be gathered as part of the Detention activity or we can show that a person uses a particular name on his or her Driving Licence or Passport. To show that a person is charged or cautioned in a particular name we can link the relevant Name object to the Police Offence Disposal object. Note that we can link a Variable Characteristic to many source objects and thus can clearly state that the same characteristic was recorded or found to be true on more than one occasion.

Figure 4 also shows how a person's contact details are recorded. Person Address and Person Telephone contain CV lists to indicate whether the address information is for home, business, mobile, etc.

4.1.2.2 Body Characteristic

Figure 5 shows the descriptive information that may be recorded for a person. Body Description contains the non-repeating attributes that describe a person's physical appearance, such as sex and skin colour. Over time, one might record many Body Descriptions but one would expect only one occurrence to result from one encounter with the person.

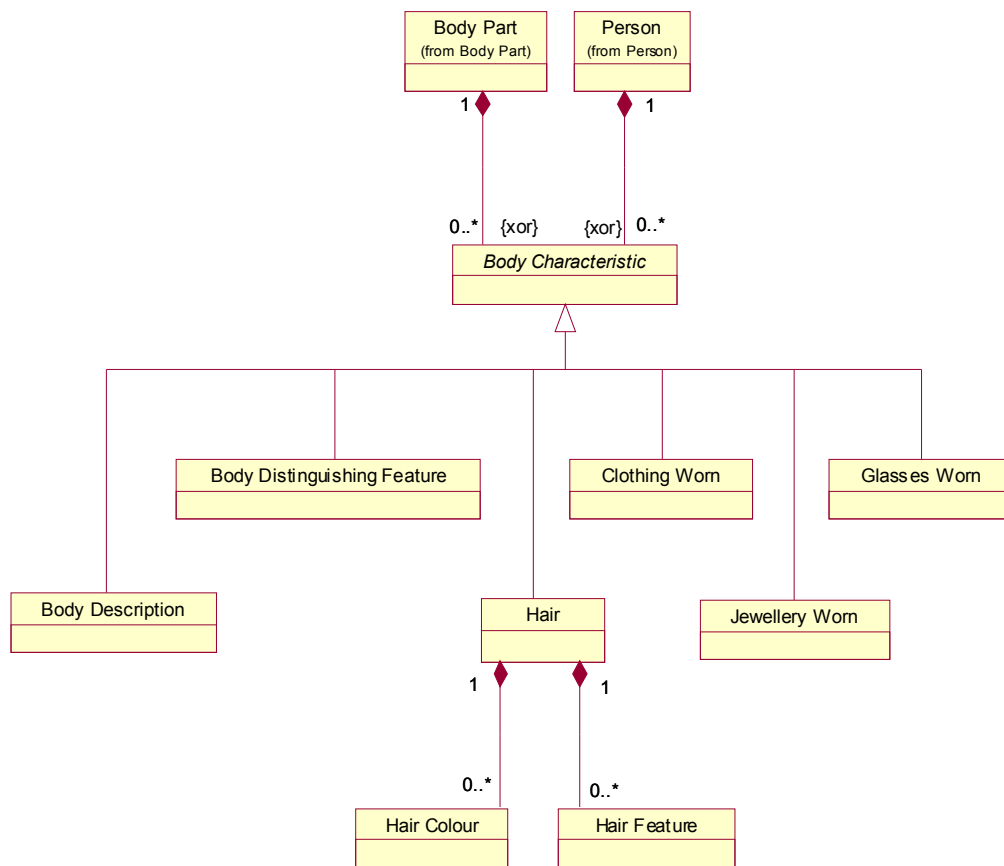


Figure 5

The other classes may have multiple occurrences for a single 'handling' of the person. For example, each Body Distinguishing Feature can record one mark, scar, tattoo, or similar feature about a person.

Note that Body Characteristics can be used to describe Body Parts. Body Part is a subclass of Physical Object and includes detached parts of a body as well as a complete corpse.

Note also that Clothing Worn and Jewellery Worn are used to provide brief descriptive details of what a person was wearing or was believed to be wearing at a particular time. If more, structured detail is required, there is a facility to link the Person to one or more Jewellery and Clothing objects, where each clothing item can be described in detail, as shown in Figure 6.

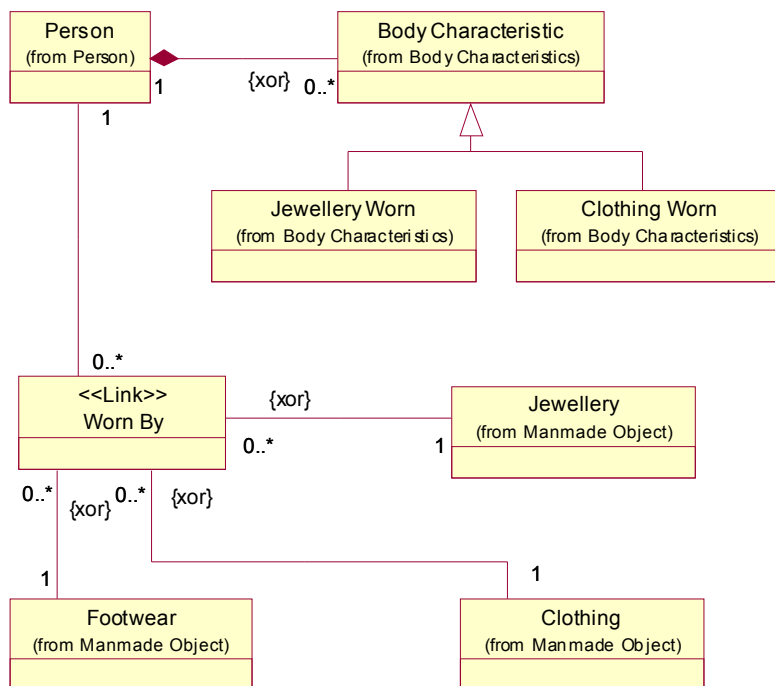


Figure 6

4.1.2.3 Person Characteristic

Figure 7 shows the personal information that may be recorded for a person. The purpose of each class should be self-evident from its name and each may be repeated either over time or within a single encounter with the person. This may be excessive flexibility in some cases but it is important, in particular, to allow for multiple names and dates of birth since changing these key items is a frequently used means of misleading the police.

Note that the Person Identifier class is split into a number of subclasses. Where an identifier is of particular importance to the police it is represented by its own class and attribute, which enables tight definition and data validation specification. Other less significant numbers are held in Person Unstructured Identifier where one generic attribute holds the number and another provides the type of number. This makes the CorDM more flexible to changing requirements. Note that the DVLA Number is a characteristic of the person and not of the Driving Licence because Driver Numbers may be issued when there is no licence.

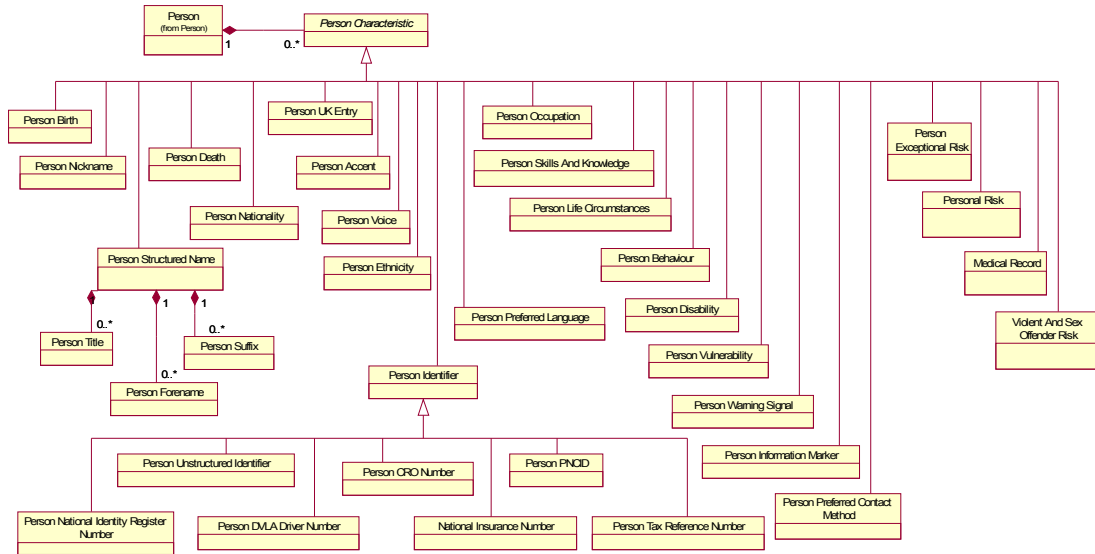


Figure 7

Note that the Person Structured Name should only be used to record names used by the person. If the police create a pseudonym for a person to identify him or her for the purposes of a criminal investigation (e.g. Man in red baseball cap), this should be recorded in the Person Crime Role Pseudonym Text attribute in Person Crime Role.

4.1.2.4 Police Worker

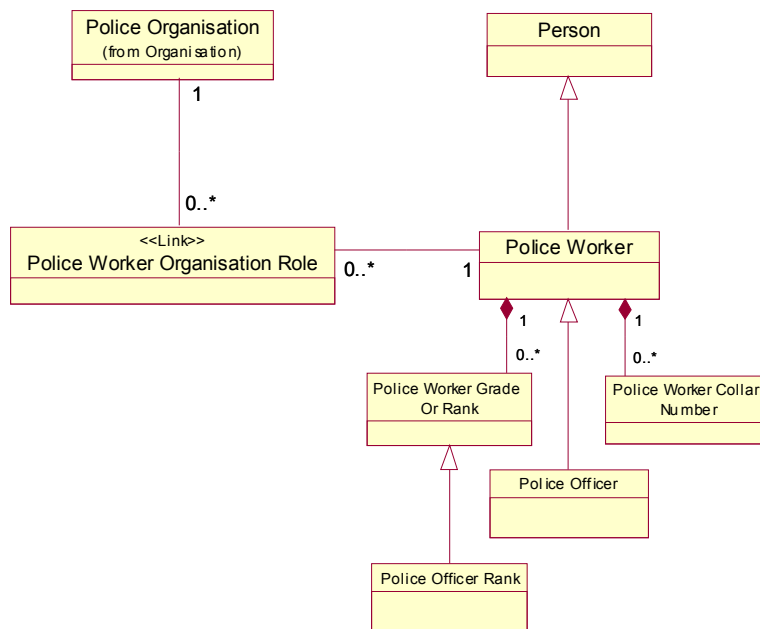


Figure 8

Figure 8 shows that Police Worker is a subclass of Person. This means that a Police Worker inherits all the attributes and relationships available to a Person. When a person is a police worker we need to record extra information about

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them, and this is reflected in the Police Worker class. It may be argued that Police Worker is a role, which is played by a person. However, we have modelled Police Worker as a subclass because it is such a significant and permanent state of a person. Even after leaving the police service the person will remain as a police worker from the point of view of employment record and pension entitlement.

Police Officer has been created as a subclass of Police Worker to record specific attributes relevant only to police officers. However, all roles for police officers have been modelled at the Police Worker level. This makes the model less subject to change with the increase in civilianisation and legislation changes. It also means that, whilst applications may be designed to permit only police officers (or even police officers of a particular rank) to perform certain roles, the CorDM will allow any police worker to perform them. It is considered a reasonable stance for the CorDM to leave this level of business rule to specific application designers to impose as they see fit.

Hints and Tips

Q. Where do I find attributes such as Vehicle Keeper Name, Name Charged, Police Officer Name, and Arresting Officer Name?

A. Think generically! All of the above are just the names of a person used in a particular context. The Person Name class and its component parts hold the relevant attributes and an association to a role or the Police Worker subclass provides the context.

Q. Where do I find a person's home address or work phone number?

A. Mail Address and Telephone Number, which are subclasses of Record, contain the attributes while Person Address and Person Telephone, which are subclasses of Role, provide the usage.

4.1.3 Organisation

Description

The Organisation class is a subclass of Party used to represent all kinds of organisations. It covers:

- organisations within the police service at all levels from force downwards (Police Organisation).
- organisations which work with the police to administer justice (e.g. Court, CPS Branch)
- organisations which are of interest to the police due to their function or because the police have direct dealings with them (e.g. Vehicle Testing Station, Shooting Club, Watch Scheme Organisation)
- organisations that have come to notice due to involvement in crime, as either the victim or perpetrator.

The Organisation structure is similar to Person in that it makes some use of Variable Characteristic (in this case Organisation Characteristic) to record data that may vary over time and has links to Address subclasses. Refer to Person - Variable Characteristic above for more detail.

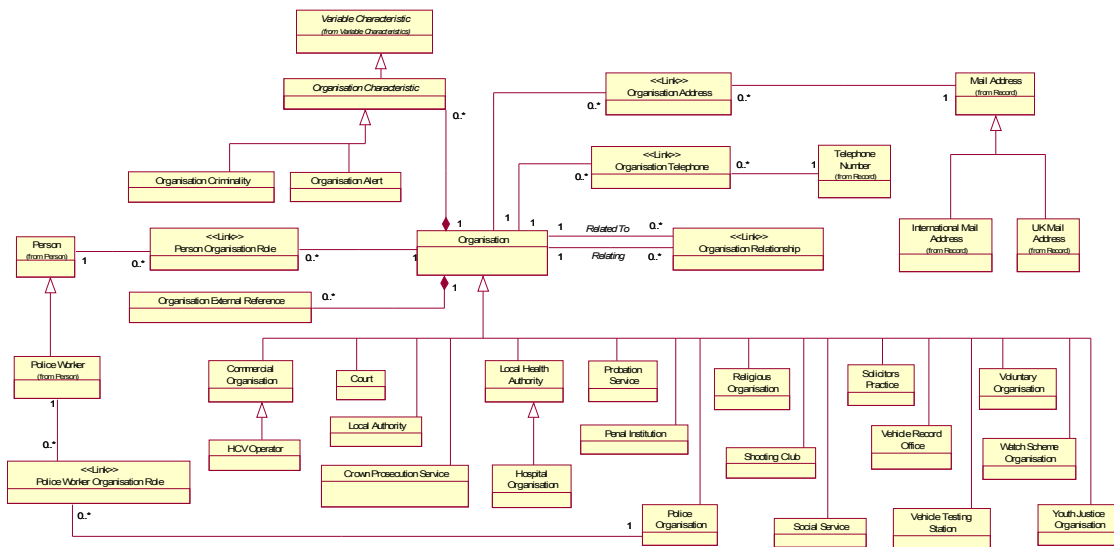


Figure 9

Only specific kinds of organisation have been modelled as subclasses - those that require additional attributes over and above those provided by Organisation or that have specific relationships beyond those of Organisation.

Note that there is no subclass for criminal organisation. Any organisation can be involved in criminal activity and this can be expressed by creating roles between an Organisation and a Crime and by creating an Organisation Characteristic of type Organisation Criminality.

The relationships that exist between people and organisations are dealt with in the Party Relationship section but are shown on Figure 9 for completeness since people are an intrinsic part of any organisation. Person Organisation Role shows

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the generic link that may exist between any person and any organisation whilst Police Worker Organisation Role is specific to the roles that Police Workers play in Police Organisations.

What

Motor vehicles are of great interest to the police, and these and all other physical objects are encompassed in the Physical Object class.

4.1.4 Physical Object

Description

The Physical Object class is used to represent all Physical Objects that are of interest to the police for whatever reason. The physical object could be:

- owned or leased by the police service as an item of equipment
- reported to the police as lost or stolen
- found or recovered by the police
- created by the police (for example a sample)
- taken from a person held in detention
- of interest for any other reason

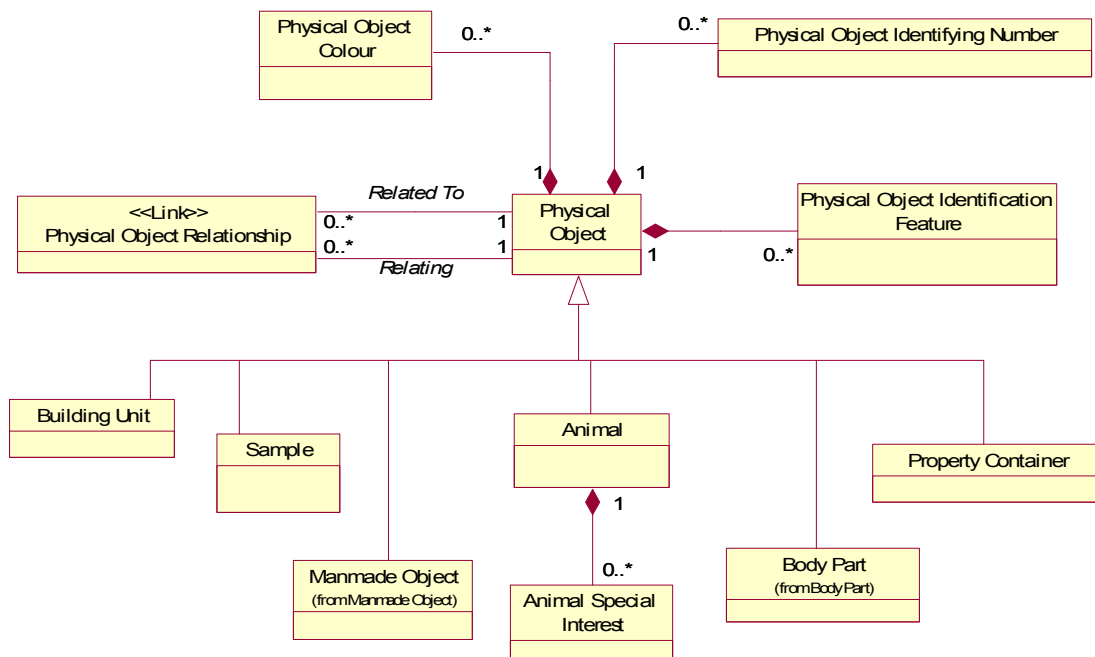


Figure 10

Figure 10 shows the top level of the Physical Object hierarchy. This hierarchy contains a wide range of very diverse objects, which are categorised primarily by what they physically are and do. Any Physical Object may have occurrences of Physical Object Special Interest, Physical Object Identification Feature, Physical Object Colour, and/or Physical Object Identifying Number.

Special Interest enables any physical object to be categorised in other ways such as being an antique, collectable, protected species, etc. Identification Feature provides the ability to record unusual features that may assist in the identification of an object. Physical Object Identifying Number recognises that many different types of numbers are used to identify physical objects. Marine

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craft have hull numbers and sail numbers while a manufacturer's serial number can apply to many types of object. This class associated with Physical Object allows us easily to create new types of number and associate them with any object in the hierarchy.

These four classes, being at the top of the hierarchy, provide flexibility to add new functionality to the model very easily, via a new value in a CV list, but also allow strange combinations whereby, for example, an animal can have a sail number and a boat can be classified as an endangered species. This trade off is felt to be worthwhile and applications must be designed to impose the rules to avoid this as required.

Physical Object Relationship allows any physical object to be related to any other physical object. Almost all relationships between physical objects are created by this method. We have avoided creating specific relationships between pairs of physical objects denoting, for example, that an engine is fitted to a motor vehicle. The police business deals with such a wide range of circumstances and objects that we have created a generic list of reasons for associations between them and leave it to applications and users to apply detailed rules as required. This allows a chest of drawers to be part of an animal or a police building unit to be found in a stamp collection but the trade off is simplicity and flexibility.

Physical Object itself holds the attribute Physical Object.Number, which allows us to represent a large number of similar objects by using one occurrence, for example, where a consignment of clothing or cigarettes is stolen.

Within the hierarchy, subclasses are created only where unique attributes or associations need to be defined. Only a fraction of the objects covered by the hierarchy is identified as classes. Many more exist only in the Physical Object Class CV list.

4.1.4.1 Top Level Classes of Physical Object

Animal

The Animal class covers all animals living or dead. They may be lost, stolen, found, or used by the police service. Only a high-level classification is provided by the associated Physical Object Class table focussing on common pets and farm animals.

Body Part

The Body Part class covers corpses and parts of dead bodies, which may be found detached from the body due to accident or criminal activity. A Body Part occurrence is not created when dealing with a living person. Clearly, a Person is a Physical Object but we could find no benefit in modelling a person as a subclass of Physical Object since the significance, information and handling of human beings differs so much from those for other physical objects. However, a corpse or body part loses some of the features and capabilities of a person and its handling becomes more akin to that of any other physical object in the way it is moved, stored, etc.

Building Unit

The class may be expanded if further analysis exposes wider use but current scope of analysis suggests that the physical features of a building, whether used by the police or not, are not relevant.

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Property Container

The Property Container class is modelled at this level because it has particular significance beyond its physical appearance and is expected to be recorded only when put into use. A Property Container is used to hold, protect, and move exhibits, which are themselves, physical objects. The relationship between a Property Container occurrence and any other Physical Object occurrence, including another Property Container, is handled through the Physical Object Relationship role with the value 'Sealed In'.

Sample

The Sample class is used to record the details of samples taken for analysis, either from the scene of a crime or a person or body part.

4.1.4.2 Manmade Objects

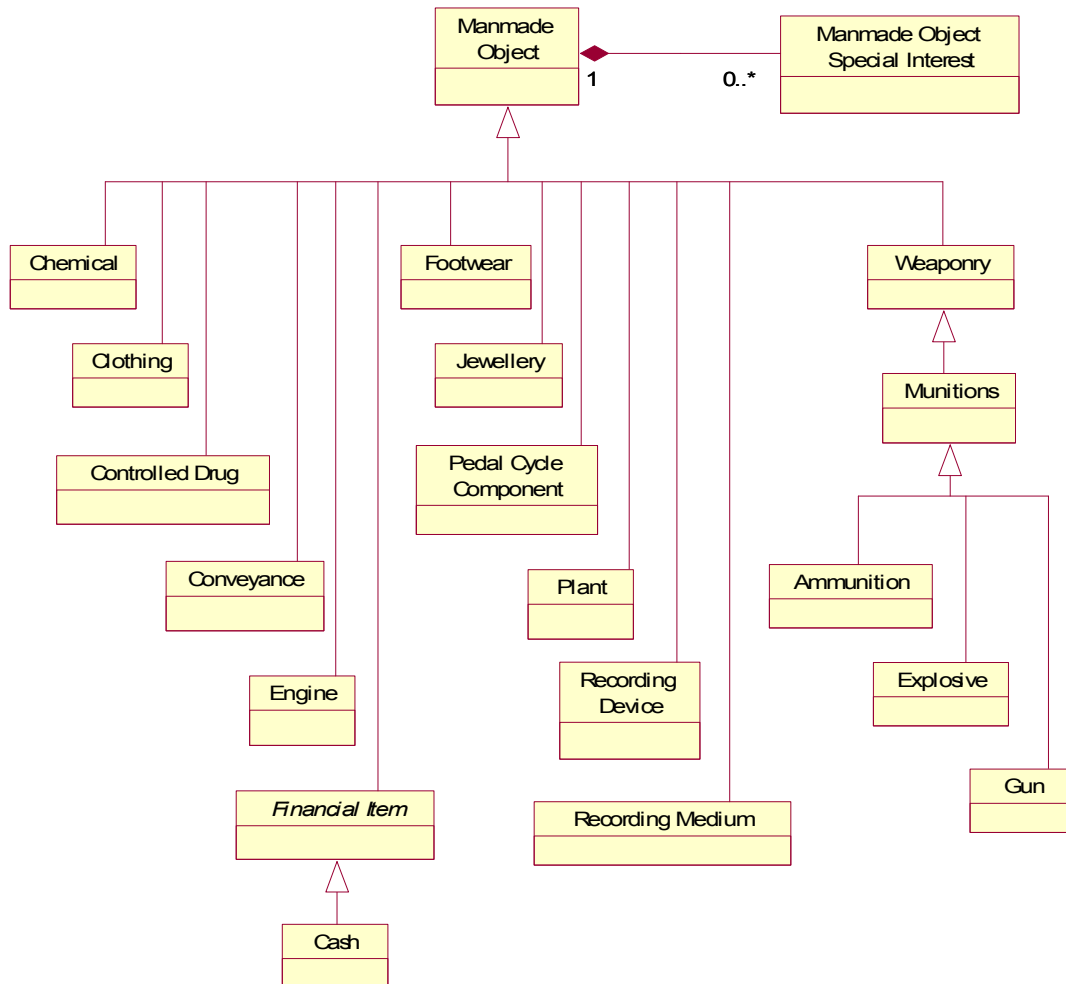


Figure 11

The Manmade Object class is the only top-level class that is decomposed to any great depth. It is intended to cover all objects made by man ranging from Controlled Drug to mass-produced goods. Manmade is occasionally loosely

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interpreted since one will find Tree and Shrub in the hierarchy, which while not strictly manmade are generally grown by people!

Most of the classes at this level are self-evident as to their purpose. Those worthy of some explanation are as follows.

Money

The Cash class, a subclass of Financial Item, is used to record an amount of money or an individual coin or bank note. In either case, the Financial Item.Valuation attribute allows the ability to record both the value and currency of the cash. Where an individual bank note is recorded, the Physical Object Identifying Number class is used to record the serial number. Where an amount of money is to be recorded, a single occurrence of Cash can be used to hold just the amount and currency. If a full breakdown of the collection of cash is required, this occurrence can be linked via Physical Object Relationship to a number of further Cash occurrences, each one using Financial Item Value to record the denomination of the coin or note and Physical Object.Number to record the number of them. This structure provides flexible functionality using very few attributes.

Recording Device

The Recording Device class is used to record the details of cameras and other devices used by the police, in particular speed cameras.

Recording Medium

The Recording Medium class is used to record the physical media on which information is stored. Examples are paper, computer disks, cassette tapes, etc. This is the physical manifestation of the information. The information itself (or metadata about the information) is recorded in Record etc.

4.1.4.3 Conveyance

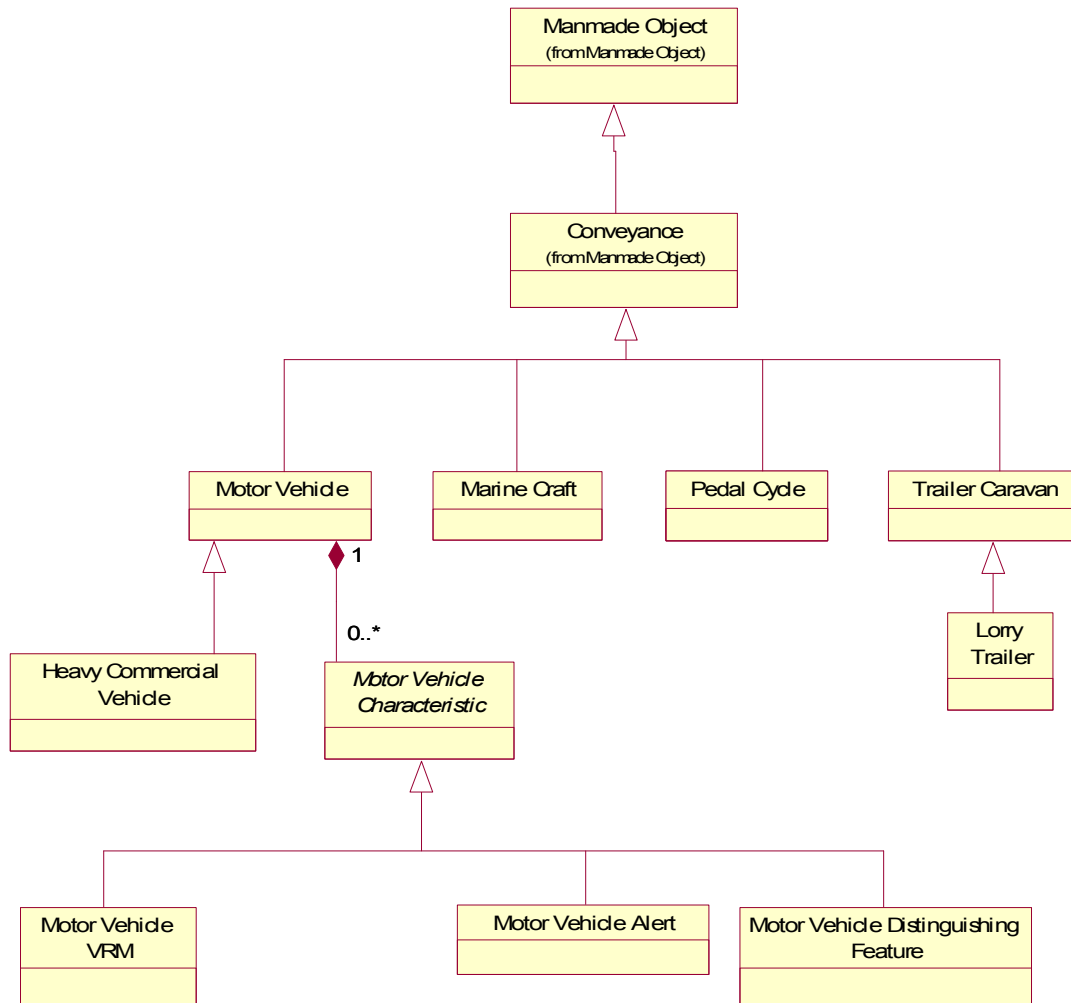


Figure 12

The Conveyance class is used to record the details of any kind of vehicle, but clearly, the most significant is Motor Vehicle, which is a subclass of Conveyance. Because of this significance and the police's requirement to track vehicles over time, Motor Vehicle Characteristic has been created. This enables the recording of significant information about and changes to motor vehicles and linking back to the information or activity that supplied the information.

4.1.4.4 Pedal Cycle

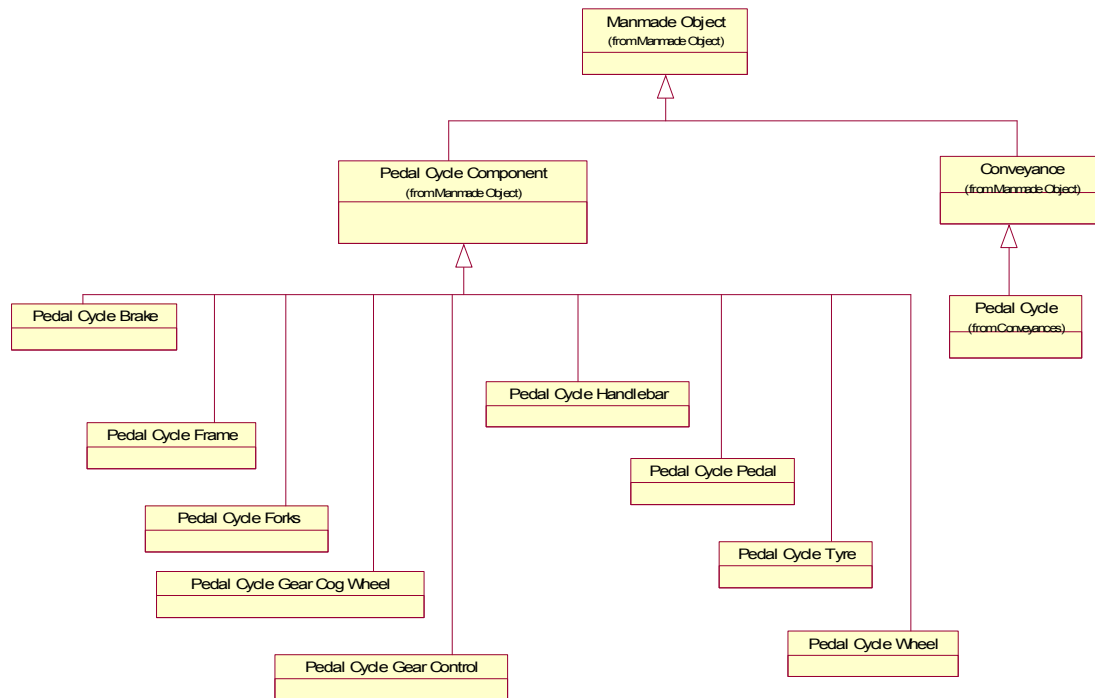


Figure 13

The Conveyance class also includes Pedal Cycle, which contains very little information about a pedal cycle. This is because Pedal Cycle has been decomposed into its constituent parts to allow for the fact that increasingly bicycle parts exist in their own right, are of high value and can be stolen, found, etc. in isolation. If we need to record the details of a whole cycle, we need to create a Pedal Cycle occurrence and associate with it (via Physical Object Relationship) many suitable Pedal Cycle Components. Accessories can be added by using Manmade Object occurrences of type Pedal Cycle Accessory (see Physical Object CV list). Each of these Components is a Physical Object and Manmade Object too and so provides attributes to record colour, serial numbers, manufacturer, etc.

4.1.4.5 Police Equipment

Clearly, there are many Physical Objects, including Animals and Manmade Objects, which can be used as equipment by the police. This is handled by any item of equipment being represented by a Physical Object occurrence, by which the item can be described and categorised by what it physically is. In addition, the Physical Object is related, via the Subject Of role, to a Police Equipment occurrence which is used to record administrative details for the item.

Hints and Tips

Q. Why can't I find Passport or Driving Licence in the Physical Object hierarchy?

A. This is because they are modelled as the information that they contain. As physical objects, they are represented by an occurrence of Recording Medium with Material Description of type Paper or Plastic.

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Q. Why is Engine Number not an attribute of Motor Vehicle?

A. Engine Number ID is an attribute of Engine since that is its true owning class. An engine can exist independently of a vehicle and may be fitted to a number of vehicles over its 'life'.

Where

In the Location class, we describe the information held about places and how locations are related to addresses. This is where the activities of the business occurred.

4.1.5 Location

Description

The concept here is limited to those classes of data that identify and describe places on the Earth. Thus the classes: Point, Line, and Area express the elemental geometric structure for Location.

Location refers to physical features that can be derived from a basic Ordnance Survey map e.g. wood, canal, hilltop, church, road, house i.e. something that is recognisable on the ground.

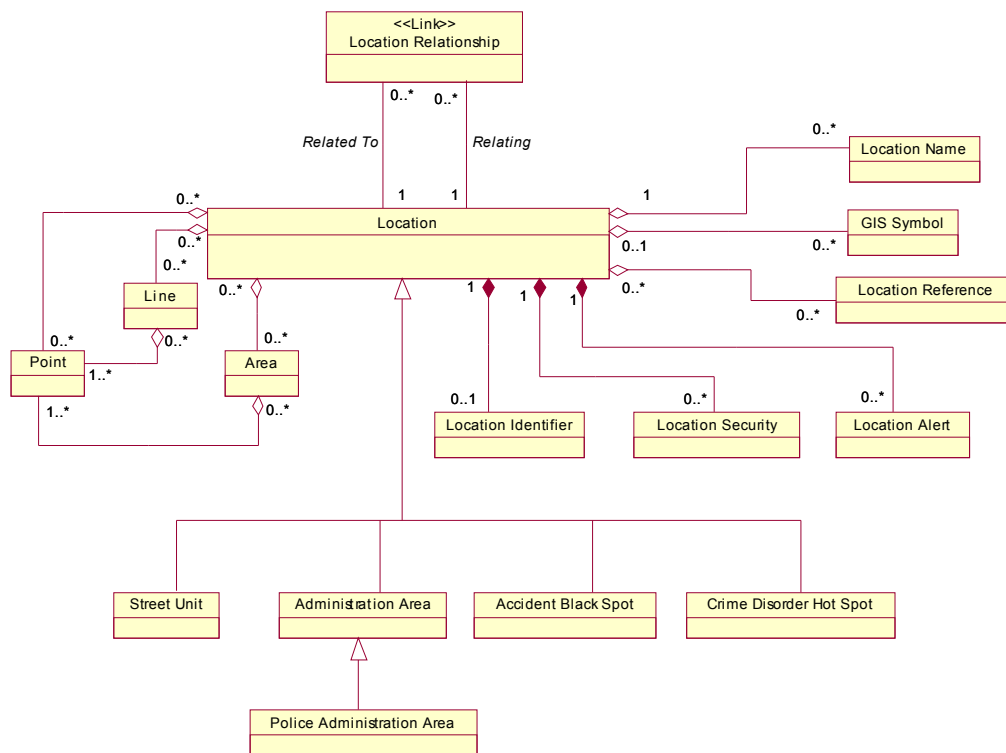


Figure 14

Location is the base class covering all physical positional data.

Figure 14 has 5 main groups:

- Location – physically identifiable feature on the Earth’s surface
- Point / Line / Area – geometric structure for Location
- Subclasses – specific types of Location worthwhile of separate identification
- Composites – add on, useful data about Locations
- Aggregates – names, identifications, representations of the Location.

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Location has some subtypes, such as Administration Area, which is a physical area of interest to the police, and Street Unit, which is a part of a street defined by its physical features and is of interest to the police. There is also some composite data associated with Location.

Street Unit (Unique Street Reference Number in BS7666 Address) is the reference to the physical piece of road so in the CorDM this has a Location Reference to identify it. The CorDM is here a bit at odds with BS7666.

The concept of Location is often thought of as including both the physical location and the logical address. These two concepts in the CorDM have been unbundled.

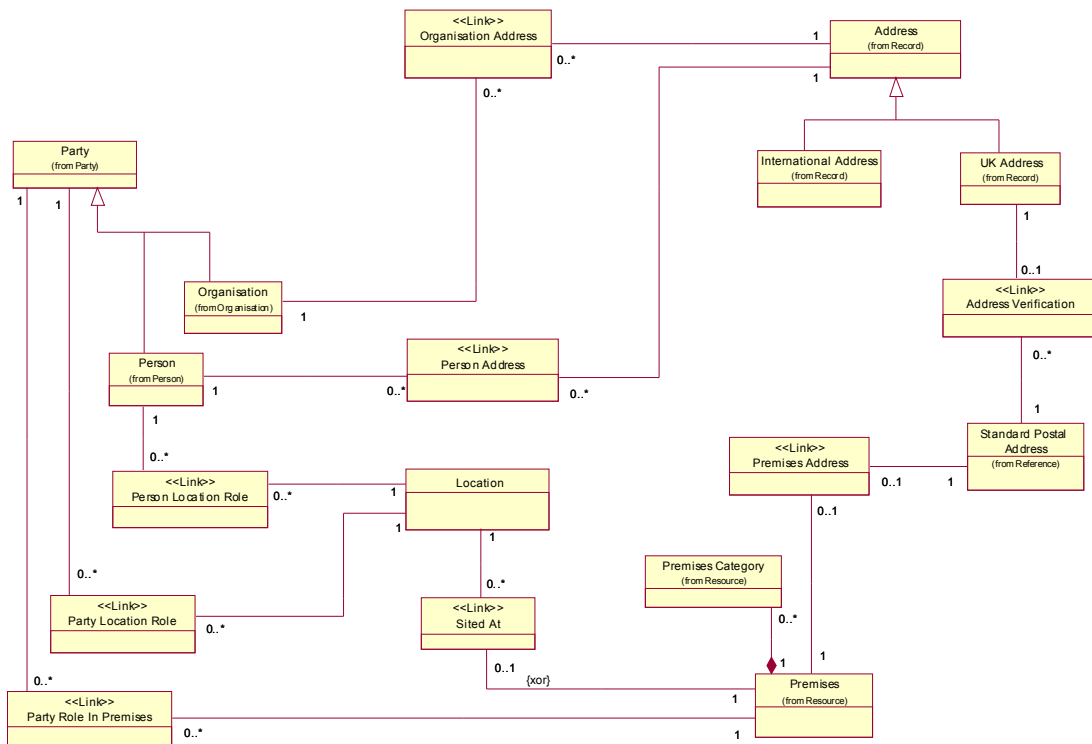


Figure 15

Figure 15 illustrates the main links from Location to Party (Person & Organisation) and Address.

Fairly obviously, Party (Person & Organisation) have associated addresses and they can, at a specified time, be located at a place.

Premises, defined as 'the use of a building or other physical object (e.g. tent, marquee, and caravan) for a defined purpose', can have an address and can be linked to a physical location. There has not been a requirement identified, so far, for a direct link between Location and Address, understandable as the idea of communicating with a place seems irrelevant.

Although aspects of the strategic Location area have been modelled, much of this has not been used in the business area views. The tendency in these views has been to treat Location as a black box that supplies all the required aspects of place.

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Address and Premises

The addresses are objects that we wish to record independent of the objects with which they are associated.

Address is concerned with the logical means of contacting a Party. It is a means by which a Party may be located using a communication mechanism, examples being Telephone Number, Email Address, UK Mail Address, and International Mail Address.

UK Mail Address may be associated with a Location but in the CorDM this is an indirect relationship via Premises i.e. a physical location will only have an address if the location is used as premises of some kind.

UK Mail Address contains attributes that assist, notably the Royal Mail, to deliver written communications. They are all logical views of the country used by the Royal Mail. They are attributes describing useful and convenient sorting subdivisions such as Locality, Town, Post Code, and PO Box. For the post office, only Postcode and Post Town are mandatory.

The Premises class is used to provide information about the usage of a physical place, for example as a dwelling or shop. Note that there is an overlap of Premises classification and that for Location. While Location classification deals with classifying, the physical location by what is to be found there, whether natural or manmade, the Premises classification deals with how the physical place is used. While Woodland is only a classification of a Location and Video Hire Shop is only a classification of Premises, values such as University and Mine appear in both lists because they are comparatively unchanging features on the landscape as well as being a usage of the place.

Refer to Figure 15 to see the relationships between Location, Premises, and Mail Address.

Often people and the police refer to a place (location) by using the address as most of the time the activity of interest takes place at, or close to, an identifiable address and this becomes a useful means of defining the location. It is also possible to bend address to fit by using the elements of address in a non-standard way and thus perpetuating the use of address.

The CorDM is compatible with e-GIF / BS7666 and accommodates PAF, while also satisfying the police requirement for both address and location.

Reference

UK Government Data Standards – BS7666 Address

Royal Mail – PAF (Postcode Address File)

Ordnance Survey MasterMap

Refer to separate CorDM GDSC Mapping document for a mapping between CorDM and e-GIF address standards.

When

The Calendar class contains a small number of classes that describe some of the time limitations in place. The times & dates are typically held as the relevant attributes.

4.1.6 Utility

Description

The Utility package offers classes that provide utilitarian functionality to other classes in the model. It provides four useful classes as follows.

4.1.6.1 Calendar

The Calendar class provides a diary facility, which is particularly used for defining court sittings and court sessions. Calendars may also be provided for parties and a link allows any activity to feature in a calendar.

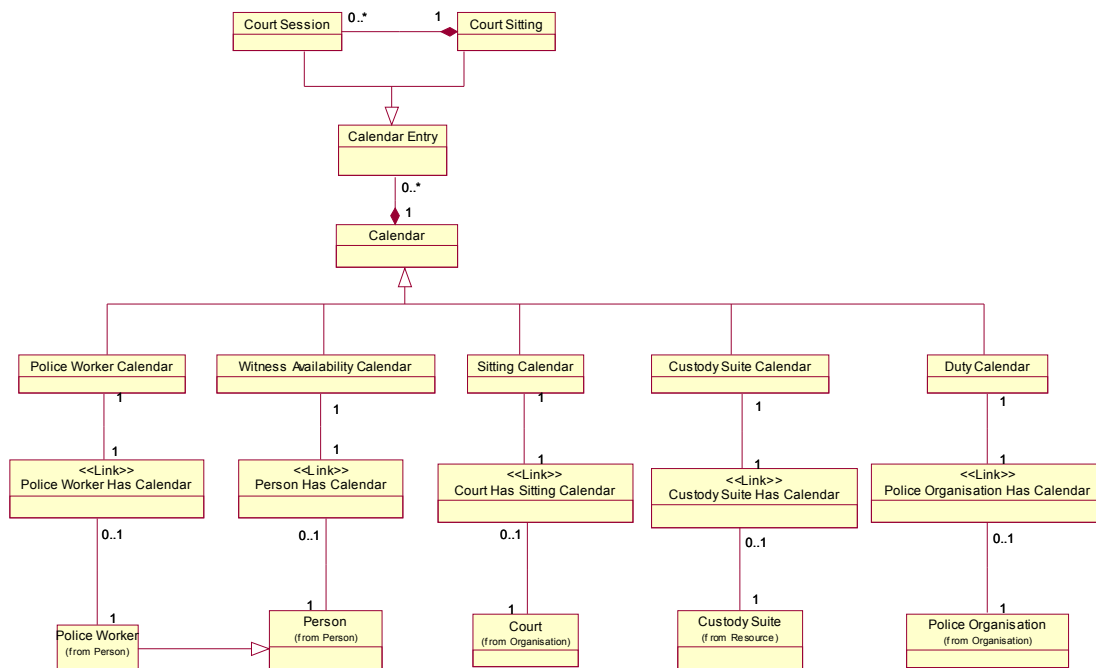


Figure 16

4.1.6.2 Competency

The Competency class is yet to be expanded and may, in time, be removed from the Utility package. At present Competency is not used within any other part of the model but is likely to be integrated into the model when the personnel business area is modelled.

4.1.6.3 Variable Characteristic

Variable Characteristic has been introduced in the Person, Organisation, and Motor Vehicle sections, since it is the superclass of Person, Body, Organisation, and Motor Vehicle Characteristics.

Why

This covers the remaining classes within the CorDM. Some of these fall under the Event part of POLE (Party, Object, Location, and Event). Some are classes that support other strategic parts of the Model.

The name, function and definition of these classes was devised based upon the essential characteristic of each class and the data that will be held about a class. The table of characteristic on the next page gives a definition of these qualities and the Class/Characteristics matrix on the following page shows which classes have each of these characteristics.

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4.2 Table of characteristics

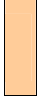
Characteristic	Relationship to Class	Additional Clarification	I
Authority	Party that gives permission for it; or is its controller.		L
Originator	Party that is its instigator.		L
Creator	The party primarily responsible for creating it.	Intelligent input implied – not data imputer or typist. PMF definition: The person or organisation primarily responsible for creating the resource	L
Issuer	Party that distributes it or makes it available.		L
Informer	Party that brings it to the attention of the Police.		L
Allocated To	Party to which it is assigned.		L
Performer	Party that carries it out.	Not the same as a person who is the Object	L
Supplier	Party that provides it		L
Applicant	Party that makes the request for it.		L
Processor	Party that administers it.		L
Addressee	The parties or roles to which it was addressed.	PMF definition: The person, persons or roles to whom the resource was addressed	L
Object	Party, Physical Object or Premises that is its subject.	Mutually exclusive with Object Type	L
Membership	The group of objects (Parties, Physical Objects or Premises) that are its subjects.		L
Object Type	The type of Party, Physical Object or Premises that is its subject.	Mutually exclusive with Object	A
Location	Where it happens, when the Location is not the premises Object	Only where location is incidental – e.g. the location of an arrest. Not the location of premises where a search is carried out if the premises are the object of the search.	L/A
Objective	Aim or purpose, where additional to and not implicit in its general description.	E.g. <u>Action</u> Description – Search Premises. Objective – To find drugs OR <u>Task</u> Description – Search premises to find drugs and arrest anybody that you find.	A
Outcome	Result, where additional to and not implicit in its general description.	E.g. <u>Action</u> Description – Search Premises. Outcome – Suspect found.	A
Status	Its position or state	PMF definition: The position or state of the resource	A
Priority	Its relative importance.		A
Title	A name given to it.	PMF definition: A name given to the resource	A
Description	The account of it or its content.	PMF definition: An account of the content of the resource	A
Start/End DateTime	When it started and ended		A
Info Received DateTime	When it came into the Police domain		A
Valid From/To DateTime	Period of its validity		A
Review DateTime	Date when it should be reviewed		A
Resources Requirement	Number of Police Workers or other resources required		A
Cost	Monetary value of its cost		A
Version	One of more than one copy of it.		A
Compliance DateTime	Date on or by which the subject must comply with it		A

L: Characteristic is likely to be represented by a Link class
A: Characteristic is likely to be represented by an Attribute

4.3 Class / Characteristic Matrix

This matrix shows the complete mapping of the base classes against the generic characteristics.

	Event	Action	Operation	Resource	Application	Licence	Process	Circulation	Report	Reference	Case	Log	Police Office Disposal	Record	Instruction	Collection
Authority																
Originator																
Creator																
Issuer																
Informer																
Allocated To																
Performer																
Supplier																
Applicant																
Processor																
Addressee																
Object																
Membership																
Object Type																
Location																
Objective																
Outcome																
Status																
Priority																
Title																
Description																
Start/End DateTime																
Info Received DateTime																
Valid From/To DateTime																
Review DateTime																
Resources Requirement																
Cost																
Version																
Compliance DateTime																
Imposed DateTime																



Will not have this characteristic



May have this characteristic
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Will have this characteristic

4.4 Action Class Diagram

Those classes that contribute to the modelling of the classes associated with Action are modelled in Figure 2 below to show how the proposed classes collaborate to create an activity data model.

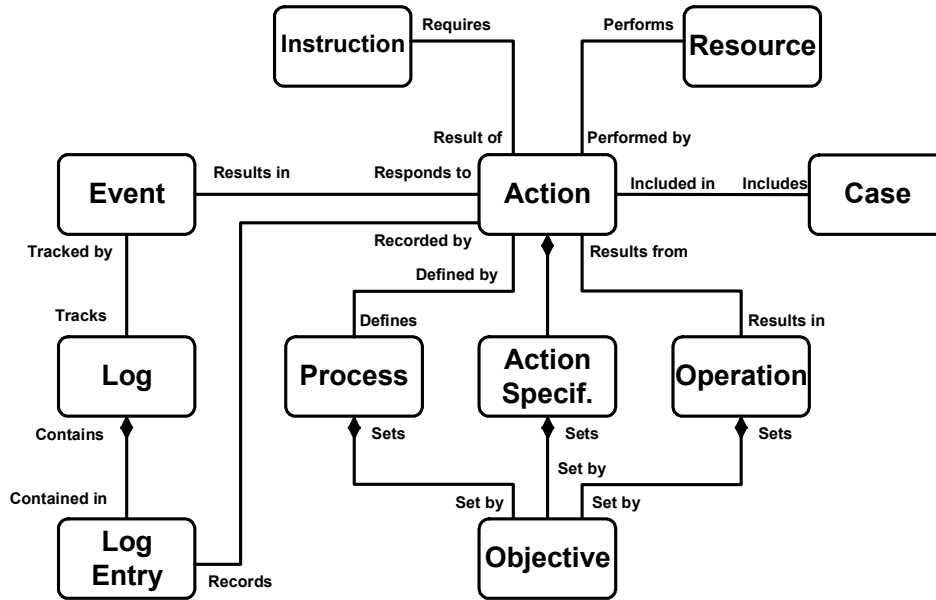


Figure 2: High-level Activity Model

4.4.1 Reference

Definition

A source of information used to control or assist a process.

Issues/Rationale

This is information, the source of which is not the police but it is used to control or legislate their actions. The data is neither consumed or amended by the police but only referred to or copied by them in carrying out their activities. This typically equates to static data held in reference tables.

How

The Process class contains the specification of the activities associated with the police business area.

4.4.2 Process

Definition

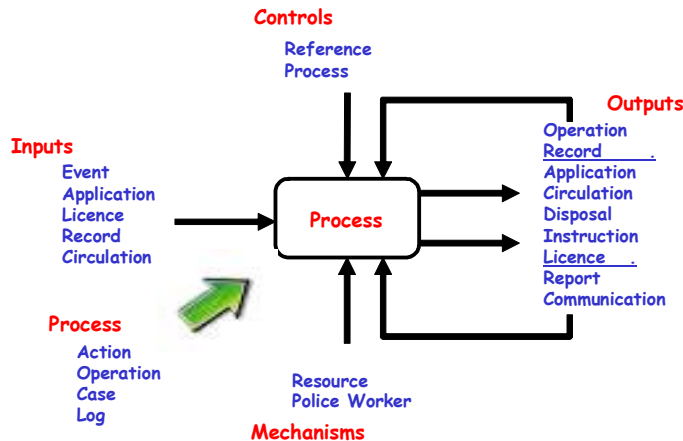
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A specification of types of task to be performed in response to a particular type of circumstance.

Issues/Rationale

This is the logical definition of activities. A process or procedure definition is a documented way of working. It is not an Action since it has not started or planned. But if it is to be done then this is how one does it.

4.5 Activities



IDEFO Diagramming
Notation

Processes

These are the activities that are under the control of the police or associated service.

4.5.1 Action

Definition

An activity that has been specified, started or completed by the police service or partner organisation.

Issues/Rationale

This is an activity under the control of the police or other organisation that works with the police service. There are a large number of classes in this area, so although they are all of the type Action there are several distinct groups to be defined. An Action records that an activity has been started or completed. The concept of planning an activity is also covered by Action.

4.5.1.1 Detention Log and Detention Action

This subset of activities relates to the detention of people in police custody and the activities that occur during that period, which need to be recorded in great detail in order to comply with PACE legislation.

This is divided up into subclasses of Log and Action depending on the level of interest and the data to be recorded against the activity.

The main points of note are:

- the detainee role is played by a Person in respect of the Detention, which represents the whole period in custody
- all the activities that take place during that period of detention are modelled as subclasses of Detention Action or Detention Log
- they are linked to the Detention via the Detention - Detention Includes Activity - Detention Action association. This avoids creating a detainee role for each Detention Action

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- many Detention Actions require signatures (other than the detainee’s) to authorise them and these signatures are recorded on roles that are subclasses of Signed Role
- where the detainee’s signature is additionally required this is recorded on the activity itself

4.5.1.2 Physical Object Movement

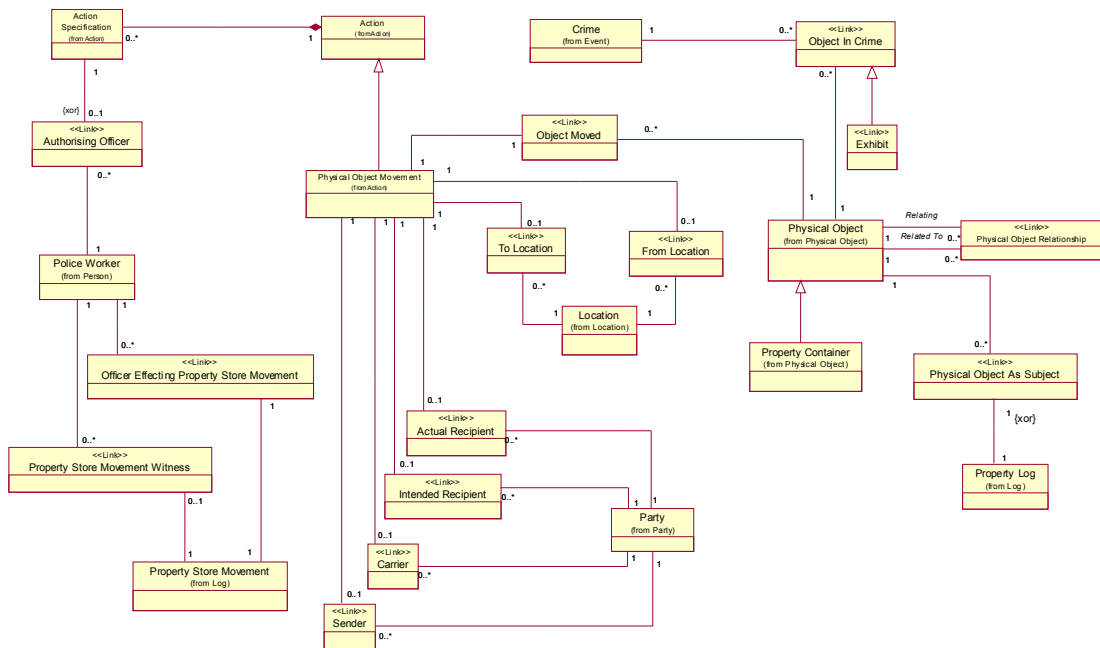


Figure 17

A Physical Object Movement is the movement of a Physical Object from one Location or Party to another. This generic concept can be used in several areas of the business where it is important to record what was moved from A to B, by whom, on whose authority, etc. It covers the movement of items, within the police service and across the boundary to other organisations, the movement of a motor vehicle from one street to another or to a vehicle pound, or the sending of objects by courier or mail.

4.5.2 Case

Definition

A means of gathering evidence in pursuit of an investigation.

Issues/Rationale

In version 6 the Court Case class was a subclass of Business Info. At that time CorDM lacked the case concept in respect of Domestic Violence and Child Protection, these business areas having been modelled around Incidents. A Case base class has been created with Domestic Violence and Child Protection Cases as subclasses. This will facilitate alignment to business practice, CATS and IMPACT.

4.5.3 Log

Definition

A means of recording the progress of a process.

Issues/Rationale

There are occasions when the emphasis on recording process-related data is on creating an audit trail to show that actions were taken rather than on recording full details of the actions themselves. The Log class fulfils this requirement and was suggested by the existence of a number of composite part classes that included 'Log Entry' in their names but were connected to a class that was neither named nor defined as a Log.

4.5.4 Operation

Definition

A plan of action to address a specific operational policing problem.

Issues/Rationale

This is a conceptual term. An Operation is a combination of plans, tasks with objectives and actions with results. It differs from Process (below) in that it addresses a specific problem while Process defines what is to be done in the event that a situation arises.

4.6 Information

Inputs & Outputs

These are the things that are either input to and or output from the business processes.

4.6.1 Application

Definition

A formal request, for some purpose, normally manifested in an official form.

Issues/Rationale

This is an official request to the police or by the police that requires some action by them or another party, usually concerning some documentation. A Munitions Licence Application is an example of an application to the police while an application for a warrant is an example of a request by the police. The latter is not yet modelled.

4.6.2 Circulation

Definition

A notice published to a target audience requesting action regarding a stated subject.

Issues/Rationale

This is a message posted on a notice board, usually electronic, to inform interested parties of a situation and to request some related assistance. This addition to the model should be particularly useful in facilitating a mapping from the Wanted/Missing, Vehicle, and Property applications of the PNC. Previous mappings to the PNC in this area were obscure, as the CorDM did not capture the concept of a person, vehicle, etc. being circulated, either via PNC or by other means.

4.6.3 Collection

Definition

A means of grouping together a number of similar objects for a similar purpose.

Issues/Rationale

The model holds four classes that appear to be independent entities, the purpose of which is to group together a number of instances of another class for some purpose. It seems likely that further subclasses of this base class may be discovered by the analysis of new business areas.

The Category class is defined as a subclass of Collection that is a flexible grouping of objects for the purposes of intelligence or crime and incident investigation. It may be used for linking together any combination of disparate object types where there is some common theme that links them together. For example, one could create a Category grouping together all the items removed as evidence from one room of a premises.

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4.6.4 Communication

Description

The Communication class consists of only three classes. The class is defined to cover all types of point-to-point communications. The Two Way Communication class is used principally to record telephone and radio calls while the One Way Communication class caters for letters and emails, etc.

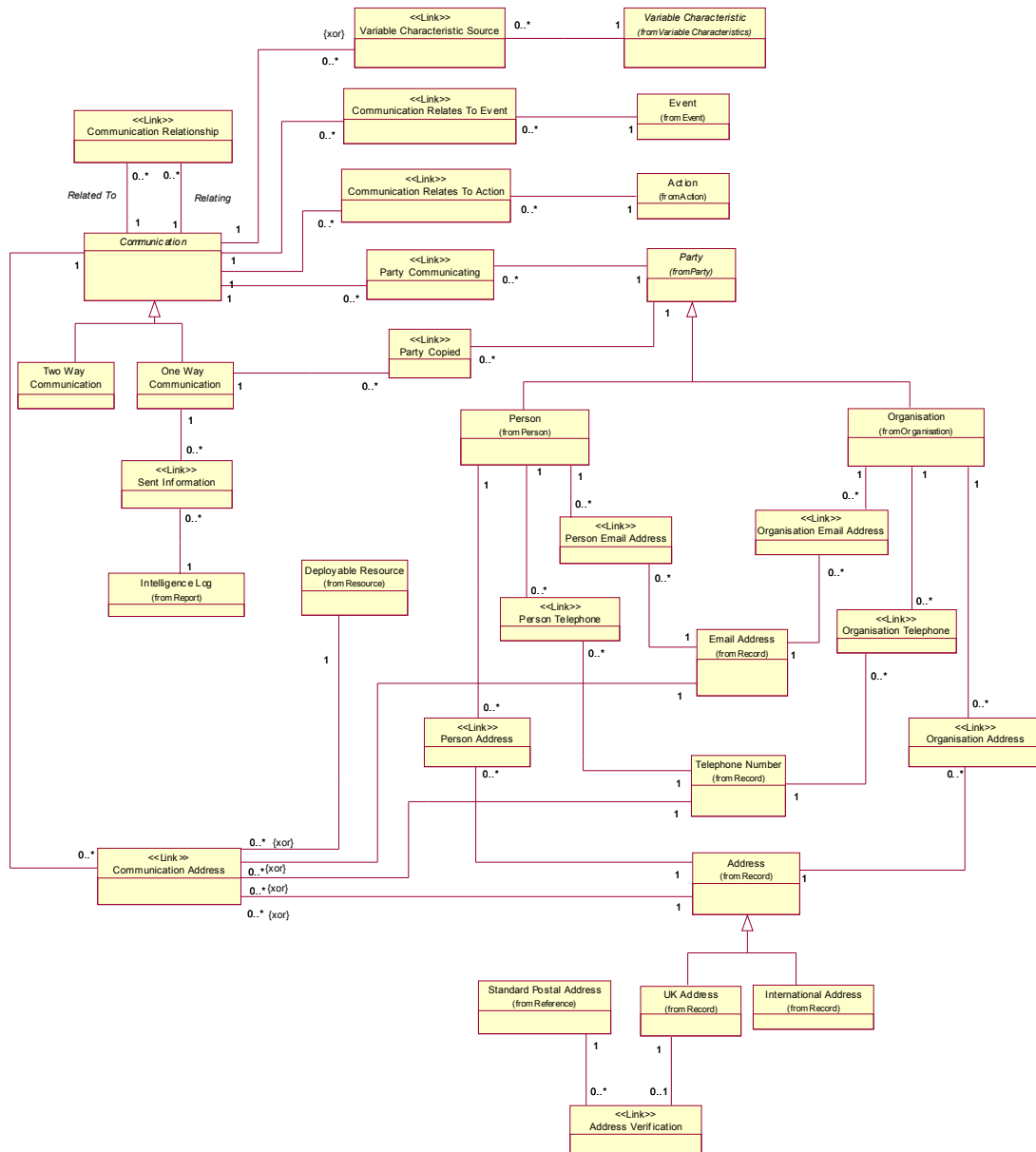


Figure 18

Where a number of communications are connected, e.g. a call being made in response to another call, these can be linked via Communication Relationship. When an email is sent to a number of parties, it is considered as a single communication.

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Using links to Party via role classes we can show who sent, received or was copied into a communication and links to address show where it went from and to.

The Communication class is intended to record that a communication took place and to provide only summary information about it. A link to Intelligence Log via Sent Information allows us to associate any information sent, for example as an attachment. A link from Two Way Communication to Recording via Call Recording means that we can link a Communication to the recording of it.

Note that Communication does not cover broadcasts, whether over public channels or by PNC, nor does it include communications between computer applications or systems via interfaces.

4.6.5 Event

Definition

An occurrence that comes to the attention of the police service or partner organisation, which may require an appropriate response.

Issues/Rationale

This is something that has happened outside police and CJS control. This may be a crime, a collision, or any other incident. It is an activity that the police or another partner organisation is interested in recording and possibly providing a response.

4.6.5.1 Crime and Incident

Incident has a very wide remit. Within it are the attributes and associations by which to create an incident handled in a typical command and control application. Similarly, it is intended to be flexible enough to represent a minor incident recorded in a crime and incident recording application. At the opposite end of the spectrum it aspires to handle the information recorded when the incident becomes the subject of a casualty bureau and focus is switched to recording casualties and matching them to persons reported missing. The aim is to avoid creating several classes that are simply application views of the same real life event.

Crime has not been modelled as a subclass of Incident on the basis that not all crimes result from what is generally recognised as an incident. Financial crimes and crimes committed abroad are instances of such crimes and we do not wish to force the creation of an incident in order to create a Crime. However, where an incident is treated as a crime we provide an Incident Leads To Crime link to associate them.

4.6.6 Instruction

Definition

A requirement, imposed by the police, for a Party to do or not do something.

Issues/Rationale

HORT1 cannot be treated as an offence disposal, since there may be no offence involved. Similarly, an officer can bail a person in the street or at the police

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station without creating a Relevant Offence, thus excluding bail from the Police Offence Disposal class. These two classes share the common essence of the police instructing the person named therein to do or not do something, and this seems to differentiate them from other classes, the exception being court orders and other court results. However, these classes are categorised as Record since they are a matter of record provided by the court and simply recorded by the police.

4.6.7 Licence

Definition

An authorisation, for some purpose, normally manifested in an official document.

Issues/Rationale

This is a licence to do or operate something. Although they may not be unbundled, the principle is for the object to have a licence and also the person operating it to have a licence. Thus a vehicle has to have a licence and so does the driver. Here there is a clear distinction as a vehicle can be driven by many persons and a person can drive many vehicles over time.

4.6.8 Police Offence Disposal

Definition

A means by which the police deal with the perpetrator of one or more offences that they have reason to believe have been committed.

Issues/Rationale

Disposal is a widely known term in the police business to mean 'how something is dealt with'. It is used here to explain how an offence is dealt with, and must be qualified by 'police' to clarify that it is limited to the police disposal of an offence, while the courts disposal of an offence is covered by Court Result within the Record class.

4.6.9 Record

Definition

An information set in a structured form provided to the police and recorded as received.

Issues/Rationale

This contains sets of data that are recorded about a subject and kept for future use by the police. The police record the information as they receive it, considering it as 'a matter of record'. A notable new subclass within this base class is Impression, which has been created as a generalisation of Fingerprint classes as well as images and sound.

This is a generalisation of the many orders and requirements placed on people and organisations by the police, courts, and other agencies. Examples are Warrant, Summons, Court Bail, and Court Order. This enables us to simplify relationships between subclasses of Record and other classes.

Fingerprint Impression

This is a grouping of various forms of fingerprints and includes the images themselves, which are held in Record.

4.6.10 Report

Definition

A product that uses text and other media to present information.

Issues/Rationale

This is a set of information prepared for a particular purpose and for a particular audience. The report is not normally updatable without creating a different version.

Controls & Mechanisms

Controls are the objects that constrain, modify or regulate the processes and which are not changed in any way as a result of the process.

Mechanisms are the things that power the processes which unlike Inputs are not consumed or changes by the process but merely whose time is used.

4.6.11 Resource

Definition

A means or equipment enabling the provision of a service.

Issues/Rationale

This is the virtual representation of some article(s) used to express the utility of the item(s). There may be no obvious actual physical manifestation of the facility but the token is used as if there were.

Furthermore, several classes formerly modelled as Physical Objects (such as Cell), or Organisations (such as Custody Suite) have been included. Also Account, formerly a strategic class in its own right, has become a subclass of Resource.

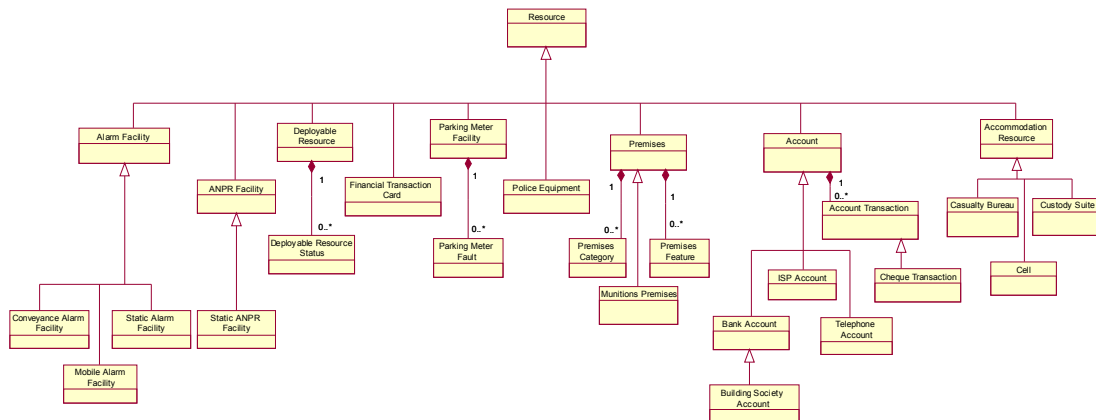


Figure 19

Cheque Transaction and Financial Transaction Card

These are both handled as Resource because, while each is clearly a physical object, it is the information content of these items that is important. From some perspectives, the police may have no interest in a cheque as a physical thing but only as a virtual thing. Regarding a cheque or card as Resource enables us to hold information about it without creating a Physical Object in which we have no interest. As with Passport and Driving Licence above, it is only when a cheque is stolen or recovered and has to be recorded as a physical thing that we need to create a Physical Object of type Recording Medium.

4.7 Role

Description

Within the CorDM, the term role means a link between any two strategic classes at any level. Examples of links are:

- A Police Worker is the Arresting Officer for an Arrest
- A Party is a Party Copied in a Communication
- A Physical Object is a Crime Weapon in a Crime
- A Liquor Licence Condition results from an Infraction

If the strategic classes such as Person, Physical Object, and Action are the bricks that form the CorDM, the Role class provides the mortar that sticks them together.

4.7.1 Requirements

What are our requirements in respect of the CorDM's role model?

Associations between classes via roles are to be modelled at the correct level, e.g. it would be correct to have an association between Party and Physical Object to express ownership because all parties can own and all physical objects can be owned. However, the vehicle keeper role only exists between a party and a motor vehicle.

Inheritance between roles should reflect that the subclass of role really is 'a kind of' the superclass and is an extension to it. For example, at first sight Person Body Part (which links a Person to a Body Part) may appear to be a subclass of Person Physical Object Role). However, it is not, because Person Body Part does not apply between the higher-level classes Person and (all) Physical Object.

All role information, including multiplicity, should be held in the model rather than in associated documentation. This will make the information available when a database schema or XML schema is generated from the model and will also make the model more easily understood by any type of user, whether business or technical.

4.7.2 Rules

As we update the model to meet these requirements we apply a number of rules designed to create a correct and consistent model.

1. A role class instance has two, and only two, parent classes.
2. A specific role may be implemented either as a specific role sub-class and/or as a CV value within a more generic role sub-class.
3. A specific role sub-class is created where the role fits one or more of the following criteria:
 - the role has specific attributes
 - the role has a multiplicity other than m:n
 - the m:n (many to many) role links a specific pair of classes which are not linked by another m:n role class

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4. A generic role subclass is used when several roles are required between the same two classes and none of the criteria above applies. In this case, the subclass will have an appropriately named classifying attribute, e.g. Party Physical Object Role Class, to hold one value from a CV list of possible role values, e.g. Owner, Responsible For.
5. A role class is by definition a subclass of Role. It may be a subclass of another subclass of Role only if it is right for the role to exist between the two classes linked by the super-class. For example, Vehicle Keeper is not a subclass of Party Physical Object Role because not all physical objects have a keeper – only a motor vehicle does. Subclassing must also ensure that inherited attributes are suitable for the subclass.
6. There will be no repetition of a role within a hierarchy.
7. Multiplicities will always be explicit on every association.
8. Every role will be documented either in the CorDM as a class or as value in a CV list.
9. All role classes and their associations will reside in the roles package or relevant subpackage thereof.
10. Where there is a strong link between a role class and a context in which it is created, we will model that context as a link to the activity or information in/from which it is created, the association being marked as 'Context'.
11. We will seek to use terms used by the business wherever possible and otherwise attempt to create a meaningful name for a role class or CV value.
12. Where a role class can apply to a number of role players it will be associated with those several players but those associations will be constrained by an exclusive OR {xor} meaning that only one of those associations may exist for a given instance of the Role class. The same applies to multiple role settings.
13. Associations between classes are generally not named. Exceptions are those associations that would otherwise appear to be duplicates, for example, the two associations between Person and Person Relationship are named 'Relating' and 'Related To'.
14. Every Role subclass is given a stereotype of <<Link>> to help to differentiate them from other classes. This is to avoid using the <<Role>> stereotype, which has a different meaning in UML.

4.7.3 Role Sub-models

The Role classes and their associations are held within sub-packages of Role. Each of these, in general, holds the roles that apply between a pair of strategic classes, e.g. Party Physical Object Role documents the roles between Party and Physical Object. There are further packages that document the Roles between two classes of the same hierarchy, e.g. Party Relationship holds the roles that apply between two objects of the class Party.

Role diagrams are not published as the Roles are only relevant in the business context and make little sense on their own.

5 Appendix A: Glossary

Abbreviations	Name
CDM	Common Data Model
CJIT	Criminal Justice IT
CorDM	Corporate Data Model
CLMS	Code List Management Service
DVLA	Driver and Vehicle Licensing Agency
E-GIF	e-Government Interoperability Framework
E-GMF	e-Government Metadata Framework
ISS4PS	Information Systems Strategy for the Police Service
GDSC	Government Data Standards Catalogue
PNC	Police National Computer
UML	Unified Modelling Language
XML	eXtensible Mark up Language