Ontic Health Model

1/4/2024

Contents

[1 MDMILibrary 2](#_Toc155269450)

[1.1 Diagram: MDMILibrary 2](#_Toc155269451)

[2 OnticHealthExamples::Condition types 4](#_Toc155269452)

[2.1 Diagram: Condition Types 4](#_Toc155269453)

[2.2 Class Actual Body Height 4](#_Toc155269454)

[2.3 Class Actual Body Temperature 4](#_Toc155269455)

[2.4 Class Actual Creatine Clearance 5](#_Toc155269456)

[2.5 Class Body Height 5](#_Toc155269457)

[2.6 Class Body Temperature 5](#_Toc155269458)

[2.7 Class CrCl for Kidney Disease 5](#_Toc155269459)

[2.8 Class Creatinine Clearance 5](#_Toc155269460)

[2.9 Class Kidney Disease 5](#_Toc155269461)

[3 OnticHealthGeneric::Actors 6](#_Toc155269462)

[3.1 Diagram: Actors 6](#_Toc155269463)

[3.2 Diagram: Person 7](#_Toc155269464)

[3.3 Diagram: Person Identifiers 7](#_Toc155269465)

[3.4 Diagram: Person Name Representations 8](#_Toc155269466)

[3.5 Class Access Identifier <<Value>> 8](#_Toc155269467)

[3.6 Class Device 8](#_Toc155269468)

[3.7 Class Financial Identifier <<Value>> 9](#_Toc155269469)

[3.8 Class Managed Person Identifier <<Value>> 9](#_Toc155269470)

[3.9 Class Organization 9](#_Toc155269471)

[3.10 Class Passport Identifier <<Value>> 9](#_Toc155269472)

[3.11 Class Person 9](#_Toc155269473)

[3.12 Class Person Name <<Value>> 9](#_Toc155269474)

[3.13 Class Person Structured Name <<Value>> 10](#_Toc155269475)

[3.14 Class Social Agent 10](#_Toc155269476)

[3.15 Class Social Security Number <<Value>> 11](#_Toc155269477)

[3.16 Class System 11](#_Toc155269478)

[4 OnticHealthGeneric::Contact Information 12](#_Toc155269479)

[4.1 Diagram: Contact Information 13](#_Toc155269480)

[4.2 Class Communications Security Level <<Value>> 13](#_Toc155269481)

[4.3 Class Contact Means <<Value>> 14](#_Toc155269482)

[4.4 Association Class Contact Via 14](#_Toc155269483)

[4.5 Class Contactable 15](#_Toc155269484)

[4.6 Class Electronic Contact <<Value>> 15](#_Toc155269485)

[4.7 Class Email Address <<Value>> 15](#_Toc155269486)

[4.8 Class Internet Contact <<Value>> 16](#_Toc155269487)

[4.9 Class Network Identifier <<Value>> 16](#_Toc155269488)

[4.10 Class Postal Address <<Value>> 16](#_Toc155269489)

[4.11 Class Postal Address Structured <<Value>> 16](#_Toc155269490)

[4.12 Class Postal Address Text <<Value>> 17](#_Toc155269491)

[4.13 Class Postal Code <<Value>> 17](#_Toc155269492)

[4.14 Class Private Network Contact <<Value>> 18](#_Toc155269493)

[4.15 Class Radio Contact <<Value>> 18](#_Toc155269494)

[4.16 Class Social Network Contact <<Value>> 18](#_Toc155269495)

[4.17 Class Telephone Area Code <<Value>> 18](#_Toc155269496)

[4.18 Class Telephone Country Code <<Value>> 18](#_Toc155269497)

[4.19 Class Telephone Number <<Value>> 19](#_Toc155269498)

[4.20 Class Telephone Number Structured <<Value>> 19](#_Toc155269499)

[4.21 Class Telephone Number Text <<Value>> 19](#_Toc155269500)

[4.22 Class Website Contact <<Value>> 20](#_Toc155269501)

[4.22.1 Enumeration Contact Availability 20](#_Toc155269502)

[4.22.2 Enumeration Contact Purpose 20](#_Toc155269503)

[5 OnticHealthGeneric::Devices 22](#_Toc155269504)

[5.1 Diagram: Cyber 23](#_Toc155269505)

[5.2 Diagram: Cyber Platforms 24](#_Toc155269506)

[5.3 Diagram: Cyber Resource 25](#_Toc155269507)

[5.4 Class Automation Type 25](#_Toc155269508)

[5.5 Class Communicating Device 25](#_Toc155269509)

[5.6 Class Communications Link 25](#_Toc155269510)

[5.7 Class Communications Network 26](#_Toc155269511)

[5.8 Class Computer System 26](#_Toc155269512)

[5.9 Class Cyber Resource 26](#_Toc155269513)

[5.10 Class Software 26](#_Toc155269514)

[6 OnticHealthGeneric::Foundation 27](#_Toc155269515)

[6.1 Diagram: Context 27](#_Toc155269516)

[6.2 Diagram: Facets 28](#_Toc155269517)

[6.3 Diagram: Foundation Extras 29](#_Toc155269518)

[6.4 Diagram: Identifier Summary 30](#_Toc155269519)

[6.5 Diagram: Identifiers 31](#_Toc155269520)

[6.6 Diagram: Types 32](#_Toc155269521)

[6.7 Class Actor 32](#_Toc155269522)

[6.8 Class Actual Entity 33](#_Toc155269523)

[6.9 Class Category Type 34](#_Toc155269524)

[6.10 Class Discreet Thing 34](#_Toc155269525)

[6.11 Association Extent of Type 35](#_Toc155269526)

[6.12 Association Facet Constraint 35](#_Toc155269527)

[6.13 Association Facet Of Entity 36](#_Toc155269528)

[6.14 Class Facet Type 36](#_Toc155269529)

[6.15 Association Generalization 36](#_Toc155269530)

[6.16 Class Identifiable Thing 37](#_Toc155269531)

[6.17 Class Identifiable Type 37](#_Toc155269532)

[6.18 Association Identification 38](#_Toc155269533)

[6.19 Class Identifier <<Value>> 38](#_Toc155269534)

[6.20 Association Identifier in Namespace 38](#_Toc155269535)

[6.21 Association Class Impact 39](#_Toc155269536)

[6.22 Class IRI Identifier <<Value>> 39](#_Toc155269537)

[6.23 Class Name <<Value>> 39](#_Toc155269538)

[6.24 Class Namespace 40](#_Toc155269539)

[6.25 Association Naming 40](#_Toc155269540)

[6.26 Class Phase Type 40](#_Toc155269541)

[6.27 Association Prefered Identification 41](#_Toc155269542)

[6.28 Class Property 41](#_Toc155269543)

[6.29 Association Class Role Derivation 41](#_Toc155269544)

[6.30 Class Role Type 42](#_Toc155269545)

[6.31 Association Sufficient Generalization 42](#_Toc155269546)

[6.32 Class Technical Identifier <<Value>> 42](#_Toc155269547)

[6.33 Class Term <<Value>> 42](#_Toc155269548)

[6.34 Class Text Identifier <<Value>> 42](#_Toc155269549)

[6.35 Class Thing <<Anything>> 43](#_Toc155269550)

[6.36 Class Type 43](#_Toc155269551)

[6.37 Class Unique Identifier <<Value>> 44](#_Toc155269552)

[6.38 Class Unique Text Identifier <<Value>> 44](#_Toc155269553)

[7 OnticHealthGeneric::Knowledge 45](#_Toc155269554)

[7.1 Diagram: Belief 45](#_Toc155269555)

[7.2 Diagram: Knowledge Acqusition 46](#_Toc155269556)

[7.3 Class Belief 46](#_Toc155269557)

[7.4 Class Conclusion 47](#_Toc155269558)

[7.5 Class Evidence <<Role>> 47](#_Toc155269559)

[7.6 Class Exclusion 47](#_Toc155269560)

[7.7 Class Inference Activity 47](#_Toc155269561)

[7.8 Class Inference Rule 47](#_Toc155269562)

[7.9 Class Inferred Belief 47](#_Toc155269563)

[7.10 Class Inferred Value 47](#_Toc155269564)

[7.11 Class Knowledge Acqusition 48](#_Toc155269565)

[7.12 Class Measurement Activity 48](#_Toc155269566)

[7.13 Class Measurement Result 48](#_Toc155269567)

[7.14 Class Observation 48](#_Toc155269568)

[7.15 Class Observation Activity 48](#_Toc155269569)

[7.16 Class Observation Tool <<Role>> 48](#_Toc155269570)

[7.17 Class Proposal 48](#_Toc155269571)

[7.18 Class Recomendation 48](#_Toc155269572)

[7.19 Class Value Inference 49](#_Toc155269573)

[8 OnticHealthGeneric::Occurrences 50](#_Toc155269574)

[8.1 Diagram: Occurrences 51](#_Toc155269575)

[8.2 Class Activity 51](#_Toc155269576)

[8.3 Class Actual Activity 52](#_Toc155269577)

[8.4 Class Actual Occurrence 52](#_Toc155269578)

[8.5 Class Atomic Occurrence 52](#_Toc155269579)

[8.6 Class Composite Process <<Role>> 52](#_Toc155269580)

[8.7 Association Class Invoke Process 52](#_Toc155269581)

[8.8 Class Occurrence 53](#_Toc155269582)

[8.9 Class Order 53](#_Toc155269583)

[8.10 Association Class Output 53](#_Toc155269584)

[8.11 Association Class Performance 54](#_Toc155269585)

[8.12 Class Performer <<Role>> 55](#_Toc155269586)

[8.13 Class Process 55](#_Toc155269587)

[8.14 Association Class Process Decomposition 55](#_Toc155269588)

[8.15 Class Process Type 56](#_Toc155269589)

[8.16 Class Request 57](#_Toc155269590)

[8.17 Association Class Usage 57](#_Toc155269591)

[8.18 Association Class When 57](#_Toc155269592)

[9 OnticHealthGeneric::Physical Entities 59](#_Toc155269593)

[9.1 Diagram: Location 59](#_Toc155269594)

[9.2 Diagram: Location Identification 60](#_Toc155269595)

[9.3 Diagram: Physical Entities 61](#_Toc155269596)

[9.4 Diagram: Place 62](#_Toc155269597)

[9.5 Association Address of Location 62](#_Toc155269598)

[9.6 Class Animal 62](#_Toc155269599)

[9.7 Class Conveyance 63](#_Toc155269600)

[9.8 Association Coordinate of location 63](#_Toc155269601)

[9.9 Association Designation of a Location 64](#_Toc155269602)

[9.10 Class Device 64](#_Toc155269603)

[9.11 Class Facility <<Role>> 64](#_Toc155269604)

[9.12 Class Item 64](#_Toc155269605)

[9.13 Class Location ID <<Value>> 65](#_Toc155269606)

[9.14 Class Location Identifier <<Value>> 65](#_Toc155269607)

[9.15 Class Managed Item Identifier <<Value>> 65](#_Toc155269608)

[9.16 Association Class Operating Location 65](#_Toc155269609)

[9.17 Association Class Physical Boundary 66](#_Toc155269610)

[9.18 Class Physical Entity 66](#_Toc155269611)

[9.19 Class Physical Feature 67](#_Toc155269612)

[9.20 Class Physical Location 67](#_Toc155269613)

[9.21 Class Physical Point 67](#_Toc155269614)

[9.22 Class Physical Tool <<Role>> 67](#_Toc155269615)

[9.23 Class Place <<Role>> 67](#_Toc155269616)

[9.24 Association Class Place of Occurrance 67](#_Toc155269617)

[9.25 Class Point On Earth <<Value>> 68](#_Toc155269618)

[9.26 Association Reference Point 68](#_Toc155269619)

[9.27 Class Relative Coordinate <<Value>> 68](#_Toc155269620)

[9.28 Class Residence <<Role>> 69](#_Toc155269621)

[9.29 Class Spacial Coordinate <<Value>> 69](#_Toc155269622)

[9.30 Class Spatial Entity 69](#_Toc155269623)

[9.31 Class Telecommunication Device 70](#_Toc155269624)

[9.32 Association Topological Region 70](#_Toc155269625)

[9.33 Class Topology 71](#_Toc155269626)

[9.34 Class World Geodetic System <<Value>> 71](#_Toc155269627)

[9.34.1 Enumeration Sex Kind 71](#_Toc155269628)

[10 OnticHealthGeneric::Plans 73](#_Toc155269629)

[10.1 Diagram: Plans 73](#_Toc155269630)

[10.2 Class Authorizer <<Role>> 73](#_Toc155269631)

[10.3 Class Course Of Action 73](#_Toc155269632)

[10.4 Class Goal 74](#_Toc155269633)

[10.5 Class Objective 74](#_Toc155269634)

[10.6 Class Plan 74](#_Toc155269635)

[10.7 Class Plan Fragment 74](#_Toc155269636)

[11 OnticHealthGeneric::Quantities and Units 75](#_Toc155269637)

[11.1 Diagram: Quantities and units 76](#_Toc155269638)

[11.2 Class Confidence Metric <<Quantity Kind>> 76](#_Toc155269639)

[11.3 Class Count <<Quantity Kind>> 77](#_Toc155269640)

[11.4 Class Currency Benefit Metric <<Quantity Kind>> 77](#_Toc155269641)

[11.5 Class Harm-Benefit Metric <<Quantity Kind>> 77](#_Toc155269642)

[11.6 Class Metric <<Quantity Kind>> 77](#_Toc155269643)

[11.7 Class Probability Metric <<Quantity Kind>> 77](#_Toc155269644)

[11.8 Class Time Coordinate <<Quantity Kind>> 78](#_Toc155269645)

[11.8.1 <<Value>>Enumeration PentaScale <<Value>> 78](#_Toc155269646)

[11.8.2 <<Value>>Enumeration TriScale <<Value>> 79](#_Toc155269647)

[12 OnticHealthGeneric::Quantity Kinds 82](#_Toc155269648)

[12.1 Diagram: Quantity Kinds 82](#_Toc155269649)

[12.2 Class Absorbed Dose (Radiation) <<Quantity Kind>> 82](#_Toc155269650)

[12.3 Class Acceleration <<Quantity Kind>> 83](#_Toc155269651)

[12.4 Class Amount of Substance <<Quantity Kind>> 83](#_Toc155269652)

[12.5 Class Angle <<Quantity Kind>> 83](#_Toc155269653)

[12.6 Class Area <<Quantity Kind>> 83](#_Toc155269654)

[12.7 Class Color <<Quantity Kind>> 83](#_Toc155269655)

[12.8 Class Concentration <<Quantity Kind>> 83](#_Toc155269656)

[12.9 Class Concentration (amount of substance) <<Quantity Kind>> 84](#_Toc155269657)

[12.10 Class Concentration (Mass) <<Quantity Kind>> 84](#_Toc155269658)

[12.11 Class Concentration (Volume) <<Quantity Kind>> 84](#_Toc155269659)

[12.12 Class Currency <<Quantity Kind>> 84](#_Toc155269660)

[12.13 Class Dose Equivalent (Radiation) <<Quantity Kind>> 84](#_Toc155269661)

[12.14 Class Duration <<Quantity Kind>> 84](#_Toc155269662)

[12.15 Class Electric Current <<Quantity Kind>> 85](#_Toc155269663)

[12.16 Class Electric Potential <<Quantity Kind>> 85](#_Toc155269664)

[12.17 Class Energy <<Quantity Kind>> 85](#_Toc155269665)

[12.18 Class Force <<Quantity Kind>> 85](#_Toc155269666)

[12.19 Class Frequency <<Quantity Kind>> 85](#_Toc155269667)

[12.20 Class Length <<Quantity Kind>> 86](#_Toc155269668)

[12.21 Class Luminosity <<Quantity Kind>> 86](#_Toc155269669)

[12.22 Class Mass <<Quantity Kind>> 86](#_Toc155269670)

[12.23 Class Mass Density <<Quantity Kind>> 86](#_Toc155269671)

[12.24 Class Physical Quantity <<Quantity Kind>> 86](#_Toc155269672)

[12.25 Class Power <<Quantity Kind>> 87](#_Toc155269673)

[12.26 Class Pressure <<Quantity Kind>> 87](#_Toc155269674)

[12.27 Class Radiation Exposure <<Quantity Kind>> 87](#_Toc155269675)

[12.28 Class Radioactivity <<Quantity Kind>> 87](#_Toc155269676)

[12.29 Class Speed <<Quantity Kind>> 87](#_Toc155269677)

[12.30 Class Temperature <<Quantity Kind>> 87](#_Toc155269678)

[12.31 Class Volume <<Quantity Kind>> 88](#_Toc155269679)

[13 OnticHealthGeneric::Resources 89](#_Toc155269680)

[13.1 Diagram: Resource 89](#_Toc155269681)

[13.2 Diagram: Resource Actions 90](#_Toc155269682)

[13.3 Class Abuse Resource 90](#_Toc155269683)

[13.4 Class Capture Resource 90](#_Toc155269684)

[13.5 Class Damage Resource 90](#_Toc155269685)

[13.6 Class Exceed Resource Capacity 91](#_Toc155269686)

[13.7 Class Inventory 91](#_Toc155269687)

[13.8 Class Modify Resource 91](#_Toc155269688)

[13.9 Class Resource <<Role>> 91](#_Toc155269689)

[13.10 Class Resource Actions 91](#_Toc155269690)

[13.11 Association Class Resource Dependency 91](#_Toc155269691)

[13.12 Class Supply 92](#_Toc155269692)

[13.13 Class Tool <<Role>> 92](#_Toc155269693)

[13.14 Class Transfer Resource 92](#_Toc155269694)

[14 OnticHealthGeneric::Situation Types 93](#_Toc155269695)

[14.1 Diagram: Situation Types 93](#_Toc155269696)

[14.2 Class Benchmark 93](#_Toc155269697)

[14.3 Class Composite Situation Type 94](#_Toc155269698)

[14.4 Class External Type Reference 94](#_Toc155269699)

[14.5 Class Pattern 94](#_Toc155269700)

[14.6 Class Repeditive Situation 94](#_Toc155269701)

[14.7 Class Situation Type 94](#_Toc155269702)

[14.8 Class Situation Use 95](#_Toc155269703)

[14.9 Class Template 95](#_Toc155269704)

[15 OnticHealthGeneric::Situations 96](#_Toc155269705)

[15.1 Diagram: Qualities 96](#_Toc155269706)

[15.2 Diagram: Relevance 97](#_Toc155269707)

[15.3 Diagram: Situation Partitions 98](#_Toc155269708)

[15.4 Diagram: Situation Relationships 99](#_Toc155269709)

[15.5 Diagram: Situation Temporal 100](#_Toc155269710)

[15.6 Diagram: Situation Timeframes 101](#_Toc155269711)

[15.7 Diagram: Situation Top 102](#_Toc155269712)

[15.8 Class Actual Situation 102](#_Toc155269713)

[15.9 Class Actual State 103](#_Toc155269714)

[15.10 Class Any Role <<Role>> 103](#_Toc155269715)

[15.11 Association Class Causation 103](#_Toc155269716)

[15.12 Class Composite Situation 104](#_Toc155269717)

[15.13 Class Current Situation 104](#_Toc155269718)

[15.14 Association Class Effect 105](#_Toc155269719)

[15.15 Association Class Enablement 105](#_Toc155269720)

[15.16 Class Epistemic Situation 106](#_Toc155269721)

[15.17 Association Class Indication 106](#_Toc155269722)

[15.18 Association Class Involvement 107](#_Toc155269723)

[15.19 Association Class Negation Effect 107](#_Toc155269724)

[15.20 Class Ontic Situation 108](#_Toc155269725)

[15.21 Class Participant <<Role>> 108](#_Toc155269726)

[15.22 Class Past Situation 109](#_Toc155269727)

[15.23 Class Potential Situation <<Phase>> 109](#_Toc155269728)

[15.24 Class Quality State 109](#_Toc155269729)

[15.25 Class Relationship 109](#_Toc155269730)

[15.26 Class Situation 110](#_Toc155269731)

[15.27 Class State 110](#_Toc155269732)

[15.28 Association State of Entity 110](#_Toc155269733)

[16 OnticHealthGeneric::Statements 111](#_Toc155269734)

[16.1 Diagram: Approval 111](#_Toc155269735)

[16.2 Diagram: Statement Classification 112](#_Toc155269736)

[16.3 Diagram: Statements 113](#_Toc155269737)

[16.4 Class Approval 113](#_Toc155269738)

[16.5 Class Assertive Statement 113](#_Toc155269739)

[16.6 Class Author <<Role>> 114](#_Toc155269740)

[16.7 Class Commissive Statement 114](#_Toc155269741)

[16.8 Class Declaritive Statement 114](#_Toc155269742)

[16.9 Class Directive Statement 114](#_Toc155269743)

[16.10 Class Expressive Statement 114](#_Toc155269744)

[16.11 Class Interrogative Statement 114](#_Toc155269745)

[16.12 Class Listener <<Role>> 114](#_Toc155269746)

[16.13 Class Record 115](#_Toc155269747)

[16.14 Class Statement 115](#_Toc155269748)

[16.15 Class Utterance 115](#_Toc155269749)

[17 OnticHealthGeneric::Time & Temporal Entities 116](#_Toc155269750)

[17.1 Diagram: Time 117](#_Toc155269751)

[17.2 Class Date and Time <<Quantity Kind>> 117](#_Toc155269752)

[17.3 Class Date Coordinate <<Quantity Kind>> 118](#_Toc155269753)

[17.4 Association Duration of Region 118](#_Toc155269754)

[17.5 Association Entity Exists for Interval 118](#_Toc155269755)

[17.6 Association Finish 119](#_Toc155269756)

[17.7 Association Overlaps in Time 120](#_Toc155269757)

[17.8 Association Start 121](#_Toc155269758)

[17.9 Class Temporal Entity 121](#_Toc155269759)

[17.10 Association Temporal Order 122](#_Toc155269760)

[17.11 Association Temporal Part 122](#_Toc155269761)

[17.12 Class Temporal Region 123](#_Toc155269762)

[17.13 Association Class Temporally Related 124](#_Toc155269763)

[17.14 Class Time Coordinate <<Quantity Kind>> 125](#_Toc155269764)

[17.15 Class Time Interval <<Value>> 125](#_Toc155269765)

[17.16 Class Time Point <<Value>> 125](#_Toc155269766)

[17.17 Class Time Scale 125](#_Toc155269767)

[17.18 Association Time Scale Granularity 126](#_Toc155269768)

[17.19 Association Time Scale of Time Point 126](#_Toc155269769)

[18 OnticHealthGeneric::Time & Temporal Entities::ISO Time Scale 127](#_Toc155269770)

[18.1 Diagram: ISO Time 127](#_Toc155269771)

[19 OnticHealthGeneric::Time & Temporal Entities::XSD Time Scale 128](#_Toc155269772)

[19.1 Diagram: XSD Time Scale 128](#_Toc155269773)

[19.2 Class XSD Date <<Unit Value>> 128](#_Toc155269774)

[19.3 Class XSD Date Time <<Unit Value>> 129](#_Toc155269775)

[19.4 Class XSD Time <<Unit Value>> 129](#_Toc155269776)

[20 OnticHealthGeneric::Units 130](#_Toc155269777)

[20.1 Diagram: Common Units 1 130](#_Toc155269778)

[20.2 Diagram: Common Units 2 131](#_Toc155269779)

[20.3 Class Acre <<Unit Value>> 131](#_Toc155269780)

[20.4 Class Ampere <<Base Unit Value>> 131](#_Toc155269781)

[20.5 Class Becquerel (Bq) <<Unit Value>> 131](#_Toc155269782)

[20.6 Class Candela <<Base Unit Value>> 132](#_Toc155269783)

[20.7 Class Celsius <<Unit Value>> 132](#_Toc155269784)

[20.8 Class Compound Duration Value <<Unit Value>> 132](#_Toc155269785)

[20.9 Class Concentration Percent <<Base Unit Value>> 132](#_Toc155269786)

[20.10 Class Coulomb per kilogram <<Unit Value>> 132](#_Toc155269787)

[20.11 Class Cubic Feet <<Unit Value>> 132](#_Toc155269788)

[20.12 Class Cubic Inch <<Unit Value>> 133](#_Toc155269789)

[20.13 Class Cubic Meter <<Base Unit Value>> 133](#_Toc155269790)

[20.14 Class Cup (US) <<Unit Value>> 133](#_Toc155269791)

[20.15 Class Curie (Ci) <<Base Unit Value>> 133](#_Toc155269792)

[20.16 Class Day <<Unit Value>> 133](#_Toc155269793)

[20.17 Class Degrees <<Unit Value>> 133](#_Toc155269794)

[20.18 Class Fahrenheit <<Unit Value>> 133](#_Toc155269795)

[20.19 Class Fluid Ounce (US) <<Unit Value>> 134](#_Toc155269796)

[20.20 Class Foot <<Unit Value>> 134](#_Toc155269797)

[20.21 Class Gallon (Imperial) <<Unit Value>> 134](#_Toc155269798)

[20.22 Class Gallon (US) <<Unit Value>> 134](#_Toc155269799)

[20.23 Class Gram <<Unit Value>> 134](#_Toc155269800)

[20.24 Class Gray (Gy) <<Base Unit Value>> 134](#_Toc155269801)

[20.25 Class Hertz <<Base Unit Value>> 134](#_Toc155269802)

[20.26 Class Horsepower <<Unit Value>> 135](#_Toc155269803)

[20.27 Class Hour <<Unit Value>> 135](#_Toc155269804)

[20.28 Class Inch <<Unit Value>> 135](#_Toc155269805)

[20.29 Class Joule <<Base Unit Value>> 135](#_Toc155269806)

[20.30 Class Kelvin <<Base Unit Value>> 135](#_Toc155269807)

[20.31 Class Kg per cubic meter <<Base Unit Value>> 135](#_Toc155269808)

[20.32 Class Kilogram <<Base Unit Value>> 136](#_Toc155269809)

[20.33 Class Kilogram per cubic meter <<Base Unit Value>> 136](#_Toc155269810)

[20.34 Class Kilometer <<Unit Value>> 136](#_Toc155269811)

[20.35 Class Kilometer per Hour <<Base Unit Value>> 136](#_Toc155269812)

[20.36 Class Kilowatt hour <<Unit Value>> 136](#_Toc155269813)

[20.37 Class Liquid Volume <<Quantity Kind>> 136](#_Toc155269814)

[20.38 Class Meter <<Base Unit Value>> 136](#_Toc155269815)

[20.39 Class Meter per second squared <<Base Unit Value>> 137](#_Toc155269816)

[20.40 Class Mile <<Unit Value>> 137](#_Toc155269817)

[20.41 Class Miles per Hour <<Unit Value>> 137](#_Toc155269818)

[20.42 Class Millimeter <<Unit Value>> 137](#_Toc155269819)

[20.43 Class Millisecond <<Unit Value>> 137](#_Toc155269820)

[20.44 Class Minute <<Unit Value>> 137](#_Toc155269821)

[20.45 Class Mole <<Base Unit Value>> 138](#_Toc155269822)

[20.46 Class Mole Per Cubic Meter <<Base Unit Value>> 138](#_Toc155269823)

[20.47 Class Month <<Unit Value>> 138](#_Toc155269824)

[20.48 Class Newton <<Base Unit Value>> 138](#_Toc155269825)

[20.49 Class Ounce-Mass (US) <<Unit Value>> 138](#_Toc155269826)

[20.50 Class Pascal <<Base Unit Value>> 138](#_Toc155269827)

[20.51 Class Pint (US) <<Unit Value>> 138](#_Toc155269828)

[20.52 Class Pound-Force <<Unit Value>> 139](#_Toc155269829)

[20.53 Class Pound-Mass (Imperial) <<Unit Value>> 139](#_Toc155269830)

[20.54 Class Pound-Mass (US lb) <<Unit Value>> 139](#_Toc155269831)

[20.55 Class PSI <<Unit Value>> 139](#_Toc155269832)

[20.56 Class Quart (US) <<Unit Value>> 139](#_Toc155269833)

[20.57 Class Radians <<Base Unit Value>> 139](#_Toc155269834)

[20.58 Class Radiation Absorbed Dose (rad) <<Unit Value>> 139](#_Toc155269835)

[20.59 Class Roentgen (R) <<Base Unit Value>> 140](#_Toc155269836)

[20.60 Class Roentgen Equivalent Man (REM) <<Unit Value>> 140](#_Toc155269837)

[20.61 Class Scalar Duration Value <<Unit Value>> 140](#_Toc155269838)

[20.62 Class Second <<Base Unit Value>> 141](#_Toc155269839)

[20.63 Class Sievert (Sv), <<Base Unit Value>> 141](#_Toc155269840)

[20.64 Class Square Feet <<Unit Value>> 141](#_Toc155269841)

[20.65 Class Square Meter <<Base Unit Value>> 141](#_Toc155269842)

[20.66 Class Volt <<Base Unit Value>> 141](#_Toc155269843)

[20.67 Class Watt <<Base Unit Value>> 141](#_Toc155269844)

[20.68 Class Yard <<Unit Value>> 142](#_Toc155269845)

[20.69 Class Year <<Unit Value>> 142](#_Toc155269846)

[21 OnticHealthGeneric::Values 143](#_Toc155269847)

[21.1 Diagram: Values 144](#_Toc155269848)

[21.2 Diagram: Values Doc 145](#_Toc155269849)

[21.3 Diagram: Values Only 145](#_Toc155269850)

[21.4 Class Base Unit Type 146](#_Toc155269851)

[21.5 Class Quantity kind 146](#_Toc155269852)

[21.6 Class Quantity Representation 146](#_Toc155269853)

[21.7 Association Referenced System of Units 146](#_Toc155269854)

[21.8 Class Scalar Quantity <<Value>> 147](#_Toc155269855)

[21.9 Class Structured Value <<Value>> 147](#_Toc155269856)

[21.10 Class System of Units 147](#_Toc155269857)

[21.11 Class Unit Type 147](#_Toc155269858)

[21.12 Class Unit Value <<Value>> 148](#_Toc155269859)

[21.13 Class Value 149](#_Toc155269860)

[21.14 Class Value Type 149](#_Toc155269861)

[22 OnticHealthSpecific 150](#_Toc155269862)

[22.1 Diagram: Notes 150](#_Toc155269863)

[23 OnticHealthSpecific::Clinical Situation 151](#_Toc155269864)

[23.1 Diagram: Clinical Situation 151](#_Toc155269865)

[23.2 Class Adverse Situation <<Role>> 151](#_Toc155269866)

[23.3 Class Clinical Activity 151](#_Toc155269867)

[23.4 Class Clinical Assessement 152](#_Toc155269868)

[23.5 Class Clinical Exclusion 152](#_Toc155269869)

[23.6 Class Clinical Intervention Activity 152](#_Toc155269870)

[23.7 Class Clinical Knowledge Acqusition 152](#_Toc155269871)

[23.8 Class Clinical Observation Activity 152](#_Toc155269872)

[23.9 Class Clinical Opinion 152](#_Toc155269873)

[23.10 Class Clinical Procedure 152](#_Toc155269874)

[23.11 Class Clinical Request 152](#_Toc155269875)

[23.12 Class Clinical Situation 152](#_Toc155269876)

[23.13 Class Consult 153](#_Toc155269877)

[23.14 Class Diagnosis 153](#_Toc155269878)

[23.15 Class Dosage Form 153](#_Toc155269879)

[23.16 Class Encounter 153](#_Toc155269880)

[23.17 Association finding 153](#_Toc155269881)

[23.18 Class Infered Observation Activity 153](#_Toc155269882)

[23.19 Class Medication <<Role>> 153](#_Toc155269883)

[23.20 Class Medication Activity 153](#_Toc155269884)

[23.21 Class Recomendation Activity 154](#_Toc155269885)

[23.22 Class Risk Assessement 154](#_Toc155269886)

[23.23 Class Sense Observation Activity 154](#_Toc155269887)

[23.24 Class Specimen <<Role>> 154](#_Toc155269888)

[23.25 Class Subject <<Role>> 154](#_Toc155269889)

[23.26 Class Substance 154](#_Toc155269890)

[23.27 Class Vital Sign Measurement 154](#_Toc155269891)

[23.28 Class Vital Sign Measurement Activity 154](#_Toc155269892)

[24 OnticHealthSpecific::Diagrams 156](#_Toc155269893)

[24.1 Diagram: Allergy 156](#_Toc155269894)

[24.2 Class Food Type 156](#_Toc155269895)

[25 OnticHealthSpecific::Health Conditions 157](#_Toc155269896)

[25.1 Diagram: Health Conditions 157](#_Toc155269897)

[25.2 Class Actual Vital Sign 157](#_Toc155269898)

[25.3 Class Allergen Type <<Role>> 157](#_Toc155269899)

[25.4 Class Allergic Reaction 158](#_Toc155269900)

[25.5 Class Allergy Intolerance Condition 158](#_Toc155269901)

[25.6 Class Allergy Type 158](#_Toc155269902)

[25.7 Class Disease 158](#_Toc155269903)

[25.8 Class Geneome 158](#_Toc155269904)

[25.9 Class Health Condition 158](#_Toc155269905)

[25.10 Class Health Event 159](#_Toc155269906)

[25.11 Class Health Quality 159](#_Toc155269907)

[25.12 Class Health State 159](#_Toc155269908)

[25.13 Class Vital Sign 159](#_Toc155269909)

[25.14 Class Vital Sign Benchmark 159](#_Toc155269910)

[26 OnticHealthSpecific::Human Characteristics 160](#_Toc155269911)

[26.1 Diagram: Human Characteristics 160](#_Toc155269912)

[26.2 Class Arm 160](#_Toc155269913)

[26.3 Class Brain 160](#_Toc155269914)

[26.4 Class Head 161](#_Toc155269915)

[26.5 Class Human Body Part 161](#_Toc155269916)

[26.6 Class Leg 161](#_Toc155269917)

[27 OnticHealthSpecific::Medications 162](#_Toc155269918)

[27.1 Diagram: Medications 162](#_Toc155269919)

[27.2 Class Dispense 162](#_Toc155269920)

[27.3 Class Immunization Activity 162](#_Toc155269921)

# MDMILibrary

## Diagram: MDMILibrary



1. MDMILibrary

# OnticHealthExamples::Condition types

## Diagram: Condition Types



1. Condition Types

## Class Actual Body Height

Direct Supertypes

[Actual Vital Sign](#_cbf2f4f30da28c4c79b15fa7078c79cb), [Body Height](#_6edfe15cd727bace7f7d9d5b7568392d)

## Class Actual Body Temperature

Direct Supertypes

[Actual Vital Sign](#_cbf2f4f30da28c4c79b15fa7078c79cb), [Body Temperature](#_3e402d3801a96d2460b3bec1afe4a061)

## Class Actual Creatine Clearance

Direct Supertypes

[Actual Vital Sign](#_cbf2f4f30da28c4c79b15fa7078c79cb), [Creatinine Clearance](#_b1e40bf766e7b250dfddce3686aacc66)

## Class Body Height

Direct Supertypes

[Vital Sign](#_5c5c63c417da4b7e591d574fd8fdc2a3)

## Class Body Temperature

Direct Supertypes

[Vital Sign](#_5c5c63c417da4b7e591d574fd8fdc2a3)

## Class CrCl for Kidney Disease

Direct Supertypes

[Creatinine Clearance](#_b1e40bf766e7b250dfddce3686aacc66), [Vital Sign Benchmark](#_80ca85d7baf1cbdb92ccaf4a1e73916a)

## Class Creatinine Clearance

Direct Supertypes

[Vital Sign](#_5c5c63c417da4b7e591d574fd8fdc2a3)

## Class Kidney Disease

Direct Supertypes

[Disease](#_16e4cdf1e1a5a2e34c8ad6799f9b80f3)

# OnticHealthGeneric::Actors

## Diagram: Actors



1. Actors

## Diagram: Person



1. Person

## Diagram: Person Identifiers



1. Person Identifiers

## Diagram: Person Name Representations



1. Person Name Representations

## Class Access Identifier <<Value>>

An term, data value or other sign that identifies a person for access to a resource.

Direct Supertypes

[Managed Person Identifier](#_600225520fc6f515cd9f55d42f05d92d)

## Class Device

A machine or group of machines (most often a computer system, robot, or computerized swarm combined with software), or software that can perform actions in accordance with a process without another actor directing each step of the process.

Distinguished from simple tools which facilitate an actor performing a process but have no innate ability to follow such a process.

Automation is distinguished from "legal entity" and "stakeholder", roles of some actors which indicates the ability to enter into legally binding agreements or have objectives (at this time no Automatons are legal entities or stakeholders but the model does not preclude the possibility).

Direct Supertypes

[Actor](#_366e70bab7ea3da37cb039e7a6b88ae2), [Physical Entity](#_e8de7be0b7deb58decd0be7d10c50eb1), [System](#_24096b0cc8b6c6a4f1582650e113f719)

## Class Financial Identifier <<Value>>

An identifier for purposes of making financial transactions, such as a credit card number or bank account.

## Class Managed Person Identifier <<Value>>

An identifier for a person managed by some identity provider who asserts the validity of the identifier, frequently but not always a government organization.

## Class Organization

An Organization  is a group of persons and/or other actors and resources organized for some end or work

[FIBO] Organization: a social unit of people, systematically structured and managed to meet a need or pursue collective goals on a continuing basis.

[NIEM] OrganizationType

[DOLCE] Society

Direct Supertypes

[Social Agent](#_934edf0b3719808db07a6b3c165c3d1d)

## Class Passport Identifier <<Value>>

[NIEM] PersonPassportIdentification (property): An identification of a passport issued to a person.

Direct Supertypes

[Managed Person Identifier](#_600225520fc6f515cd9f55d42f05d92d)

## Class Person

An individual human being.

[FIBO] Person

[NIEM] PersonType

[DOLCE] (Subtype of) Agentive Physical Object

Direct Supertypes

[Animal](#_af0e52963fe1fdbbeeea5d00c2f3644e), [Physical Entity](#_e8de7be0b7deb58decd0be7d10c50eb1), [Social Agent](#_934edf0b3719808db07a6b3c165c3d1d)

Associations

<<Restriction>> : [Health Event](#_23e37e50b3000170eb575aa7c22c9a97) [\*] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



## Class Person Name <<Value>>

Text identifying a person by a recognized name.

[FIBO] hasFullLegalName (More specific concept)

[NIEM] PersonNameType

Direct Supertypes

[Name](#_4fe2a0b97ea7a3db28c2db6f67c0a550)

## Class Person Structured Name <<Value>>

A full name of a person in a structured form.

Note: Conversion between structured and textual names is provided by the implementation and is not defined in this specification.

Direct Supertypes

[Person Name](#_c58177a307605b5dc0c4420fb2b03e96)

Attributes

title : [Text Identifier](#_c022e1fa04a641d7856a5f4fbac2d96d) [0..\*]



[NIEM] PersonNamePrefixText: A title or honorific used by a person.

salutation : [Text Identifier](#_c022e1fa04a641d7856a5f4fbac2d96d) [0..1]



[NIEM] PersonNameSalutationText: A formal sign or expression of greeting that is appropriate for a person.

name part : [Text Identifier](#_c022e1fa04a641d7856a5f4fbac2d96d) [1..\*]



Parts of a person's name, e.g., surname, given name.

[FIBO] hasFamilyName

given name : [Unique Text Identifier](#_ce697d4cc4319031095afacb28e90c2e)



[NIEM] PersonGivenName: A first name of a person.

[FIBO] hasGivenName

official given name : [Unique Text Identifier](#_ce697d4cc4319031095afacb28e90c2e)



[NIEM] PersonOfficialGivenName: A name, out of possibly multiple given names, that a person selects to use as his or her official given name.

middle name : [Unique Text Identifier](#_ce697d4cc4319031095afacb28e90c2e)



[NIEM] PersonMiddleName: A middle name of a person.

surname prefix : [Unique Text Identifier](#_ce697d4cc4319031095afacb28e90c2e)



[NIEM] PursonSurNamePrefix: A prefix that precedes this person's family name such as Van, Von.

surname : [Unique Text Identifier](#_ce697d4cc4319031095afacb28e90c2e)



[NIEM] PersonSurName: A last name or family name of a person.

[FIBO] hasSurname

name suffix : [Unique Text Identifier](#_ce697d4cc4319031095afacb28e90c2e)



[NIEM] PersonNameSuffixText: A term appended after the family name that qualifies the name.

## Class Social Agent

An actor that may have responsibilities - people and organizations. Actors in general may include automated entities and even, in some context, animals. Social agent excludes these other kinds of actors by including (at this time) only people and organizations.

What responsibilities a particular person or organization may have at any particular time is the subject of law and social constructs. A social agent is distinguished in that a person or organization may have such responsibilities in their lifetime.

[NIEM] EntityType

[DOLCE] Social Agent

Direct Supertypes

[Actor](#_366e70bab7ea3da37cb039e7a6b88ae2)

## Class Social Security Number <<Value>>

[NIEM] PersonSSNIdentification (property): A unique identification reference to a living person; assigned by the United States Social Security Administration.

Direct Supertypes

[Managed Person Identifier](#_600225520fc6f515cd9f55d42f05d92d)

## Class System

[OMG MDA Guide] A system is a collection of parts and relationships among these parts that may be organized to accomplish some purpose.

[UAF] An integrated set of elements, subsystems, or assemblies that accomplish a defined objective. These elements include products (hardware, software, firmware), processes, people, information, techniques, facilities, services, and other support elements .

A system is a situation in that it has constituent parts working together for a finite period.

A system is a means in that it may achieve objectives for stakeholders.

Direct Supertypes

[Actor](#_366e70bab7ea3da37cb039e7a6b88ae2), [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

# OnticHealthGeneric::Contact Information

The definition of various ways to contact an entity. Subtypes of contact information supply specific formats.

## Diagram: Contact Information



1. Contact Information

## Class Communications Security Level <<Value>>

An abstract type for levels of security in communications.

Direct Supertypes

[Text Identifier](#_c022e1fa04a641d7856a5f4fbac2d96d)

## Class Contact Means <<Value>>

Anything that may be used to communicate with an individual.

[FIBO] AddressingScheme

[NIEM] ContactMeans & ContactInformationType

Direct Supertypes

[Unique Identifier](#_5763a56249b3eddeb79ba22f74c885e1)

Attributes

security level : [Communications Security Level](#_768ee5d179100f31b9ae5953d8f8fe43)



The level of security asserted as provided by the subject contact means. May default to the security level of the communications network.

## Association Class Contact Via

Information relative to communicating with an entity.

[NIEM] ContactInformationAssociationType



1. Contact Via

Direct Supertypes

[Relationship](#_accd5eb3f49a80122f5edf4b533965d0)

Association Ends

contact via : [Contact Means](#_d728353dcfde6e430109cfb2ec0e4400) [\*] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



A way to contact an actor or place.

[FIBO] hasAddress (More specific concept - restricted to Postal Address)

contact for : [Contactable](#_361c8ec052bb3ceeaeeba100681ef85a) [1..\*] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



An actor or place for which the contact information may be used to contact that entity.

Attributes

purpose : [Contact Purpose](#_050522a59b8a480d61b13f29a8cd0602)



Purposes for contacting an entity, primarily work and personal.

[NIEM] ContactPurpose

availability : [Contact Availability](#_d8ef9dc616d50a464e361efebcc91ab3)



An enumeration of the times contact information may be used.

[NIEM] ContactInformationAvailability

## Class Contactable

Anything that can be send or receive information or be the proxy for things that can send or receive information, e.g., people, organizations and places.

Direct Supertypes

[Actual Entity](#_bab16f734f2dacc51c5f66e15031a455)

## Class Electronic Contact <<Value>>

Contact information that enables communications with or via an actor or telecommunications device by electronic means.

[FIBO] VirtualAddress: an address identifying a virtual, i.e. non-physical location

Direct Supertypes

[Contact Means](#_d728353dcfde6e430109cfb2ec0e4400)

Attributes

mobile : [Boolean Value](#_410c19ea35181b782ecd0ae587c303f2)



Indicator that a contact method is mobile - not fixed to a location.

voice capable : [Boolean Value](#_410c19ea35181b782ecd0ae587c303f2)



An indication that a contact method is voice capable.

document capable : [Boolean Value](#_410c19ea35181b782ecd0ae587c303f2)



An indication that a contact method is capable of receiving documents, e.g., email.

text message capable : [Boolean Value](#_410c19ea35181b782ecd0ae587c303f2)



An indication that a contact method is capable of receiving text messages of limited length.

fax capable : [Boolean Value](#_410c19ea35181b782ecd0ae587c303f2)



Contact method for a communications device that is fax capable.

video capable : [Boolean Value](#_410c19ea35181b782ecd0ae587c303f2)



An indication that a contact method is video capable.

## Class Email Address <<Value>>

Contact information for the delivery of mail via an electronic network.

[NIEM] ContactEmailId (of <electronic contact>)

Direct Supertypes

[Internet Contact](#_f612e365dfbdac86e099887c88383f05)

## Class Internet Contact <<Value>>

[NIEM] A means of contact that provides for the digital electronic transmission of information via the Internet or a private network.

Direct Supertypes

[Electronic Contact](#_6864803bb2dd8ade1b44b94e09015e8c)

Attributes

electronic address : [Network Identifier](#_8c608ce25c80a47ad9e3c1496d0fe4fb)



Electronic address by which to contact an entity via the Internet.

## Class Network Identifier <<Value>>

A value used to identify a node in an electronic network.

[NIEM] ElectronicAddressType

Direct Supertypes

[Technical Identifier](#_e939c114585b756d82c6b05f16701eba)

## Class Postal Address <<Value>>

An address able to be used to deliver physical mail which may or may not represent a static physical location.

[FIBO] PPostalAddress: a physical address where postal communications can be addressed, for any kind of organization or person.

[NIEM] AddressType

Direct Supertypes

[Contact Means](#_d728353dcfde6e430109cfb2ec0e4400), [Location Identifier](#_dbac944540463b1d9100728cc11890d7)

## Class Postal Address Structured <<Value>>

A structured representation of a postal address.

Direct Supertypes

[Postal Address](#_ae1f683c7e1dfa3098ccf63791b1618d)

Attributes

recipient name : [Name](#_4fe2a0b97ea7a3db28c2db6f67c0a550) =



Name of the recipient in a postal address which defaults to the name of the entity having the address. Should default to the contact for "has name".

[NIEM] AddressRecipientName

country ID : [Location ID](#_9feb8475e79787efe182993def882570) [0..1]



Postal country identifier.

post code : [Postal Code](#_2be783d125f4b3648279622853c00e7d) [0..1]



[OGC] An address component which represents the identification of a subdivision of addresses and postal delivery points in a country, region, or city for postal purposes.

[NIEM] LocationPostalCode

state\_province ID : [Location ID](#_9feb8475e79787efe182993def882570) [0..1]



Postal state identifier for a geopolitical regions.

[NIEM] LocationState

county ID : [Location ID](#_9feb8475e79787efe182993def882570) [0..1]



Postal county identifier.

[NIEM] LocationCounty

region ID : [Location ID](#_9feb8475e79787efe182993def882570) [\*]



Postal region identifier.

[NIEM] AddressUrbanizationName

city ID : [Location ID](#_9feb8475e79787efe182993def882570) [0..1]



Postal city identifier.

[NIEM] LocationCityName

street ID : [Location ID](#_9feb8475e79787efe182993def882570) [0..1]



Postal street identifier.

[NIEM] AddressDeliveryPoint

place ID : [Location ID](#_9feb8475e79787efe182993def882570) [0..1]



Postal identifier for a specific place: House, building, facility, etc.

unit ID : [Location ID](#_9feb8475e79787efe182993def882570) [0..1]



Postal province identifier.

[NIEM] AddressSecondaryUnitText

post box ID : [Postal Code](#_2be783d125f4b3648279622853c00e7d) [0..1]



A code defined for the purposes of delivering physical mail to a specific addresses.

[NIEM] AddressPrivateMailboxText

## Class Postal Address Text <<Value>>

A textual representation of a postal address.

Direct Supertypes

[Postal Address](#_ae1f683c7e1dfa3098ccf63791b1618d)

Attributes

postal address : [String Value](#_7c9dabdd623b5e214dfd7dbbb23cc367) [1]



Textual postal address for the delivery of mail.

[NIEM] AddressFullText

## Class Postal Code <<Value>>

A code defined for the purposes of delivering physical mail to a set of addresses. "Zip code" in the U.S.

[OGC] An address component which represents the identification of a subdivision of addresses and postal delivery points in a country, region or city for postal purposes.

[FIBO] PostalCodeArea

Direct Supertypes

[Text Identifier](#_c022e1fa04a641d7856a5f4fbac2d96d)

## Class Private Network Contact <<Value>>

Contact identifiers valid within a private network.

Direct Supertypes

[Internet Contact](#_f612e365dfbdac86e099887c88383f05)

## Class Radio Contact <<Value>>

Identifier for contact via radio.

[NIEM] ContactRadioType

Direct Supertypes

[Electronic Contact](#_6864803bb2dd8ade1b44b94e09015e8c)

Attributes

channel : [Network Identifier](#_8c608ce25c80a47ad9e3c1496d0fe4fb)



Radio channel used for communications.

[NIEM] ContactRadioChannelText

call sign : [Technical Identifier](#_e939c114585b756d82c6b05f16701eba)



Radio or user call sign used for radio communications.

[NIEM] ContactRadioCallSignID

## Class Social Network Contact <<Value>>

Contact information to be used via a social network.

[NIEM] InstantMessageType

--InstanceMessengerServiceName = <has name>

--InstanceMessengerScreenId = "electronic address"

Direct Supertypes

[Internet Contact](#_f612e365dfbdac86e099887c88383f05)

## Class Telephone Area Code <<Value>>

A three-digit number that identifies one of the telephone service regions into which the US, Canada, and certain other countries are divided and that is dialed when calling from one area to another.

Direct Supertypes

[Text Identifier](#_c022e1fa04a641d7856a5f4fbac2d96d)

Attributes

value : [Integer Value](#_785680704cd0ad14363f3ea21ca75a66) [0..999]



3 digit area code.

## Class Telephone Country Code <<Value>>

2 digit Telephone codes for contacting people and organizations within countries.

Direct Supertypes

[Text Identifier](#_c022e1fa04a641d7856a5f4fbac2d96d)

Attributes

value : [Integer Value](#_785680704cd0ad14363f3ea21ca75a66) [0..99]



Country code digits.

## Class Telephone Number <<Value>>

A way to contact an actor via a telephone.

[NIEM] TelephoneNumberType

Direct Supertypes

[Electronic Contact](#_6864803bb2dd8ade1b44b94e09015e8c)

## Class Telephone Number Structured <<Value>>

Structured representation of a telephone number.

[NIEM] NANPTelephoneNumberType & InternationalTelephoneNumberType

Direct Supertypes

[Telephone Number](#_9af71828b79ee82e445c4563adfb9e76)

Attributes

country code : [Telephone Country Code](#_b873729f937e2f9cd1dc1a6291e75015) [0..1]



Telephone country code.

[NIEM] TelephoneCountryCodeID

area code : [Telephone Area Code](#_28cc1146c29a169c915ea185e012ff18) [0..1]



Telephone area code.

[NIEM] TelephoneAreaCodeID

telephone exchange : [Integer Value](#_785680704cd0ad14363f3ea21ca75a66) [0..1]



Number identifying a telephone exchange.

[NIEM] TelephoneExchangeID

line : [Location ID](#_9feb8475e79787efe182993def882570) [1]



Telephone line number.

[NIEM] TelephoneLineID

telephone extension : [Location ID](#_9feb8475e79787efe182993def882570) [0..1]



Telephone extension number.

## Class Telephone Number Text <<Value>>

Unstructured (text) representation of a telephone number.

[NIEM] FullTelephoneNumberType

Direct Supertypes

[Telephone Number](#_9af71828b79ee82e445c4563adfb9e76)

Attributes

telephone number : [String Value](#_7c9dabdd623b5e214dfd7dbbb23cc367) [1]



Textual telephone number.

[NIEM] TelephoneNumberFullID

## Class Website Contact <<Value>>

A website that can be used to contact an individual.

Direct Supertypes

[Internet Contact](#_f612e365dfbdac86e099887c88383f05)

Attributes

<<Restriction>>electronic address : [IRI Identifier](#_f2f3735a98b6ee1b11d4d15ecc9679bd)



Electronic address by which to contact an entity via a website.

[NIEM] ContactWebsiteURI

### Enumeration Contact Availability

A data type for a period of time or a situation in which an entity is available to be contacted with the given contact information.[NIEM]

package OnticHealthGeneric::Contact Information

public enum Contact Availability

{night, day, emergency, evening, primary, secondary}

Literals

night



Late night contact.

day



Daytime contact.

emergency



Emergency contact.

evening



Late day or early night contact.

primary



Primary contact.

secondary



Secondary or alternate contact.

### Enumeration Contact Purpose

Possible purposes for contact information.[NIEM]

package OnticHealthGeneric::Contact Information

public enum Contact Purpose

{personal, work, other}

Literals

personal



Personal communications.

work



Work communications.

other



Communications other than work or personal.

# OnticHealthGeneric::Devices

The Cyber package defines instances and subtypes of generic concepts specific to Cyber - computers, software and networks.

## Diagram: Cyber



1. Cyber

## Diagram: Cyber Platforms



1. Cyber Platforms

## Diagram: Cyber Resource



1. Cyber Resource

## Class Automation Type

A categorization of computers and software across any dimension - chip type, operating system, language, manufacturer, virtual machine, etc. The automation type may be used to establish software compatibilities and vulnerabilities. Note that any automation may be categorized by multiple automation types.

Direct Supertypes

[Cyber Resource](#_6d3e5abba9e6137fcc5fd517cf924303), [Identifiable Type](#_1c92ae371f6075c6031e3d53d4149bfb)

## Class Communicating Device

A device able to communicate or facilitate communications across a network.

Direct Supertypes

[Contactable](#_361c8ec052bb3ceeaeeba100681ef85a), [Cyber Resource](#_6d3e5abba9e6137fcc5fd517cf924303), [Device](#_bd3f1f930567d4dc858cceb3def58530)

## Class Communications Link

A physical or virtual link between communications devices allowing them to communicate.

Direct Supertypes

[Communicating Device](#_d89f5fd3110ebe8a1e5bc08fc81e18d4), [Communications Network](#_eb1853ca44aeeaa7fde8f79301453350)

## Class Communications Network

A physical or electronic system intended to facilitate communications between entities. Includes communications channels, computer networks, physical mail and RF networks.

Direct Supertypes

[Actual Entity](#_bab16f734f2dacc51c5f66e15031a455), [Namespace](#_f22cdf8557004883ab5bd7e00637cd4c)

Attributes

provides security level : [Communications Security Level](#_768ee5d179100f31b9ae5953d8f8fe43)



The level of security asserted for the subject communications network.

## Class Computer System

An identifiable and physical computer system that acts as an automaton agent performing processes.

[ISO/IEC 10514-1:1996] The combination of hardware and, optionally, firmware and software (e.g. operating system) that enables the execution of software.

Direct Supertypes

[Communicating Device](#_d89f5fd3110ebe8a1e5bc08fc81e18d4), [Cyber Resource](#_6d3e5abba9e6137fcc5fd517cf924303), [Device](#_9bb10278edb6d6dd288a5b56b2ba6c40)

Attributes

network address : [Technical Identifier](#_e939c114585b756d82c6b05f16701eba)



Electronic address which allows communication with a computer system as a node on a network.

## Class Cyber Resource

Resources that, together, make up information systems capabilities and may be vulnerable to attack or used in an attack.

## Class Software

Programs and other operating information used by a computer to control its function through the definition of a process.

Direct Supertypes

[Cyber Resource](#_6d3e5abba9e6137fcc5fd517cf924303), [Device](#_9bb10278edb6d6dd288a5b56b2ba6c40), [Tool](#_8f56d99a6c9c351391b8cca136ff3469)

# OnticHealthGeneric::Foundation

## Diagram: Context



1. Context

## Diagram: Facets



1. Facets

## Diagram: Foundation Extras



1. Foundation Extras

## Diagram: Identifier Summary



1. Identifier Summary

## Diagram: Identifiers



1. Identifiers

An identifier that can be represented as text. The text is in the "value" property.

[IDEAS] Sign: An Individual that signifies a Thing.

## Diagram: Types



1. Types

## Class Actor

An entity capable of behavior - performing an activity or process.

[IDEAS] Agent: Something capable of action.

[FIBO] AutonomousAgent: An agent is an autonomous individual that can adapt to and interact with its environment.



1. Actor Detail

Direct Supertypes

[Contactable](#_361c8ec052bb3ceeaeeba100681ef85a), [Discreet Thing](#_6ef1dbf4983daf69e5425cbaf8e11659), [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)

## Class Actual Entity

An actual entity is an identifiable, individual person, specific object, process enactment, agreement, etc. Actual Entities do not have to be physical, e.i. may denote social constructs. Actual entities are disjoint from types.

A more specific class of actual entity (e.g., Person) is intended to refine the classification of the individual thing.

Individuality (or selfhood) is the state or quality of being an individual; particularly of being separate from other individuals and possessing identity. Actual entities typically have a lifetime and some individuals may change over that lifetime. Individuals may have parts that together help define the individual but may change over time.

"Actual" does not imply current existence.

[ISO 1087] individual concept: concept (3.2.1) which corresponds to only one object

[UML] Loose correspondence with "InstanceSpecification". SMIF instances are direct instances of their types, there is no "indirection" through value specification as their is in UML.

[Guizzardi] (individual concept)

[CL] Individual: one element of the universe of discourse

[DOLCE] Particular: particulars are entities which have no instances

[SOWA1999] Independent. Can be considered "Actuality" when including social constructs in [SOWA1999] Physical.

[OWL] Individual



1. Actual Entity Detail

Direct Supertypes

[Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)

## Class Category Type

A category is a classification or division of people, events or things regarded as having particular shared characteristics. Categorization is typically contextual, potentially transient and may or may not be formally defined.

As with all facets, categories are non-rigid. Something classified by a category must also be classified by an entity type.

Direct Supertypes

[Facet Type](#_b66933481bbd493f7b05e550e94de306)

## Class Discreet Thing

A discreet thing is an identifiable thing that may be the subject of temporal relationships but does not inherently include those relationships.

[Devlin] Individual

[Barwise 1999] Uniformity

Direct Supertypes

[Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)

## Association Extent of Type

The relation between a type and the things that type categorizes, the instances which defines the extent of the type, a set.

[IDEAS] typeInstance: A couple that asserts that a Thing is a member of a Type.

[Guizzardi] (Extension functions): Let W be a non-empty set of

possible worlds and let w ∈ W be a specific world. The extension function extw(G) maps a universal G to the set of its instances in world w. The extension function ext(G) provides a mapping to the set of instances of the

universal G that exist in all possible worlds, such that ext(G) = U w∈W w ext (G)

[OWL] ClassAssertion

Association Ends

categorizes : [Thing](#_6fc933c79c6038a48c8d9b3700b64dca) [\*] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



The set of things described by a type, the "extent" of the type.

The thing a type <categorizes> is subject to the <has assertion> propositions of the type.

[FIBO] classifies

has type : [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1) [1..\*] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



A type that holds for something.

Things may have multiple types and these types may change over time.

The <categorized> thing satisfies the constraints of the <has type> type.

[FIBO] isClassifiedBy

[OWL] rdf:type

## Association Facet Constraint

A Facet Constraint specifies a possible a "mix in" or "non rigid" classification of an entity beyond any fundamental entity type. The must common kinds of facets are roles and phases. Note that the UML profile also specifies subtypes of <<Facet Of>> that are syntactic sugar for facet classification.

The type of individual a facet can apply to may be specified using a facet classification. Note that Facets . A facet classification may be contextual, such as within a relation, situation and/or time frame. Instances may have any number of types and classifications may change over time.

A <<Sufficient>> property is typically used to specify the mediating concept the facet is with respect to.

There are various implementation strategies for facets including multiple classification and dependent objects. SMIF does not commit to any particular implementation strategy.

Association Ends

facet of : [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1) [0..1] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



faceted by : [Facet Type](#_b66933481bbd493f7b05e550e94de306) [0..\*] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



## Association Facet Of Entity

Facet of Entity is a first-class relationship defining a facet of an entity. As a relationship the application of the facet to the entity may be time and context specific. The entity will have the type of the identified facet. Properties and relationships specific to the entity exhibiting a facet, if required, may utilize a subtype of Entity Of Facet.

For example, a Person may play the "Parent" role for multiple children and there may be properties and relationships relative to this generic parent role. If it is required to specify properties and relationships specific to the person being a parent of a specific child, a subtype of Facet Of Entity is used.

Direct Supertypes

[Extent of Type](#_0f89eb8fa6548b4339c6c4da37527f2b)

Association Ends

exhibits facet : [Facet Type](#_b66933481bbd493f7b05e550e94de306) [\*] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



The facet that an entity assumes when it is the facet of an entity.

[FIBO] (for roles) playsRole

exhibited by : [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8) [\*] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



Type of the entity exhibiting the facet.

## Class Facet Type

A facet is a "mix in" type that defines an aspect of something but does not define the identity or "fundamental" (A.K.A. "Rigid") type of that thing, but some potentially transient role, phase or other way to classify it. Something must have at least one type that is not a facet to define that things identity.

Facets do not define independent identity of the referent but technology implementations may create independent objects to represent a facet.

An instance of a facet must also have a type that is not a facet to provide the identity of the instance.

The type(s) a facet may categorize may be constrained by a Facet Generalization Constraint. E.g. Policeman is a role of a person.

[Guarino1994] Non-Substantial sortal

[Guizzard] Non-Rigid Universal: A universal G is non-rigid iff for a w ∈ W There is an x such that x ∈ extw(G), and there is a w∈ W such that x ∉extw(G)

[SOWA1999] Prehension (Relative

Direct Supertypes

[Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)

## Association Generalization

A Type Generalization is a taxonomic relationship between a more general <has supertype> type and a more specific <has subtype> type. Each instance of the specific type is also an instance of the general type.

The extent (<categorizes> property) of the specific type is the same as or a subset of the extent of the more general type. Therefore, any statement that is true for all members of a supertype must also be true for all members of any subtype.

Note that "multiple inheritance" is supported.

[IDEAS] superSubtype: A couple relating two Types which asserts that one type is a subset of the other.

[ISO 1087] generic relation: genus-species relation relation between two concepts (3.2.1) where the intension (3.2.9) of one of the concepts includes that of the other concept and at least one additional delimiting characteristic (3.2.7)

[FIBO] Inheritance

[UML] Generalization

[Guizzardi] (Specialization relation): Let F and G be two universals such that F is a specialization of G. Then, for all w ∈ W we have that extw(F) ⊆ extw(G)

[OWL] Union(SubClassOf, SubPropertyOf)

Association Ends

has supertype : [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1) [\*] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



The extent (categorizes) of the subtype is a subset of the extent of the supertype. All constraints of a supertype must also be true for any subtype

has subtype : [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1) [\*] *Subsets*: affected by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



The more general type of a generalization. The extent of the subtype is a subset of the extent of the supertype.

## Class Identifiable Thing

An identifiable thing is any thing that can be distinguished from another, it is disjoint from values. Identifiable thing includes individuals, types, axioms, situations, speech acts, information structures, etc.

Identifiable things always have some kind of identity and may have identifiers. Note that identity is an abstraction that may have representation in models as any number of identifiers, also known as a "sign".

[OWL] Entity type (Implied in section [OWL] 5.8) as an instance of rdfs:Class

Direct Supertypes

[Thing](#_6fc933c79c6038a48c8d9b3700b64dca)

## Class Identifiable Type

A type of an identifiable entity. All concrete entity instances must have at least one entity type. Entity type may be mixed with other types to fully define an entity.

[FUML] Classifier

[BFO] Universal

[Guarino1994] Substantial or Pseudo-Sortal (Substantial being concrete)

[Guizzardi] A Rigid Universal.

(Rigid Universal): A universal G is rigid (or modally constant) iff for any w,w ∈ W 3. extw(G) = extw(G) Putting definitions 4.1 and 4.3 together, we have that for any rigid universal G the following is true 4. ext(G) = extw(G), for all w ∈ W A rigid universal is one that applies to its instances necessarily, i.e., in every possible world. Every substance sortal G is a rigid universal.

[OWL] rdfs:Class (as Entity Type does not include values). However, non=primitive values are typically represented as rdfs:Class

Direct Supertypes

[Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)

Associations

: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1) [1..\*] *Redefines*: has supertype:[Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



## Association Identification

Relationship defining an identifier for an entity.

[IDEAS] namedBy: A couple that asserts that a Name describes a Thing.

[ISO 1087] Designation

Association Ends

identifies : [Thing](#_6fc933c79c6038a48c8d9b3700b64dca) [1] *Redefines*: has supertype: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



The entity an identifier identifies.

[FIBO] identifies: is the relationship between something and that which provides a unique reference for it

[ISO 1087] designator: representation of a concept (3.2.1) by a sign which

denotes it

identified by : [Identifier](#_c6973cd172c2c262c6aa8ad52189a254) [\*] *Redefines*: has supertype: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



An identifier for an <Entity>.

[FIBO] hasDenotation

## Class Identifier <<Value>>

An identifier is any value that is used to distinguish an entity from other entities. Note that any identifier may be contextualized by one or more context, including language context. Identifiers are a “sign” for an identity where identity is an abstraction of individuality that is the basis for identifiers.

[IDEAS] Name: A Representation that identifies a Thing.

[FIBO] Identifier

[CL] Term: expression which denotes an individual, consisting of either a name or, recursively, a function term applied to a sequence of arguments, which are themselves terms

Direct Supertypes

[Structured Value](#_1fe331dffce355376f5eddd54d6825ec)

## Association Identifier in Namespace

Relationship defining the namespace within which a unique identifier is defined and unique.

[ISO 1087] monosemy: relation between designations (3.4.1) and concepts (3.2.1) in a given language in which one designation only relates to one concept

Association Ends

unique within : [Namespace](#_f22cdf8557004883ab5bd7e00637cd4c) [1] *Redefines*: has supertype: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



The namespace in which an identifier is defined and has a unique value.

[FUML] memberNamespace

scopes identifier : [Unique Identifier](#_5763a56249b3eddeb79ba22f74c885e1) [0..\*] *Redefines*: has supertype: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



An Identifier defined within the scope of a namespace.

[FUML] member

## Association Class Impact

Relationship between some entity and another on which it has some kind of impact or effect.



1. Impact

Direct Supertypes

[Temporally Related](#_9ed633619738f3e7193fcfe187317d60)

Association Ends

impacts : [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8) [\*] *Redefines*: has supertype: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



Entity that the subject entity impacts in any way.

impacted by : [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8) [\*] *Redefines*: has supertype: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



Entity that is impacted by another in any way..

## Class IRI Identifier <<Value>>

A IRI/URI Identifier for an entity, as defined in [RFC3987].

[FIBO] anyURI

Direct Supertypes

[Technical Identifier](#_e939c114585b756d82c6b05f16701eba)

## Class Name <<Value>>

A word or set of words by which a person, animal, place, or thing is known, addressed, or referred to. Names are not necessarily unique.

[IDEAS] Name: A Representation that identifies a Thing.

[CL] Discourse Name

Direct Supertypes

[Text Identifier](#_c022e1fa04a641d7856a5f4fbac2d96d)

## Class Namespace

A namespace is a context that provides a way to make identifiers unique and identify exactly one entity. For example, the Virginia driver's license division provides unique driver's license numbers.

Similar to [IDEAS] UniqueNamingScheme: A NamingScheme where different Names will not contain tokens of the same Representation Type.

Note: SMIF identifiers are not instances of their namespace.

[FIBO] IdentificationScheme: system for allocating identifiers to objects

[ISO 1087] terminology 1: set of designations (3.4.1) belonging to one special language (3.1.3)

[FUML] Namespace

[CL] Vocabulary

Direct Supertypes

[Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)

## Association Naming

Relationship defining a human meaningfully name for an entity.

Direct Supertypes

[Identification](#_8e4de93ef9f519c03db231a6d1aeea59)

Association Ends

names : [Thing](#_6fc933c79c6038a48c8d9b3700b64dca) [1..\*] *Redefines*: has supertype: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



An entity named by a name.

has name : [Name](#_4fe2a0b97ea7a3db28c2db6f67c0a550) [\*] *Redefines*: has supertype: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



A human meaningful name for an entity.

[FIBO] hasName: that by which some thing is known; may apply to anything

[OWL] rdfs:label

## Class Phase Type

A phase (or state) is a static characteristic of something that exists for limited time(s). Something takes on or looses a phase as a result of some event. E,g, Teenager, living, closed invoice.

A Phase is a situation in that there is a situation coincident with each phase.

[Guizzardi] (Phased-Sortal): Let PS be a universal and let S be a

substance sortal specialized (restricted by) PS. Now, let extw(~PS) = extw(S) \ extw(PS)

be the complement of the extension of PS in world w. In this formula, the

symbol \ represents the set theoretical operation of set difference. The

universal PS is a phased-sortal iff for all worlds w ∈ W, there is a w ∈ W such

that extw(PS) ∩ extw(~PS) ≠ ∅

Direct Supertypes

[Facet Type](#_b66933481bbd493f7b05e550e94de306)

## Association Prefered Identification

Relationship defining the preferred identifier for an entity.

[ISO 1087] preferred term: term (3.4.3) rated according to the scale of the term acceptability rating (3.4.14) as the primary term for a given concept (3.2.1)

Direct Supertypes

[Identification](#_8e4de93ef9f519c03db231a6d1aeea59)

Association Ends

has preferred : [Identifier](#_c6973cd172c2c262c6aa8ad52189a254) [0..1] *Redefines*: has supertype: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



Default identifier to use for an entity.

Where multiple identifiers are preferred in differing context any method for selecting the most preferred identifier is implementation specific and not specified by this standard.

[FUML] NamedElement.name: Note: An Identifier that is <preferred for> an entity is equivalent to the name of a named element.

preferred for : [Thing](#_6fc933c79c6038a48c8d9b3700b64dca) [0..1] *Redefines*: has supertype: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



The entity an identifier is preferred for.

## Class Property

The definition of a property (a.k.a. predicate, attribute)

Associations

subject : [Thing](#_6fc933c79c6038a48c8d9b3700b64dca) [\*]



object : [Thing](#_6fc933c79c6038a48c8d9b3700b64dca) [\*]



## Association Class Role Derivation

A role derivation "synthesizes" a base role into a role within the context of a situation use based on the synthesis pattern described in

[Reenskaug 1995] Derived Role Constraint.

[UML] Role binding

Direct Supertypes

[Generalization](#_eea881b36a91a05aecb70a10f3dca174)

Association Ends

has derived role : [Role Type](#_6ca2e7a77a8cd8f2f3f4ed71887d2721) [0..\*]



role that is defined as being a subtype of a base role

has base role : [Role Type](#_6ca2e7a77a8cd8f2f3f4ed71887d2721) [0..\*]



role that will supertype of derived role and synthesized into the composite pattern.

## Class Role Type

A role type is a facet type that defines a specific purpose or behavior of a class of things. E.g. teacher, policeman, or employer.

[Reenskaug 1995] Role

[FIBO] Role. Note that partyInRole or thingInRole are implied by classification of a thing.

Direct Supertypes

[Facet Type](#_b66933481bbd493f7b05e550e94de306)

## Association Sufficient Generalization

One of the set of sufficient conditions that will infer the type designated in <justifies subtype>.

Asserts that if an instance is of the <sufficient supertype> and all other sufficient conditions are met, the instance may be inferred to be the <justifies subtype>.

Association Ends

sufficient supertype : [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1) [\*]



justifies subtype : [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1) [\*]



## Class Technical Identifier <<Value>>

A technical identifier is defined within a technical system, information structure or system of systems for references and identity within that system or information element. Such identifiers may have no meaning outside of that system.

Typical technical identifiers include inter document "refs", record numbers, etc. The system should be referenced as the namespace.

Direct Supertypes

[Unique Text Identifier](#_ce697d4cc4319031095afacb28e90c2e)

## Class Term <<Value>>

A word, phrase or name used by stakeholders to uniquely identify entities.

[ISO 1087] term: verbal designation of a general concept in a specific subject field.

Direct Supertypes

[Name](#_4fe2a0b97ea7a3db28c2db6f67c0a550), [Unique Text Identifier](#_ce697d4cc4319031095afacb28e90c2e)

## Class Text Identifier <<Value>>

A code or other simple value that can be represented as text, identifying something that may or may not be unique. Simple identifiers may be codes, names, numbers or compound values.

[NIEM] IdentificationType (IdentificationID=value)

Direct Supertypes

[Identifier](#_c6973cd172c2c262c6aa8ad52189a254)

Attributes

value : [String Value](#_7c9dabdd623b5e214dfd7dbbb23cc367) [0..\*]



Text value of an identifier

## Class Thing <<Anything>>

Any thing or value that does or may exist in any possible world. Thing is the supertype of all types and may therefore participate in unbounded relations.

Instances of Thing are referred to as "a thing" in this model.

[IDEAS] Thing

[OWL] Thing

[ISO 1087] object: anything perceivable or conceivable

[FIBO] Thing

[Guizzardi] Thing

[FUML] Element

[SOWA1999] "T"

[OWL] rdfs:Resource



1. Thing Detail

## Class Type

A <Type> is a categorization of any thing based on specific criteria. The specific criteria may or may not be formalized in a model.

A <Type> <categorizes> a set of <Thing>s which comprises the "extent" of the type.

A <Type> is a <Context> where the things it <categorizes> are <in the context> of the <Type>.

Types may participate in a taxonomy based on generalizations.

[ISO 1087] general concept: concept (3.2.1) which corresponds to two or more objects (3.1.1) which form a group by reason of common properties

[FIBO] Classifier: a standardized classification or delineation for something, per some scheme for such delineation, within a specified context

[FUML] Type

[CL] Type:: logical framework in which expressions in the logic are classified into syntactic or lexical categories (types) and restricted to apply only to arguments of a fixed type

[Guarino1994] Universal

[OWL] Union(rdfs:Class, rdfs:Datatype)

Similar to:

[IDEAS] Type: A set (or class) of Things.

Direct Supertypes

[Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)

## Class Unique Identifier <<Value>>

A unique identifier is an entity used to uniquely identify something. The identified thing is referenced by what the identifier <identifies>.

Identifiers are defined and <unique within> a lexical scope as its namespace.

Multiple identifiers may use the same word or text value (or other forms of values) in differing <unique within> namespaces such that the same word may have different meanings in different context.

An entity may have any number of identifiers.

Direct Supertypes

[Identifier](#_c6973cd172c2c262c6aa8ad52189a254)

## Class Unique Text Identifier <<Value>>

An <Identifier> that is represented using text. e.g. a "word", "phrase" or "name".

Direct Supertypes

[Text Identifier](#_c022e1fa04a641d7856a5f4fbac2d96d), [Unique Identifier](#_5763a56249b3eddeb79ba22f74c885e1)

# OnticHealthGeneric::Knowledge

Observations are acts where an observer notes some entity (including situations and individuals') that are observed in a situation.

## Diagram: Belief



1. Belief

## Diagram: Knowledge Acqusition



1. Knowledge Acqusition

## Class Belief

a belief is a kind of epistemic situation where an participant <attests to> the truth of a situation <held by> the participant <based on> other situations as evidence.

Direct Supertypes

[Epistemic Situation](#_7bb78623f2206d68297626d4bf4a41e1), [State](#_2f02569bb8334e33923ced03f32e144d)

Attributes

confidence : [Metric](#_0b552384ad202c0c014daf924625d64d)



## Class Conclusion

Direct Supertypes

[Inferred Belief](#_d6a58eccfb49026ff2c2466c45bf1c5f)

## Class Evidence <<Role>>

Evidence is a kind of resource for situation(s) justifying qualitative positions.

Direct Supertypes

[Resource](#_c3c68931301e3219612679ba09cbed93), [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

## Class Exclusion

Direct Supertypes

[Inferred Belief](#_d6a58eccfb49026ff2c2466c45bf1c5f)

## Class Inference Activity

An activity that results in an assessment - An evaluation, appraisal, or assessment of something or someone. An assessment frequently as an artifact, a report of the assessment.

[NIEM] AssessmentType: The act of evaluating or estimating the nature, ability, or quality of something.

Direct Supertypes

[Knowledge Acqusition](#_ea4fbdb5da64209c9a7b06962b4c0e3f)

Associations

<<Restriction>> : [Inferred Belief](#_d6a58eccfb49026ff2c2466c45bf1c5f) [0..\*] *Redefines*: results in:[Belief](#_927d9d7cfeddf09947d0f7003026e26b)



## Class Inference Rule

Direct Supertypes

[Process Type](#_5487051b001a4ba42a2bbbc1c5887b66)

## Class Inferred Belief

Direct Supertypes

[Belief](#_927d9d7cfeddf09947d0f7003026e26b)

Associations

<<Restriction>> : [Inference Activity](#_55356b3318b88af88dfb0b47174bffcd) [1..\*] *Redefines*: results from:[Knowledge Acqusition](#_ea4fbdb5da64209c9a7b06962b4c0e3f)



## Class Inferred Value

Direct Supertypes

[Inferred Belief](#_d6a58eccfb49026ff2c2466c45bf1c5f)

Associations

: [Quality State](#_691f47488c9ad7e3f73bc1e8d91283ab) [1..\*] *Redefines*: is about:[Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



## Class Knowledge Acqusition

Direct Supertypes

[Activity](#_7b140b32efd980b218435cbb95798380)

## Class Measurement Activity

Direct Supertypes

[Observation Activity](#_dee615f9e44d1e2052d3573f6f1fc7b8)

## Class Measurement Result

Direct Supertypes

[Observation](#_a2394df8dbbef87c2d2ae129654c946e)

## Class Observation

Direct Supertypes

[Belief](#_927d9d7cfeddf09947d0f7003026e26b)

## Class Observation Activity

Direct Supertypes

[Knowledge Acqusition](#_ea4fbdb5da64209c9a7b06962b4c0e3f)

## Class Observation Tool <<Role>>

A tools that assists in observations. e.g. a wireless microphone is used to observe a conversation.

Direct Supertypes

[Tool](#_8f56d99a6c9c351391b8cca136ff3469)

## Class Proposal

Direct Supertypes

[Belief](#_927d9d7cfeddf09947d0f7003026e26b)

## Class Recomendation

Direct Supertypes

[Plan Fragment](#_b0602ed12651e04511d9d4df7ca60e5f), [Proposal](#_4294da82c368ddb788cdfe4b20e79b9e)

Attributes

force : [Value](#_e31475aed8f6ab7db3b8aae1e826c3b3)



## Class Value Inference

Direct Supertypes

[Inference Activity](#_55356b3318b88af88dfb0b47174bffcd)

# OnticHealthGeneric::Occurrences

## Diagram: Occurrences



1. Occurrences

## Class Activity

A process performed by one or more actors intended to meet a need.

[UML] Activity

Direct Supertypes

[Process](#_a54dfc29252b25448d3d93db3ceb51e4), [Resource](#_c3c68931301e3219612679ba09cbed93)

## Class Actual Activity

A specific, actual, activity that has or may happen.

Direct Supertypes

[Activity](#_7b140b32efd980b218435cbb95798380), [Actual Occurrence](#_bfe70cf512d841158e5b51f6e76b4320)

## Class Actual Occurrence

A specific individual occurrence that has happened, is happening or may happen.

[FIBO] Occurrence: An Occurrence is a happening of an OccurrenceKind. Each Occur-rence has a DateTimeStamp, which identifies when the Occurrence happened, and a Location (possibly virtual), that identifies where the Occurrence happened.

Direct Supertypes

[Actual Situation](#_9cd852c0e87e03590c79a63151bf9a8e), [Occurrence](#_799617cb54756b9414625779f3b740cc)

## Class Atomic Occurrence

An occurrence with zero duration on a relevant time scale representing an atomic unit of change, sometimes called an event.

Direct Supertypes

[Occurrence](#_799617cb54756b9414625779f3b740cc)

## Class Composite Process <<Role>>

Direct Supertypes

[Process Type](#_5487051b001a4ba42a2bbbc1c5887b66)

## Association Class Invoke Process

The activity of initiating the performance of a process.

The process instance will be classified by the process.



1. Invoke Process

Direct Supertypes

[Causation](#_91fd59a9709549d66bc92719ab5539ba)

Association Ends

creates process instance : [Actual Occurrence](#_bfe70cf512d841158e5b51f6e76b4320) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



An actual Event created as the instantiation of a process definition.

enactement of : [Process Type](#_5487051b001a4ba42a2bbbc1c5887b66) [0..1] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Process enacted by an Invoke Process

## Class Occurrence

An Occurrence is a situation that "happens" (a.k.a. occurs). A dynamic situation (past, present or future) composed of a set of things changing over a period of time. e.g., a rock falling.

Occurrences are not limited in their timeframe. Occurrences can have long or short timeframes, from an instant to infinity and beyond.

[DOLCE] Perdurant

[BFO]Occurrent

[NIEM] ActivityType

Direct Supertypes

[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

## Class Order

An order is a request with made with the authority of the author.

Direct Supertypes

[Request](#_999f1e003227e778ae3632a6639f1648)

## Association Class Output

Outputs from a process or actual event - the things or situations it creates.



1. Output

Direct Supertypes

[Effect](#_d73e4ebdfd2444629d07f65820eda0ab)

Association Ends

produces : [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Resources produced by a process or actual event

produced by : [Occurrence](#_799617cb54756b9414625779f3b740cc) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Occurrences which produce an entity.

## Association Class Performance

Performance is the act of an actor as the driving force in the execution of an activity. Related to "Capability" as the ability to perform.

[DOLCE] Subtype of Participation



1. Performance

Direct Supertypes

[Impact](#_9db7850b79021b7eb6ddf87616ee9f9e), [Involvement](#_ed84d85241d79c53a808bd9a870c64b3), [Occurrence](#_799617cb54756b9414625779f3b740cc)

Association Ends

performs : [Activity](#_7b140b32efd980b218435cbb95798380) [1..\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



An activity performed (executed or enacted) by an actor.

performed by : [Performer](#_24aef6888e290cab8d524ab650f56967) [1..\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



The actor which is the performer of an activity.

## Class Performer <<Role>>

A performer is role of an actor that is a resource to an entity as the performer of activities.

Direct Supertypes

[Participant](#_b4401436185956a165d3b9d8de6c6b8f), [Resource](#_c3c68931301e3219612679ba09cbed93)

## Class Process

An process is an occurrence with a non-zero duration frequently having sub-processes (parts).

[BFO] Event: perdurant that is related to exactly two states (its pre-state and its post-state).

An event is related to the states before and after it has happened.

Direct Supertypes

[Occurrence](#_799617cb54756b9414625779f3b740cc)

## Association Class Process Decomposition

Relationship describing the decomposition of a process.



1. Process Decomposition

Direct Supertypes

[Temporal Part](#_657cc28fa3eedfb0ddc4b0210b16666b), [Usage](#_121e86a9010afc735b86c3293f79c522)

Association Ends

has subprocess : [Process Type](#_5487051b001a4ba42a2bbbc1c5887b66) [0..\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Process occurring within the scope of and in support a composite process.

used by process : [Composite Process](#_9b6b4d69c345df1174f4ade23eb8e0ce) [0..\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Composite processes which utilize the subject property as a component part.

## Class Process Type

A process type is a definition for a family of Processes that results in an outcome. A process may be natural or caused by the activities of actors, in which case it is an activity type.

A process may contain other entities, sub-processes and situations to define characteristics and sub-processes of the process. The sub-processes may or may not be known, sub-processes are defined using "Temporal Part".

[ISO 14971:2007] set of interrelated or interacting activities which transforms inputs into outputs

Direct Supertypes

[Composite Situation Type](#_6dbc8ef021a7ce62ea598f4c125ccc90), [Occurrence](#_799617cb54756b9414625779f3b740cc)

## Class Request

A request is an activity requesting the initiation of an activity

Direct Supertypes

[Activity](#_7b140b32efd980b218435cbb95798380), [Directive Statement](#_38584d141bc77ebce58a2020075296e2)

## Association Class Usage

Inputs to a process or actual event - what it uses



1. Usage

Direct Supertypes

[Effect](#_d73e4ebdfd2444629d07f65820eda0ab)

Association Ends

uses : [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8) [0..\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



A resources used by a process or actual event.

used by : [Occurrence](#_799617cb54756b9414625779f3b740cc) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



A process or actual occurrence that is used by a resource for the resource to fulfill its function.

## Association Class When

A "When" rule defines an atomic process where by a <trigger> conditionally causes the <initiates> process to be invoked when the <trigger> process is matched under conditions(s) of the context - a proactive cause and effect. This results in an invocation of the <initiates> process.

E.g. when <trigger> do <initiates>

Also known as a "Course of action" or "ECA Rule" .

[PRR] ProductionRule: A ProductionRule is a statement of programming logic that specifies the execution of one or more actions in the case that its conditions are satisfied.



1. Course of Action Rule

Direct Supertypes

[Causation](#_91fd59a9709549d66bc92719ab5539ba), [Process Type](#_5487051b001a4ba42a2bbbc1c5887b66)

Association Ends

initiates : [Process Type](#_5487051b001a4ba42a2bbbc1c5887b66) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Processes that will occur if the <trigger> process occurs. Consequent.

triggered by : [Process Type](#_5487051b001a4ba42a2bbbc1c5887b66) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Processes that may cause the <initiates> process to occur. Antecedent.

# OnticHealthGeneric::Physical Entities

This package defines a hierarchy of physical entities and items. Items are inanimate material object as distinct from a living sentient being.

## Diagram: Location



1. Location

## Diagram: Location Identification



1. Location Identification

## Diagram: Physical Entities



1. Physical Entities

## Diagram: Place



1. Place

## Association Address of Location

identification of a location by an address. Note that there are postal addresses that do not identify a location, so this relation is optional. However, most postal addresses do identify a location thus this relation is possible.

Association Ends

has address : [Postal Address](#_ae1f683c7e1dfa3098ccf63791b1618d) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



A postal address of a physical location.

address of : [Physical Location](#_3a4c8f1cd249c1f74365f6f8909d1112) [0..1] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Location identified by an address.

## Class Animal

Any member of the kingdom Animalia, comprising multicellular organisms that have a well-defined shape and usually limited growth, can move voluntarily, actively acquire food and digest it internally, and have sensory and nervous systems that allow them to respond rapidly to stimuli. A super type of "Person".



1. Animal Detail

Direct Supertypes

[Actor](#_366e70bab7ea3da37cb039e7a6b88ae2), [Physical Entity](#_e8de7be0b7deb58decd0be7d10c50eb1)

Attributes

birth date : [Time Point](#_fb11adf0086d81f73057dcfbd6b13592)



The date an animal (including a person) was born, became an independent entity.

[FIBO] hasDateOfBirth

death date : [Time Point](#_fb11adf0086d81f73057dcfbd6b13592)



The date an animal (including a person) died, ceased to be living.

physical sex : [Sex Kind](#_6203d00e99789b32f23018a276845a99)



Sex of a living thing as indicated by essential physical characteristics, primarily genitalia.

[FIBO] hasGender

standing height : [Length](#_f656aa6b144fc8f9a9295af8a4eef943)



The measurement from base to top or (of a standing person) from head to foot. "Current" is relative to the time frame of the defining context.

## Class Conveyance

A device or system providing a means of physical transport from place to place.

[NIEM] ConveyanceType

Direct Supertypes

[Device](#_bd3f1f930567d4dc858cceb3def58530)

## Association Coordinate of location

Relationship between a physical location and the coordinate that defines its position.

Association Ends

has coordinate : [Spacial Coordinate](#_6b9f1b68c15594831aba8b2f8d95c827) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



A coordinate that identifies a location.

Coordinate of location : [Physical Location](#_3a4c8f1cd249c1f74365f6f8909d1112) *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Coordinate of location based on coordinate system.

## Association Designation of a Location

Relationship defining the location identified by a location identifier.

Association Ends

designates location : [Physical Location](#_3a4c8f1cd249c1f74365f6f8909d1112) [1] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



The physical location identified or described by a location identifier..

has location designation : [Location Identifier](#_dbac944540463b1d9100728cc11890d7) [0..\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



A description or identifier that designates a particular location.

## Class Device

A thing made for a particular purpose; an invention or contrivance, especially a mechanical or electrical one.

[NIEM] DeviceType

Direct Supertypes

[Item](#_c722e11b88767287b11306533ed52bf9), [Resource](#_c3c68931301e3219612679ba09cbed93)

## Class Facility <<Role>>

[NIEM] FacilityType: A building, place, or structure that provides a particular service.

Direct Supertypes

[Place](#_83859c5b8377ecf34cc4eb6b66a2b268)

## Class Item

An inanimate material object as distinct from a living sentient being.

[NIEM] ItemType

[DOLCE] Non-agentive Physical Object

Direct Supertypes

[Physical Entity](#_e8de7be0b7deb58decd0be7d10c50eb1)

Attributes

height : [Length](#_f656aa6b144fc8f9a9295af8a4eef943)



[NIEM]ItemHeightMeasure: A measurement of the height of an item.

A measurement in the vertical plane. For a person, from head to toe.

length : [Length](#_f656aa6b144fc8f9a9295af8a4eef943)



[NIEM] ItemLengthMeasure: A measurement of the length of an item.

A longitudinal measurement - from end to end. Usually greater than width.

width : [Length](#_f656aa6b144fc8f9a9295af8a4eef943)



[NIEM] ItemWidthMeasure: A measurement of the width of an item.

A horizontal measurement - from side to side.

## Class Location ID <<Value>>

A code, ID or name for a physical location.

Direct Supertypes

[Location Identifier](#_dbac944540463b1d9100728cc11890d7), [Text Identifier](#_c022e1fa04a641d7856a5f4fbac2d96d)

## Class Location Identifier <<Value>>

Any identifier able to uniquely identify a physical location

Syn. spatial reference - description of position in the real world [OGC]

Direct Supertypes

[Unique Identifier](#_5763a56249b3eddeb79ba22f74c885e1)

## Class Managed Item Identifier <<Value>>

[NIEM] An identification inscribed on or attached to a part, collection of parts, or complete unit by the manufacturer. Syn. ItemSerialIdentification.

[FIBO] ProductIdentifier: an identifier for a product

Direct Supertypes

[Unique Identifier](#_5763a56249b3eddeb79ba22f74c885e1)

## Association Class Operating Location

Place where an actor performs activities.



1. Operating Location

Association Ends

performs at : [Place](#_83859c5b8377ecf34cc4eb6b66a2b268) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Places where an actor perform activities.

utilized by : [Actor](#_366e70bab7ea3da37cb039e7a6b88ae2) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Actors who utilizes a place to perform activities.

## Association Class Physical Boundary

Boundary describing the topology of a location.



1. Physical Boundary

Direct Supertypes

[Temporally Related](#_9ed633619738f3e7193fcfe187317d60)

Association Ends

bounded by : [Physical Location](#_3a4c8f1cd249c1f74365f6f8909d1112) [0..\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



The edge points of a topology where each successive pair of features (as well as the first and last points), connected by lines, describes a boundary.

bounds topology : [Topology](#_e678d76e702d75e39c34610c2a2be25c) [0..\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



A location identified by geographic boundaries.

## Class Physical Entity

A thing that exists in space and time including people, places, and things.

[DOLCE] Object

[IDEAS] Individual: A Thing that has spatio-temporal extent.

Note1 - this may be some that existed in the past, exists now, or may exist in some future possible world.

Note2 - the Individual may be scattered - i.e. it is the fusion of several disconnect parts.

Direct Supertypes

[Spatial Entity](#_94e1444de71636a35dcca4f190d0fa64)

Attributes

weight : [Mass](#_eb212f1c3bf88424f9e10c9cbf0feb1d)



The current weight (as mass) of a physical thing.

## Class Physical Feature

Physical features are spacial entities which are generically constantly dependent on physical objects (their hosts). Typical examples of features are “parasitic entities” such as holes, boundaries, surfaces, or stains. Physical features do not have mass independent of their host.

[DOLCE] Feature

Direct Supertypes

[Spatial Entity](#_94e1444de71636a35dcca4f190d0fa64)

## Class Physical Location

A point or extent in physical space.

[NIEM] A geospatial location.

[FIBO] PhysicalLocation: A location in physical space

Direct Supertypes

[Physical Feature](#_bd9334fdb9fab1b3b018249ba8229e41)

## Class Physical Point

A dimensionless physical point in space or on the surface of the earth such as a corner or center point.

Direct Supertypes

[Physical Location](#_3a4c8f1cd249c1f74365f6f8909d1112)

## Class Physical Tool <<Role>>

An physical item intended to be used to perform some function.

Direct Supertypes

[Item](#_c722e11b88767287b11306533ed52bf9), [Tool](#_8f56d99a6c9c351391b8cca136ff3469)

## Class Place <<Role>>

A building or locality used or intended for a specific purpose such as a house or factory.

[FIBO] Facility: something that is built, contrived, established, or installed to serve a particular purpose, or make some course of action or operation easi-er, or provide some capability or service

Direct Supertypes

[Contactable](#_361c8ec052bb3ceeaeeba100681ef85a), [Physical Location](#_3a4c8f1cd249c1f74365f6f8909d1112), [Resource](#_c3c68931301e3219612679ba09cbed93)

## Association Class Place of Occurrance

Relationship describing where something happens.



1. Place of Occurrance

Direct Supertypes

[Impact](#_9db7850b79021b7eb6ddf87616ee9f9e)

Association Ends

situated at : [Place](#_83859c5b8377ecf34cc4eb6b66a2b268) [0..\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Place where a situation or event is located or happens.

location of : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [0..\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Situations (Events, incidents, static arrangements, etc.) that happen at the subject place.

## Class Point On Earth <<Value>>

A point that defines a location on earth where the point is within the bounds of <designates location>.

Direct Supertypes

[Spacial Coordinate](#_6b9f1b68c15594831aba8b2f8d95c827)

## Association Reference Point

Reference point for a relative location

Association Ends

relative to : [Physical Location](#_3a4c8f1cd249c1f74365f6f8909d1112) [1] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Where the position of something is relative to a location, the reference location.

has relative location : [Relative Coordinate](#_a26aae2f91682a50786aed191532707d) [\*] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



## Class Relative Coordinate <<Value>>

A coordinate described relative to another. e.g., 5 miles west of the empire state building or 5 CM below the cervix.

Direct Supertypes

[Spacial Coordinate](#_6b9f1b68c15594831aba8b2f8d95c827)

Attributes

distance : [Length](#_f656aa6b144fc8f9a9295af8a4eef943)



Distance as part of a relative coordinate that, when combined with angle, identifies a point <relative to> another point.

direction : [Angle](#_31202bbc0993b03b18c141dc69cdf1ee)



An angle as part of a coordinate.

altitude : [Length](#_f656aa6b144fc8f9a9295af8a4eef943)



Measure of how much something is above <relative to> something else, usually the earth.

## Class Residence <<Role>>

A place where people live/reside.

Direct Supertypes

[Place](#_83859c5b8377ecf34cc4eb6b66a2b268)

## Class Spacial Coordinate <<Value>>

Any point that uniquely identifies a spacial location relative to a coordinate system.

One of a sequence of n numbers designating the position of a point in n-dimensional space [OGC]

Direct Supertypes

[Location Identifier](#_dbac944540463b1d9100728cc11890d7)

## Class Spatial Entity

A thing that exists in space: The union of locations and physical entities.

[DOLCE] Physical Endurant



1. Spacial Entity Detail

Direct Supertypes

[Actual Entity](#_bab16f734f2dacc51c5f66e15031a455), [Discreet Thing](#_6ef1dbf4983daf69e5425cbaf8e11659), [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b)

## Class Telecommunication Device

A device for human to human communication over a distance by cable, telegraph, telephone, computer networks, or broadcasting.

[NIEM] TelecommunicationsDeviceType

Direct Supertypes

[Communicating Device](#_d89f5fd3110ebe8a1e5bc08fc81e18d4)

Attributes

device address : [Electronic Contact](#_6864803bb2dd8ade1b44b94e09015e8c)



An code or number used to communicate with or through a telecommunications device.

## Association Topological Region

Physical location described by a topology.

Association Ends

topology of : [Physical Location](#_3a4c8f1cd249c1f74365f6f8909d1112) [1] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Location described by a topology.

has toloplogy : [Topology](#_e678d76e702d75e39c34610c2a2be25c) [0..1] *Redefines*: is about: [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



Topology that describes a physical location in terms of physical boundaries.

## Class Topology

A record of a contiguous 1, 2 or 3 dimensioned area defined by geographic features and points.

[NIEM] AreaType

## Class World Geodetic System <<Value>>

The World Geodetic System defines a reference frame for the earth, for use in geodesy and navigation. The latest revision is WGS 84 dating from 1984. [WGS-84]

[NIEM] Location2DGeospatialCoordinateType or Location3DGeospatialCoordinateType (With elevation)

Direct Supertypes

[Point On Earth](#_9e6105be4735b05626386e1106983ddb)

Attributes

latitude : [Angle](#_31202bbc0993b03b18c141dc69cdf1ee)



Latitude based on the prime meridian.

[FIBO] hasLatitude

longitude : [Angle](#_31202bbc0993b03b18c141dc69cdf1ee)



Longitude based on the prime meridian.

[FIBO] hasLogitude

elevation : [Length](#_f656aa6b144fc8f9a9295af8a4eef943)



Height above nominal sea level.

### Enumeration Sex Kind

Kinds of sex. Eg. male/female.

package OnticHealthGeneric::Physical Entities

public enum Sex Kind

{Male, Female}

Literals

Male



A male person, plant, or animal. One able to fertilize a female with gametes.

Female



A female person, plant, or animal. Of or denoting the sex that can bear offspring or produce eggs, distinguished biologically by the production of gametes (ova) that can be fertilized by male gametes:



1. Physical Entities

Known other enumerations

[Enumeration Sex Kind](#_6203d00e99789b32f23018a276845a99)

Known other enumerations

[Enumeration Sex Kind](#_6203d00e99789b32f23018a276845a99)

Known other enumerations

[Enumeration Sex Kind](#_6203d00e99789b32f23018a276845a99)

# OnticHealthGeneric::Plans

## Diagram: Plans



1. Plans

## Class Authorizer <<Role>>

## Class Course Of Action

A Course of Action is a future activity for configuring some aspect activities involving things, processes, locations, people, timing, or motivation undertaken to achieve Desired Results.

Direct Supertypes

[Activity](#_7b140b32efd980b218435cbb95798380), [Ontic Situation](#_3b6dc697de97ce073daecd87bcd5dcaa)

Attributes

commitment of performer : [Value](#_e31475aed8f6ab7db3b8aae1e826c3b3) [0..1]



## Class Goal

An aim that a stakeholder intends to attain or accomplish;

[BMM] End: something that is to be accomplished.

Objective

Direct Supertypes

[Ontic Situation](#_3b6dc697de97ce073daecd87bcd5dcaa)

## Class Objective

an objective is a desired (future state) fact identified as a consequence of plans

Direct Supertypes

[Epistemic Situation](#_7bb78623f2206d68297626d4bf4a41e1)

## Class Plan

Direct Supertypes

[Plan Fragment](#_b0602ed12651e04511d9d4df7ca60e5f)

## Class Plan Fragment

A plan is a design for a process that supports a stakeholders objectives, realized as goals. As a process definition a plan is a pattern for a series of activities as well as the resources required to meet objectives.

[BMM] Course of Action: A Course of Action is an approach or plan for configuring some aspect of the enterprise involving things, processes, locations, people, timing, or motivation undertaken to achieve Desired Results. In other words, a Course of Action channels efforts towards Desired Results. To help ensure success in this regard, Courses of Action are governed by Directives.

Direct Supertypes

[Directive Statement](#_38584d141bc77ebce58a2020075296e2)

# OnticHealthGeneric::Quantities and Units

This package defines quantities and units. Quantities are the basis for units and measurements.

Qualities of things are represented with respect to what that thing means, not how it is represented. This introduces multiple "quantity kinds" which derive from Value and Quantity. Quantiles are stereotyped as "Quantity Kind".

The representation of a value or quantity will typically use the "primitive types" that are found in I.T. systems such as "Integer", "Real" and "String".

.

## Diagram: Quantities and units



1. Quantities and units

## Class Confidence Metric <<Quantity Kind>>

Any metric of confidence that something is true or valid.

Direct Supertypes

[Metric](#_0b552384ad202c0c014daf924625d64d)

## Class Count <<Quantity Kind>>

The number of something used as a property or metric, e.g., 5 fish.

Direct Supertypes

[Unit Value](#_e79a8c8e0284d51d332531e5a63c1e6c)

## Class Currency Benefit Metric <<Quantity Kind>>

A metric for benefit or harm expressed in terms of a currency, such as dollars or yen.

Direct Supertypes

[Harm-Benefit Metric](#_1f5ffa0a988e30ef567355b39f0a0d49)

## Class Harm-Benefit Metric <<Quantity Kind>>

A metric to quantify benefit or harm.

Direct Supertypes

[Metric](#_0b552384ad202c0c014daf924625d64d)

## Class Metric <<Quantity Kind>>

A standard for measuring or evaluating something in a quantifiable way.

Typical representations of a metric may be a fraction from zero to 1 or a rating such as "high, medium, low". Not to be confused with the "Metric System".



1. Metric

Direct Supertypes

[Unit Value](#_e79a8c8e0284d51d332531e5a63c1e6c)

## Class Probability Metric <<Quantity Kind>>

A metric that represents the possibility that something uncertain will happen.

Direct Supertypes

[Metric](#_0b552384ad202c0c014daf924625d64d)

## Class Time Coordinate <<Quantity Kind>>

An identifier for a particular point in time, recognizing that any such point is an interval at a finer level of granularity.

Specific time coordinate systems, such as ISO or Internet time, specialize Time Coordinate and relate it to a time scale.

[DTV] time point: concept that specializes the concept 'time interval' and that is a member of a time scale

[ISO11404] time: time is a family of datatypes whose values are points in time to various common resolutions: year, month, day, hour, minute, second, and fractions thereof.

Direct Supertypes

[Time Point](#_fb11adf0086d81f73057dcfbd6b13592), [Unit Value](#_e79a8c8e0284d51d332531e5a63c1e6c)

Associations

has time scale : [Time Scale](#_53b256c5c68c8917b4207b98b64d88ca) [1]



### <<Value>>Enumeration PentaScale <<Value>>

An scale of 5 values the interpretation of which is context specific.

Direct Known Superclasses

[Scale](#_241181fba55c01238d9a99f5d0304883)

package OnticHealthGeneric::Quantities and Units

public enum PentaScale

{Very Low, Low, Moderate, High, Very High}

Literals

Very Low



Low



Moderate



High



Very High



1. Quantities and units

### <<Value>>Enumeration TriScale <<Value>>

A scale of 3 arbitrary levels.

Direct Known Superclasses

[Scale](#_241181fba55c01238d9a99f5d0304883)

package OnticHealthGeneric::Quantities and Units

public enum TriScale

{Low, Medium, High}

Literals

Low



Medium



High



1. Quantities and units

# OnticHealthGeneric::Quantity Kinds

Quantity kinds are abstractions for the way we measure or quantify things, such as mass or length. Units provide specific ways to specify a quantity kind.

## Diagram: Quantity Kinds



1. Quantity Kinds

## Class Absorbed Dose (Radiation) <<Quantity Kind>>

The energy of ionizing radiation absorbed per unit mass by a body, often measured in rads.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Acceleration <<Quantity Kind>>

The rate of change of velocity per unit of time.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Amount of Substance <<Quantity Kind>>

The abstract unit of the amount of a substance which is the supertype of all amount units and also acts as its "quantity kind".

Amount of substance is a standards-defined quantity that measures the size of an ensemble of elementary entities, such as atoms, molecules, electrons, and other particles. It is sometimes referred to as chemical amount. The International System of Units (SI) defines the amount of substance to be proportional to the number of elementary entities present. The SI unit for amount of substance is the mole. It has the unit symbol mol.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Angle <<Quantity Kind>>

The space (usually measured in radians or degrees) between two intersecting lines or surfaces at or close to the point where they meet.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Area <<Quantity Kind>>

[QUDT] Area is a quantity expressing the two-dimensional size of a defined part of a surface, typically a region bounded by a closed curve.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Color <<Quantity Kind>>

Color is the visual perceptual property corresponding in humans to the categories called red, blue, yellow, and others. Color derives from the spectrum of light (distribution of light power versus wavelength) interacting in the eye with the spectral sensitivities of the light receptors. Color categories and physical specifications of color are also associated with objects or materials based on their physical properties such as light absorption, reflection, or emission spectra. By defining a color space, colors can be identified numerically by their coordinates.

Direct Supertypes

[Unit Value](#_e79a8c8e0284d51d332531e5a63c1e6c)

## Class Concentration <<Quantity Kind>>

The abstract concept of the amount, mass or volume of one substance in another without being specific as to how it is measured.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Concentration (amount of substance) <<Quantity Kind>>

Concentration based on amount-of-substance.

Direct Supertypes

[Concentration](#_8a52e0e6c7ddc8e3f8ec1278411a485d)

## Class Concentration (Mass) <<Quantity Kind>>

Concentration based on mass per unit of volume.

Direct Supertypes

[Concentration](#_8a52e0e6c7ddc8e3f8ec1278411a485d)

## Class Concentration (Volume) <<Quantity Kind>>

Volume concentration is defined as the volume of a constituent divided by the volume of the mixture.

Direct Supertypes

[Concentration](#_8a52e0e6c7ddc8e3f8ec1278411a485d)

## Class Currency <<Quantity Kind>>

Any form of money.

[FIBO] Currency: medium of exchange value, defined by reference to the geographical location of the authorities responsible for it

Direct Supertypes

[Unit Value](#_e79a8c8e0284d51d332531e5a63c1e6c)

## Class Dose Equivalent (Radiation) <<Quantity Kind>>

A measure of the biological damage to living tissue as a result of radiation exposure. Also known as the "biological dose," the dose equivalent is calculated as the product of absorbed dose in tissue multiplied by a quality factor and then sometimes multiplied by other necessary modifying factors at the location of interest. The dose equivalent is expressed numerically in rems or sieverts (Sv) (see 10 CFR 20.1003). For additional information, see Doses in Our Daily Lives and Measuring Radiation. [NRC]

For practical purposes, 1 R (exposure) = 1 rad (absorbed dose) = 1 rem or 1000 mrem (dose equivalent).

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Duration <<Quantity Kind>>

The abstract quantity kind of time which is the supertype of all time duration units.

Time is a measure that allows events to be ordered from the past through the present into the future, and also the measure of durations of events and the intervals between them. Durations are quantities of time, not points or intervals of time.

[DTV] base quantity of the International System of Quantities, used for measuring time intervals.

[IDEAS] Time: A MeasureInstance whose members are individuals' that have a particular temporal dimension of the same length.

[FIBO] Duration: An amount of time.

[UML] Duration

[OWL] xsd:duration

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb)

## Class Electric Current <<Quantity Kind>>

The abstract quantity kind of electric current which is the supertype of all current units.

[QUDT]Electric Current is the flow (movement) of electric charge. The amount of electric current through some surface, e.g., a section through a copper conductor, is defined as the amount of electric charge flowing through that surface over time. Current is a scalar-valued quantity.

The SI unit for measuring an electric current is the ampere, which is the flow of electric charge across a surface at the rate of one coulomb per second.

[IDEAS] ElectricCurrent: A MeasureInstance whose members are individuals' that all have the same electric current flowing through them

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Electric Potential <<Quantity Kind>>

[QUDT] Electric Potential is a scalar valued quantity associated with an electric field.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Energy <<Quantity Kind>>

The measure of energy- the ability to perform work (such as moving a mass).

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Force <<Quantity Kind>>

(Physical) force is an influence that causes mass to accelerate. It may be experienced as a lift, a push, or a pull.

Force is defined by Newton's Second Law as F = m · a, where F is force, m is mass and a is acceleration. Net force is mathematically equal to the time rate of change of the momentum of the body on which it acts. Since momentum is a vector quantity (has both a magnitude and direction).

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Frequency <<Quantity Kind>>

Repetitions per unit of time. e.g., Hertz.

[IDEAS] Frequency: A MeasureInstance whose instances are individuals' that all oscillate at the same frequency

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Length <<Quantity Kind>>

The abstract unit of distance (or length) which is the supertype of all length units and also acts as its "quantity kind".

In the International System of Quantities, length is any quantity with dimension distance. In other contexts "length" is the measured dimension of an object.

[IDEAS] Length: A MeasureInstance whose instances are individuals' that all have the same length

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Luminosity <<Quantity Kind>>

Luminosity ( or luminous intensity ) is a measure of the wavelength-weighted power emitted by a light source in a particular direction per unit solid angle, based on the luminosity function, a standardized model of the sensitivity of the human eye. The SI unit of luminous intensity is the candela (cd), an SI base unit.

[IDEAS] LuminousIntensity: A MeasureInstance whose members are individuals' that all have the same luminous intensity

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Mass <<Quantity Kind>>

The abstract unit of Mass which is the supertype of all mass units and also acts as its "quantity kind".

The mass of a body is a measure of its inertial property or how much matter it contains. The weight of a body is a measure of the force exerted on it by gravity or the force needed to support it. Gravity on earth gives a body a downward acceleration of about 9.8 m/s2.The SI unit of mass is the kilogram (kg).

[IDEAS] Mass: A MeasureInstance whose members are individuals' that all have the same mass.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Mass Density <<Quantity Kind>>

The density, or more precisely, the volumetric mass density, of a substance is its mass per unit volume. The symbol most often used for density is ρ (the lower case Greek letter rho). Mathematically, density is defined as mass divided by volume.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Physical Quantity <<Quantity Kind>>

A measurable property of a physical object.

Direct Supertypes

[Unit Value](#_e79a8c8e0284d51d332531e5a63c1e6c)

## Class Power <<Quantity Kind>>

(Physical) power is the rate at which work is performed or energy is transmitted, or the amount of energy required or expended for a given unit of time. As a rate of change of work done or the energy of a subsystem, power is: P = W/t where P is power W is work t is time.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb)

## Class Pressure <<Quantity Kind>>

A quantity kind representing the continuous physical force exerted on or against an object by something in contact with it.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Radiation Exposure <<Quantity Kind>>

A measure of exposure to radiation.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Radioactivity <<Quantity Kind>>

Radioactivity is a quantity kind that refers to the amount of ionizing radiation released by a material. Whether it emits alpha or beta particles, gamma rays, x-rays, or neutrons, a quantity of radioactive material is expressed in terms of its radioactivity (or simply its activity), which represents how many atoms in the material decay in a given time period. The units of measure for radioactivity are the curie (Ci) and Becquerel (Bq).

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Speed <<Quantity Kind>>

A Quantity kind representing distance per unit of time.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Temperature <<Quantity Kind>>

The abstract quantity kind of Thermodynamic temperature which is the supertype of all temperature units and also acts as its "quantity kind".

Thermodynamic temperature is the absolute measure of temperature and it is one of the principal parameters of thermodynamics.

Thermodynamic temperature is defined by the third law of thermodynamics in which the theoretically lowest temperature is the null or zero point.

[IDEAS] ThermodynamicTemperature:

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Volume <<Quantity Kind>>

A quantity kind for the amount of space that a substance or object occupies.

Direct Supertypes

[Physical Quantity](#_d1a943a552f39fcae6a3b9f5b1743bdb), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

# OnticHealthGeneric::Resources

This package represents concepts concerning resources. A resource is a role of any entity such that it supports or impacts in a process, impacts the objectives of stakeholders or is the basis of the capability of an actor.

As a role, “Resource” is intended to "mix in" with an entity type such as "Person" or "Process" such that the use of that entity may be understood.

Resources that are a Primary Asset are those that are the direct subject of a stakeholder's objectives.

## Diagram: Resource



1. Resource

## Diagram: Resource Actions



1. Resource Actions

## Class Abuse Resource

An action to misuse a resource.

Direct Supertypes

[Resource Actions](#_c258c4ea1841b0b4edb9f182fad70310)

## Class Capture Resource

Action to capture or gain control of some resource.

Direct Supertypes

[Resource Actions](#_c258c4ea1841b0b4edb9f182fad70310)

## Class Damage Resource

An action that causes an resource to no longer completely fulfill its purpose..

Direct Supertypes

[Resource Actions](#_c258c4ea1841b0b4edb9f182fad70310)

## Class Exceed Resource Capacity

An action to exceed the capacity of some resource.

Direct Supertypes

[Resource Actions](#_c258c4ea1841b0b4edb9f182fad70310)

## Class Inventory

Direct Supertypes

[Resource](#_c3c68931301e3219612679ba09cbed93)

Attributes

amount : [Unit Value](#_e79a8c8e0284d51d332531e5a63c1e6c)



## Class Modify Resource

Action to modify a resource or set of resources.

Direct Supertypes

[Resource Actions](#_c258c4ea1841b0b4edb9f182fad70310)

## Class Resource <<Role>>

A resource is a role of an entity required for or helpful to any operation, activity, process or capability - directly or indirectly. Sometimes called an "asset".

Direct Supertypes

[Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)

## Class Resource Actions

An action impacting a potential or realized resource/asset.

Direct Supertypes

[Activity](#_7b140b32efd980b218435cbb95798380)

## Association Class Resource Dependency

Relationship between resources where one resource depends on (or uses) another.

A more general concept than [UAF] MapsToCapability: An Abstraction relationship denoting that an Activity contributes to providing a Capability.

[DOLCE] (Subtype of) Dependence



1. Resource Dependency

Direct Supertypes

[Impact](#_9db7850b79021b7eb6ddf87616ee9f9e)

Association Ends

supports : [Resource](#_c3c68931301e3219612679ba09cbed93) [\*]



Resources the subject resource supports or enables.

depends on : [Resource](#_c3c68931301e3219612679ba09cbed93) [\*]



A resource that is required to support the operation of purpose of another resource.

## Class Supply

Direct Supertypes

[Modify Resource](#_977ee46294eb73bab0195c3c7c8dbdb2)

## Class Tool <<Role>>

The role of some inanimate thing used to facilitate a process or activity by an actor performing a process or activity.

Direct Supertypes

[Resource](#_c3c68931301e3219612679ba09cbed93)

## Class Transfer Resource

Direct Supertypes

[Activity](#_7b140b32efd980b218435cbb95798380)

# OnticHealthGeneric::Situation Types

## Diagram: Situation Types



1. Situation Types

## Class Benchmark

A benchmark is a situation pattern containing expected values such that actual situations can be compared against the benchmark.

Direct Supertypes

[Pattern](#_7506c41d619a300ba86eb8d266a06d46)

## Class Composite Situation Type

A composite situation type is a Situation Definition that uses (synthesizes) other situation definitions as its parts. [Reenskaug 1995] Collaboration

Direct Supertypes

[Situation Type](#_460fc5a0315bc39cd213060d285f174d)

## Class External Type Reference

Reference to an external definition of a type

Direct Supertypes

[Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)

Attributes

has reference id : [Unique Identifier](#_5763a56249b3eddeb79ba22f74c885e1)



## Class Pattern

Direct Supertypes

[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06), [Situation Type](#_460fc5a0315bc39cd213060d285f174d)

## Class Repeditive Situation

a situation that repeats. Repetitive is a "mixin" class, any situation may be repetitive unless otherwise restricted.

Direct Supertypes

[Pattern](#_7506c41d619a300ba86eb8d266a06d46)

Attributes

has repetition frequency : [Duration](#_d9db3dc8aabfa0d4d5626f091381927f)



how often each actual repetition should happen

has repetition separation : [Duration](#_d9db3dc8aabfa0d4d5626f091381927f)



time between actual situations

has repetition duration : [Duration](#_d9db3dc8aabfa0d4d5626f091381927f)



how long each repetition should last

has repetition count : [Count](#_d986f3c81ec545f01797ac6470312c45)



number of times the situation should repeat

## Class Situation Type

A situation type defines a kind of identifiable arrangement of individuals, assertions and the relations between them over a timespan.

[DTV] situation kind: state of affairs that may or may not happen in some possible world

[Barrwise 1999] Situation Type

Direct Supertypes

[Identifiable Type](#_1c92ae371f6075c6031e3d53d4149bfb), [Identifiable Type](#_1c92ae371f6075c6031e3d53d4149bfb)

## Class Situation Use

Situation use is a kind of role type that uses another situation type within a defining composite situation type based on the synthesis pattern described in [Reenskaug 1995] (Synthesis).

Direct Supertypes

[Role Type](#_6ca2e7a77a8cd8f2f3f4ed71887d2721)

## Class Template

A template is a situation pattern that may be missing some properties or relationships, such as date or participants. A template can then have matching situations that "fill in" those missing elements.

Direct Supertypes

[Pattern](#_7506c41d619a300ba86eb8d266a06d46)

# OnticHealthGeneric::Situations

## Diagram: Qualities



1. Qualities

## Diagram: Relevance



1. Relevance

## Diagram: Situation Partitions



1. Situation Partitions

## Diagram: Situation Relationships



1. Situation Relationships

This diagram shows the primary associations defined for situations as well as its super types: Temporal Entity and Identifiable Entity. The relationships shown here are those deemed defining for the concept of a situation, they are not all the relationships defined for these types.

## Diagram: Situation Temporal



1. Situation Temporal

## Diagram: Situation Timeframes



1. Situation Timeframes

## Diagram: Situation Top



1. Situation Top

## Class Actual Situation

An actual situation is an individual (particular) situation that actually exists, happened in the past or may exist in some possible world, not a template or process definition. Such situations must exist for a time interval, however there are no constraints on such a time interval - from an instant to the life of the universe.

DTV: Occurrence: state of affairs that is a happening in the universe of discourse



1. Actual Situation

Direct Supertypes

[Actual Entity](#_bab16f734f2dacc51c5f66e15031a455), [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06), [Temporal Entity](#_d3fc2d6158592a91ddf94dcf7708ef49)

## Class Actual State

A condition that has, will or does exist.

Direct Supertypes

[Actual Situation](#_9cd852c0e87e03590c79a63151bf9a8e), [State](#_2f02569bb8334e33923ced03f32e144d)

## Class Any Role <<Role>>

a role is a facet of an identifiable thing involved in one or more situations.

[FIBO] Thing in role.

[SOWA 1999] Relative thing

Direct Supertypes

[Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)

## Association Class Causation

The causality relation where the <causes> situation is <caused by> a situation.

[FIBO] cause / caused by

[ISO 1087] causal relation: associative relation (3.2.23) involving cause and its effect

NOTE A causal relation exists between the concepts (3.2.1) 'action' and 'reaction', 'nuclear explosion' and 'fall-out'.



1. Cause and Effect

Direct Supertypes

[Enablement](#_8242d08ee2b5cadfcc8b16e2e518184a)

Association Ends

caused by : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [\*]



One of situations that causes the subject situation.

casuses : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [\*]



A situation caused by another.

## Class Composite Situation

A composite situation includes, other situations as parts.

[Devlin] Situation with compound infon.

Direct Supertypes

[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

## Class Current Situation

A situation that is actually occurring at the moment. "the moment" is contextual and interpreted within the context of the model.

Direct Supertypes

[Actual Situation](#_9cd852c0e87e03590c79a63151bf9a8e), [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

## Association Class Effect

Any impact on or alteration of an entity by a situation - an effect of the situation.



1. Effect

Direct Supertypes

[Impact](#_9db7850b79021b7eb6ddf87616ee9f9e)

Association Ends

affects : [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8) [\*]



Entities affected by a action

affected by : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [\*]



Actions that can cause some change in a related entity.

## Association Class Enablement

A situation that enables (is a condition for), another.



1. Enablement

Direct Supertypes

[Effect](#_d73e4ebdfd2444629d07f65820eda0ab), [Impact](#_9db7850b79021b7eb6ddf87616ee9f9e)

Association Ends

enables : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [0..\*]



A situation that is enabled by another.

enabled by : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [0..\*]



A situation that enables another.

## Class Epistemic Situation

A Epistemic Situation is kind of situation where that situation is about, or focused on, another situation as its topic.

[Hutchins, Searle] Aboutness

Direct Supertypes

[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

Attributes

is negated : [Boolean Value](#_410c19ea35181b782ecd0ae587c303f2) [0..1]



is negated inverts the truth value of the statement.

## Association Class Indication

Association Ends

is indicated by : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [0..\*]



indicates : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [0..\*]



## Association Class Involvement

The relationship between an actor and situations they are involved in.

[DOLCE] Participation



1. Involvement

Direct Supertypes

[Temporally Related](#_9ed633619738f3e7193fcfe187317d60)

Association Ends

involved in : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [\*]



Situations in which an actor has any kind of involvement.

involves : [Actor](#_366e70bab7ea3da37cb039e7a6b88ae2) [\*]



An actor involved in a situation in any way.

## Association Class Negation Effect

The negative causality relationship - <negated by> prevents or terminates the <negates> situation.



1. Negation

Direct Supertypes

[Effect](#_d73e4ebdfd2444629d07f65820eda0ab)

Association Ends

negated by : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [0..\*]



A situation that prevents or terminates another.

negates : [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) [0..\*]



A situation that is prevented or terminated by another situation.

## Class Ontic Situation

An Ontic situation is an ontological situation, representing things in the world - past, present, or future.

Direct Supertypes

[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

## Class Participant <<Role>>

a participant is a role of an actor involved in a situation.

Direct Supertypes

[Actor](#_366e70bab7ea3da37cb039e7a6b88ae2), [Any Role](#_eb9719483c5285d39be117ca681afa25)

## Class Past Situation

A situation that has actually occurred in the past (recognizing that all such statements are subject to confidence).

Direct Supertypes

[Actual Situation](#_9cd852c0e87e03590c79a63151bf9a8e), [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

## Class Potential Situation <<Phase>>

A situation that has not yet happened but has a potential to happen.

DTV: Situation Kind

Direct Supertypes

[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06), [Situation Type](#_460fc5a0315bc39cd213060d285f174d)

Attributes

likelihood : [Probability Metric](#_72fcac5dda14c7db3b2f92842c073f7e)



Metric representing the possibility that the containing element represents reality.

## Class Quality State

a state quality is an ontic state representing a characteristic of an entity at a point in time or over a range of time. A quality state exists within a quality, such as body temperature which is a type of the quality state. Examples include the temperature or height of a person at a particular time.

Direct Supertypes

[Ontic Situation](#_3b6dc697de97ce073daecd87bcd5dcaa), [Relationship](#_accd5eb3f49a80122f5edf4b533965d0), [State](#_2f02569bb8334e33923ced03f32e144d)

Attributes

has quality value : [Value](#_e31475aed8f6ab7db3b8aae1e826c3b3)



Associations

predicate : [Property](#_c41ebf51baf58bb4e5a57e47a5c06c2f) [0..1]



The predicate defining the quality instance which also serves to identify the "sense" of the quality, e.g. actual, scheduled, projected.

## Class Relationship

A relationship is a material atomic situation involving related things that are not part of the relationship. A relationship may be asserted within a context as true or false within that context. Each relationship type has a number of bindings of which do not change for the life of the relationship..

A relationship may be true or false within its context (including a timeframe) but is atomic in its truth value.

Relationships may participate in (be bound to) other relationships and as such bindings involving a relationship may change over time. That is, relationships are "first class" objects.

[IDEAS] tuple: A relationship between two or more things.

[Devlin] Relation

Direct Supertypes

[Actual Entity](#_bab16f734f2dacc51c5f66e15031a455), [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

## Class Situation

A situation is an identifiable entity composed of an arrangement of entities and the relations between them over a time interval. Situations are may be asserted as true or false in some context. Situations may change over time, unless otherwise constrained. As an identifiable entity, situations may participate in relationships, thus situations are "first class" elements.

[SBVR] "State of affairs"

[SOWA1999] Nexus

[Barwise 1999] Situation

[Devlin] Situation with corresponding infon(s).

Direct Supertypes

[Identifiable Thing](#_aa050de8310b74df540d7772f2579de8), [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b)

Associations

has current : [Property](#_c41ebf51baf58bb4e5a57e47a5c06c2f) [0..1]



the set of situations that have relevance to the subject situation within the same timeframe as the current situation

has latest : [Property](#_c41ebf51baf58bb4e5a57e47a5c06c2f) [0..1]



the situation that is the most recent relevant other situation of some kind

has relevant : [Property](#_c41ebf51baf58bb4e5a57e47a5c06c2f) [0..1]



a situation that is relevant to another situation

has first : [Property](#_c41ebf51baf58bb4e5a57e47a5c06c2f) [0..1]



first is a series

## Class State

A state is a static situation - a particular configuration of entities that is static for a time period, including spatial and logical connections between those things {Snapshot of a Perdurant}

Note that states may be of any length, from an instant to infinity and beyond.

[DOLCE] State

Direct Supertypes

[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

## Association State of Entity

Relationship between a perdurant (something that exits over time) and a "state" of that entity as a snapshot in time.

Association Ends

state of : [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8) [\*]



The endurant entity for which the subject state is a snapshot.

has state : [State](#_2f02569bb8334e33923ced03f32e144d) [\*]



A states (or snapshots) of an entity within its lifetime.

# OnticHealthGeneric::Statements

## Diagram: Approval



1. Approval

## Diagram: Statement Classification



1. Statement Classification

## Diagram: Statements



1. Statements

## Class Approval

permission to perform some activity or initiate a plan, including the consent to share information

Direct Supertypes

[Declaritive Statement](#_1a576f97d6251141a770fc461ddbb1d7)

## Class Assertive Statement

Statement that commit an author to the truth of the expressed <is about> situation.

[Searle] assertives

Direct Supertypes

[Statement](#_aeac27b52eb8ed815c3bd1d6d75780f7)

## Class Author <<Role>>

An author is a kind of performer that makes statements about situations.

Direct Supertypes

[Participant](#_b4401436185956a165d3b9d8de6c6b8f)

## Class Commissive Statement

Statements that commit a speaker to some future action as represented by the <is about> situation, e.g. promises and oaths.

[Searle] commissives

Direct Supertypes

[Statement](#_aeac27b52eb8ed815c3bd1d6d75780f7)

## Class Declaritive Statement

Statements that change the reality in accord with the proposition of the <is about> situation, e.g. baptisms, pronouncing someone guilty or pronouncing someone husband and wife

[Searle] declarations

Direct Supertypes

[Statement](#_aeac27b52eb8ed815c3bd1d6d75780f7)

## Class Directive Statement

Statements that are to cause the hearer to take a particular <is about> action, e.g. requests, commands and advice

[Searle] directives

Direct Supertypes

[Statement](#_aeac27b52eb8ed815c3bd1d6d75780f7)

## Class Expressive Statement

Statements that express on the author's attitudes and emotions towards the situation, e.g. congratulations, excuses and thanks.

[Searle] expressives

Direct Supertypes

[Statement](#_aeac27b52eb8ed815c3bd1d6d75780f7)

## Class Interrogative Statement

An interrogative is a directive statement that asks a question or asks for information.

Direct Supertypes

[Directive Statement](#_38584d141bc77ebce58a2020075296e2)

## Class Listener <<Role>>

A Listener is a kind of performer that receives statements from authors in the form of utterances.

Direct Supertypes

[Participant](#_b4401436185956a165d3b9d8de6c6b8f)

## Class Record

A record is a statement about one or more situations preserved in some form of information storage including but not limited to paper records, computer records, drawings on cave walls, and human memory.

Direct Supertypes

[State](#_2f02569bb8334e33923ced03f32e144d), [Statement](#_aeac27b52eb8ed815c3bd1d6d75780f7)

## Class Statement

a statement is a kind of Epistemic Situation representing the communication or recording of an author's intention concerning a situation.

[BFO] Representational artifact

Direct Supertypes

[Epistemic Situation](#_7bb78623f2206d68297626d4bf4a41e1)

## Class Utterance

An utterance situation is a statement with the immediate context of an author transmitting information to a listener.

[Devlin] Utterance situation

[Searle] Speech Act

Direct Supertypes

[Occurrence](#_799617cb54756b9414625779f3b740cc), [Statement](#_aeac27b52eb8ed815c3bd1d6d75780f7)

# OnticHealthGeneric::Time & Temporal Entities

The Time package defines the essential concepts of time and the identification of time intervals.

These time concepts are based on the OMG Date Time Vocabulary [DTV] standard but subsets and simplifies DTV for use in defining, federating and exchanging time aspects of entities.

"Temporal Entity" is introduced as an abstraction to capture the common relationships between time elements. Within DTV these relationships are separate for each kind of time element. The relationships defined for Temporal Entity are grounded in DTV Time Interval as each temporal entity exists for a time interval.

Applications that need to reason about time are encouraged to utilize the full DTV semantics. DTV also contains text that more fully elaborates time concepts.

## Diagram: Time



1. Time

## Class Date and Time <<Quantity Kind>>

[FIBO] DateTimeStamp: A DateTimeStamp combines a Date, a time, and a time

Direct Supertypes

[Date Coordinate](#_2d5fde44ab0ed517279bdd55e95bc495), [Time Coordinate](#_1cc3170d7118a3fd5974788c5641e377)

## Class Date Coordinate <<Quantity Kind>>

[FIBO] Date: A Date identifies a calendar day on some calendar.

[NIEM] DateType

Direct Supertypes

[Time Coordinate](#_d96727064322aeaf623efa62de82423f)

## Association Duration of Region

[DTV] time interval [of temporal entity] has particular duration:the particular duration is the duration that is the amount of time in the time interval.

Each time interval [Temporal Entity] has a unique duration attribute that is a measure of its size, i.e., the amount of time the time interval occupies. This attribute is mathematically a function that maps time intervals into durations. This mapping function is sometimes called the “range” of a time interval, and some times called the “measure” of a time interval.

Association Ends

duration of : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [\*]



Temporal entity for which a duration is applicable.

has duration : [Duration](#_d9db3dc8aabfa0d4d5626f091381927f) [1]



Difference between the start and end time. A non-zero positive value representing the amount of time a temporal entity exists.

[DTV] time interval [of temporal entity] has particular duration:the particular duration is the duration that is the amount of time in the time interval.

Each time interval [Temporal Entity] has a unique duration attribute that is a measure of its size, i.e., the amount of time the time interval occupies. This attribute is mathematically a function that maps time intervals into durations. This mapping function is sometimes called the “range” of a time interval, and some times called the “measure” of a time interval.

## Association Entity Exists for Interval

Relationship defining the time interval in which an entity actually exists.

[DTV] occurrence occurs for occurrence interval: the occurrence occurs throughout the occurrence interval and the occurrence does not occur within some time interval2 that meets the occurrence interval and the occurrence does not occur within some time interval3 that is met by the

occurrence interval

[Alen 1983] X is equal to Y: X = Y where X is "interval of" and Y is "exists for". Note that this relates the temporal aspect of "interval of" to the timeframe "exists for".



1. Entity Exists for Interval

Direct Supertypes

[Overlaps in Time](#_5302ce2c2bcca65738f276606d83b239)

Association Ends

exists for : [Time Interval](#_847d9c073151df72393d9739dfa87bee) [1]



Time interval where an entity may be considered "actual", that is existent in the domain of discourse.

interval of : [Actual Situation](#_9cd852c0e87e03590c79a63151bf9a8e) [\*]



Entity existent for the full extent of a time interval.

## Association Finish

The time something no longer exists (inclusive).

[DTV] time interval1 finishes time interval2

Synonymous Form:time interval2 is finished by time interval1

Definition:time interval1 is a proper part of time interval2 and there exists no time interval3 that is a proper part of time interval2 and that is after time interval1

[IDEAS] endBoundary: A temporalBoundary where the boundary is a end boundary of the whole.

[Alen 1983] X finishes Y: X f Y where X is "finishes at" and Y is "finish of"



1. Finish Time

Direct Supertypes

[Overlaps in Time](#_5302ce2c2bcca65738f276606d83b239)

Association Ends

finish of : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [\*]



Thing which no longer exists at a particular time.

finishes at : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [0..1]



Time something no longer exists. (Inclusive)

## Association Overlaps in Time

Some or all parts of the related temporal entities exist at the same time. Note that "to" and "from" may be arbitrary. By convention, the containing or prior temporal entity is "from".

[DTV] time interval1 properly overlaps time interval2

An [ISO 1087] temporal relation: sequential relation (3.2.24) involving events in time

[DOLCE] (subtype of) Temporal Quality

[Alen] X overlaps with Y: X o Y, where assignment of X and Y is arbitrary.



1. Overlaps in Time

Association Ends

overlaps from : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [\*]



An overlapping temporal component.

overlaps to : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [\*]



An overlapping temporal component.

## Association Start

The time something starts to exist (inclusive).

[DTV] time interval1 starts time interval2

Synonymous Form:time interval2 is started by time interval1

Definition:time interval1 is a proper part of time interval2 and there exists no time interval3 that is a proper part of time interval2 and that is before time interval1.

[IDEAS] startBoundary: A temporalBoundary where the boundary is a start boundary of the whole.

[Alen 1983] X starts Y: X s Y where X is "starts at" and Y is "start of".



1. Start Time

Direct Supertypes

[Overlaps in Time](#_5302ce2c2bcca65738f276606d83b239)

Association Ends

start of : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [\*]



Thing which begins to exist at a particular time.

starts at : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [0..1]



Time somethings begins to exist. (inclusive).

[FIBO] hasStartDate

## Class Temporal Entity

An actual entity existing for a duration in time.

Direct Supertypes

[Actual Entity](#_bab16f734f2dacc51c5f66e15031a455), [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b)

## Association Temporal Order

A relationship representing ordering of temporal entities in time where the <starts at> of <is after> is greater than or equal to the <finishes at> of <is before>. Related things do not overlap in time.

[DOLCE] (subtype of) Temporal Quality

[DTV] "time interval1 is properly before time interval2": the time interval1 is before the time interval2 and the time interval1 is before a time interval3 and the time interval3 is before the time interval2

[DTV] time interval1 finishes duration after time interval2: The end of one time interval is duration after the end of the other time interval.

[IDEAS] beforeAfter: A couple that asserts one individuals' temporal extent is completely before the temporal extent of another.

An [ISO 1087] temporal relation: sequential relation (3.2.24) involving events in time

[Alen1983] X takes place before Y: X<Y where X is "is before" and Y is "is after".



1. Temporal Order

Association Ends

is after : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [\*]



A temporal entity that starts after the <is before> entity ends.

is before : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [\*]



A temporal entity that ends after the <is after> entity starts.

## Association Temporal Part

The time interval of <has temporal part> is within the time interval of <happens durring>.

[DTV] time interval1 is proper part of time interval2: the time interval1 is a proper part of the time interval2 and a time interval3 is a proper part of the time interval2 and a time interval4 is a proper part of the time interval2 and the time interval3 is before the time interval1 and the time interval1 is before the time interval4.

[IDAS] temporalWholePart: A wholePart that asserts the spatial extent of the (whole) individual is co-extensive with the spatial extent of the (part) individual for a particular period of time.

[Alen 1983] X during Y: Xd Y where X is "happens during" and Y is "has temporal part"



1. Temporal Part

Direct Supertypes

[Overlaps in Time](#_5302ce2c2bcca65738f276606d83b239)

Association Ends

happens during : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [\*]



A situation with overlapping duration (overlapping temporal extent).

has temporal part : [Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b) [1..\*]



Sub-durations of anything that happen - a temporal part.

## Class Temporal Region

A temporal region is anything that has a timespan. Temporal regions may have temporal relationships with other temporal regions. Temporal regions may be identifiable or values.

[SOWA1999] Continuant

[Devlin] Temporal Location

Direct Supertypes

[Thing](#_6fc933c79c6038a48c8d9b3700b64dca)

## Association Class Temporally Related

Temporally Related defines relationships as first-class entities that are "situations" that may have conditions, context or a time frame. "Related" is the implicit supertype of all entity relationships such that any relationship can be traced between entities. Note that the generalization to Temporally Related may not be shown on diagrams.

Note that in UML relationships that are "definitional" and not expected to be time or contextually dependent are shown as regular UML associations where as potentially contextual or time-bound relationships are shown as association classes. This is a notational convention and does not have semantic intent to avoid early commitment to such considerations.



1. Related

Direct Supertypes

[Relationship](#_accd5eb3f49a80122f5edf4b533965d0), [Temporal Entity](#_d3fc2d6158592a91ddf94dcf7708ef49)

Association Ends

relates to : [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8) [\*]



A generic relationship to capture arbitrary relationships that do not have more specific meaning. <relates> is the implicit supertype of all relationships between entities (not including metadata). Note that to remove diagram clutter, subsets of "relates" may not show the subset on all diagrams.

related from : [Identifiable Thing](#_aa050de8310b74df540d7772f2579de8) [\*]



## Class Time Coordinate <<Quantity Kind>>

A designation of a particular time.

Direct Supertypes

[Time Coordinate](#_d96727064322aeaf623efa62de82423f)

## Class Time Interval <<Value>>

A time interval is a temporal region and a value that is only segment of time and may have a value representation.

[DTV] "time interval" : segment of the time axis, a location in time.

Note:Every time interval has a beginning, an end, and a duration, even if not known. Every time interval is “finite”, a bounded segment of the Time Axis. The beginning or end of a

time interval may be defined by reference to events that occur for a time interval that is not known.

Note:Time intervals may be ‘indefinite’, meaning that their beginning is ‘primordiality’ or their end is ‘perpetuity’, or both (‘eternity’). This vocabulary assumes that indefinite

time intervals exist and have some duration, but their duration is unknown.

[IDEAS] PeriodOrInstant: An Individual whose spatial extent is infinite, but whose temporal extent is finite or zero.

[UML] TimeInterval

[NIEM] DateRangeType

[DOLCE] Temporal Region

Direct Supertypes

[Temporal Region](#_b87220c15e78dfc2d4cd72af2f73475b)

## Class Time Point <<Value>>

A time point is a time interval deemed atomic on a time scale. As all points in time may be further subdivided into a finer granularity of time, each point in time is also a time interval on some other scale.

The duration of a time point is the same as the granularity of the time scale of the time point.

[DTV] time point: concept that specializes the concept 'time interval' and that is a member of a time scale.

[IDEAS] CalendarPeriod: A Period that corresponds to a recognized date or time.

Direct Supertypes

[Time Interval](#_847d9c073151df72393d9739dfa87bee)

## Class Time Scale

A time scale is a way to reckon time as a series of consecutive time points identified by time coordinates. e.g. Time scale defined by the Gregorian calendar.

[DTV] time scale: regular sequence that each member of the regular sequence is a time point

Associations

has time coordinate : [Time Coordinate](#_d96727064322aeaf623efa62de82423f) [\*]



## Association Time Scale Granularity

[DTV] Time scale has granularity: The granularity of the time scale is the duration of the time points of the time scale.

Association Ends

has granularity : [Duration](#_d9db3dc8aabfa0d4d5626f091381927f) [1]



[DTV] the smallest duration that can be distinguished with a given time scale

granularity of : [Time Scale](#_53b256c5c68c8917b4207b98b64d88ca) [\*]



Duration of each time point on a time scale.

## Association Time Scale of Time Point

Relationship defining the time scale on which a time point is defined. e.g. December 7th, 1944 is defined on a Gregorian Calendar time scale.

Association Ends

time point on : [Time Scale](#_53b256c5c68c8917b4207b98b64d88ca) [1]



Time scale used for defining a time point.

[DTV] time scale has time point:

has member time Point : [Time Point](#_fb11adf0086d81f73057dcfbd6b13592) [1..\*]



Time point defined within a time scale

# OnticHealthGeneric::Time & Temporal Entities::ISO Time Scale

## Diagram: ISO Time



1. ISO Time

# OnticHealthGeneric::Time & Temporal Entities::XSD Time Scale

XSD Representations of date and time

## Diagram: XSD Time Scale



1. XSD Time Scale

## Class XSD Date <<Unit Value>>

An XSD representation of a date

[OWL] xsd:date.

Direct Supertypes

[Date Coordinate](#_2d5fde44ab0ed517279bdd55e95bc495)

Attributes

value : [Coded Numeric](#_d0472c0e7a15f241cf3ee22f3953ea70)



A text string representing a date and time specified in the ISO8601 date-time format including timezone designator (TZD): YYYY-MM-DDThh:mm:ssTZD.

## Class XSD Date Time <<Unit Value>>

An XSD representation of a date and time

[OWL] xsd:dateTime

Direct Supertypes

[Date and Time](#_9e136664e929069561948aa890722f71)

Attributes

value : [Coded Numeric](#_d0472c0e7a15f241cf3ee22f3953ea70)



A text string representing a date and time specified in the ISO8601 date-time format including timezone designator (TZD): YYYY-MM-DDThh:mm:ssTZD.

## Class XSD Time <<Unit Value>>

An XSD representation of a time

[OWL] xsd:time

Direct Supertypes

[Time Coordinate](#_1cc3170d7118a3fd5974788c5641e377)

Attributes

value : [Coded Numeric](#_d0472c0e7a15f241cf3ee22f3953ea70)



A text string representing a date and time specified in the ISO8601 date-time format including timezone designator (TZD): YYYY-MM-DDThh:mm:ssTZD.

# OnticHealthGeneric::Units

A package of common SI and U.S. Units. Note: All measures in concrete models should be bound to the expected units, even if units are implicit in the data structure.

This package is non-normative in the threat and risk specification. It is supplied to assist users in defining the units used in data structures.

## Diagram: Common Units 1



1. Common Units 1

An amount of time.

## Diagram: Common Units 2



1. Common Units 2

## Class Acre <<Unit Value>>

1 acre = 43 560 square feet.

Direct Supertypes

[Area](#_14f1c14b43c491b4da145162055cce16)

## Class Ampere <<Base Unit Value>>

[NIST-SI] The ampere is that constant current which, if maintained in two straight parallel conductors of infinite length, of negligible circular cross-section, and placed 1 meter apart in a vacuum, would produce between these conductors a force equal to 2 x 10-7 newton per meter of length.

[IDEAS] electricCurrentInAmperes: A measureNamedNumericallyBy that names an ElectricCurrent with its ValueInAmperes

Direct Supertypes

[Electric Current](#_175665d55793dd0222cad01c3e2d1e24)

## Class Becquerel (Bq) <<Unit Value>>

The SI unit of radioactivity, corresponding to one disintegration per second.

Direct Supertypes

[Radioactivity](#_40b8850a3a12ae7c5ca7c7f3c0afb474)

## Class Candela <<Base Unit Value>>

The candela is the luminous intensity, in a given direction, of a source that emits monochromatic radiation of frequency 540 x 1012 hertz and that has a radiant intensity in that direction of 1/683 watt per steradian.[NIST-SI]

[IDEAS] luminousIntensityInCandela: A measureNamedNumericallyBy that names a LuminousIntensity with its ValueInCandela

Direct Supertypes

[Luminosity](#_4b2d9287fe8f07079348eb965564f9c5)

## Class Celsius <<Unit Value>>

Centigrade. The temperature scale (Celsius scale) in which 0° represents the ice point and 100° the steam point of water.

Direct Supertypes

[Temperature](#_494f3688c4c43d837eb999b90a5db325)

## Class Compound Duration Value <<Unit Value>>

A value for a duration derived from the sum of primitive duration values. e.g. 2 days and 3 hours or 2016 years, 12 months and three days.

Direct Supertypes

[Duration](#_d9db3dc8aabfa0d4d5626f091381927f)

Attributes

value : [Compound Duration](#_a4556392f0c03dcfa0e9faeb5af7cefd)



## Class Concentration Percent <<Base Unit Value>>

The volume of a constituent divided by the volume of the mixture.

Direct Supertypes

[Concentration (Volume)](#_91d6550ae5606f90898f8379a9e4e563)

## Class Coulomb per kilogram <<Unit Value>>

Unit of radiation exposure.

Direct Supertypes

[Radiation Exposure](#_abe88bc0a91ed24edd079b2509b90912)

## Class Cubic Feet <<Unit Value>>

A volume measured in feet.

Direct Supertypes

[Volume](#_bcacb37514ebc2cbf84f71684c11d38a)

## Class Cubic Inch <<Unit Value>>

A volume measured in inches.

Direct Supertypes

[Volume](#_bcacb37514ebc2cbf84f71684c11d38a)

## Class Cubic Meter <<Base Unit Value>>

A volume measured in meters.

Direct Supertypes

[Volume](#_bcacb37514ebc2cbf84f71684c11d38a)

## Class Cup (US) <<Unit Value>>

8 Fluid Ounces (US).

Direct Supertypes

[Liquid Volume](#_f56fb28da5401bb69f2782a7cdf24e45)

## Class Curie (Ci) <<Base Unit Value>>

The SI unit of measure for radioactivity is the curie (Ci) and Becquerel (Bq).

Direct Supertypes

[Radioactivity](#_40b8850a3a12ae7c5ca7c7f3c0afb474)

## Class Day <<Unit Value>>

A unit of time equal to 24 hours.

[DTV] day: the precise time unit that is quantified by 86 400 seconds

[OWL] xsd:gDay

Direct Supertypes

[Scalar Duration Value](#_48f07627e1ed98952166a877f1135130)

## Class Degrees <<Unit Value>>

A unit for an angle from 0-360.

Direct Supertypes

[Angle](#_31202bbc0993b03b18c141dc69cdf1ee)

## Class Fahrenheit <<Unit Value>>

The Fahrenheit scale in which 32° represents the ice point and 212° the steam point. of water Symbol: F.

Direct Supertypes

[Temperature](#_494f3688c4c43d837eb999b90a5db325)

## Class Fluid Ounce (US) <<Unit Value>>

A unit of volume: 16 fluid ounces = 1 pint (pt)

= 28.875 cubic inches.

Direct Supertypes

[Liquid Volume](#_f56fb28da5401bb69f2782a7cdf24e45)

## Class Foot <<Unit Value>>

A foot (pl. feet; abbreviation: ft; symbol: ′, the prime symbol) is a unit of length in the imperial and US customary systems of measurement. Since 1959, both units have been defined by international agreement as equivalent to 0.3048 meters exactly. In both systems, the foot comprises 12 inches and three feet compose a yard.

Direct Supertypes

[Length](#_f656aa6b144fc8f9a9295af8a4eef943)

## Class Gallon (Imperial) <<Unit Value>>

A unit of volume.

Direct Supertypes

[Liquid Volume](#_f56fb28da5401bb69f2782a7cdf24e45)

## Class Gallon (US) <<Unit Value>>

A measure of the quantity of a substance. 1 gallon (gal) = 231 cubic inches.

Direct Supertypes

[Liquid Volume](#_f56fb28da5401bb69f2782a7cdf24e45)

## Class Gram <<Unit Value>>

The gram is a SI unit of mass.

Direct Supertypes

[Mass](#_eb212f1c3bf88424f9e10c9cbf0feb1d)

## Class Gray (Gy) <<Base Unit Value>>

[NRC] One of the two units used to measure the amount of radiation absorbed by an object or person, known as the "absorbed dose," which reflects the amount of energy that radioactive sources (with any type of ionizing radiation) deposit in materials (e.g., water, tissue, air) through which they pass. One gray (Gy) is the international system of units (SI) equivalent of 100 rads, which is equal to an absorbed dose of 1 Joule/kilogram. An absorbed dose of 0.01 Gy means that 1 gram of material absorbed 100 ergs of energy (a small but measurable amount) as a result of exposure to radiation.

Direct Supertypes

[Absorbed Dose (Radiation)](#_1e3b05fbfc313e756221d5a7225e0ec2)

## Class Hertz <<Base Unit Value>>

A unit of frequency. Cycles per second.

[IDEAS] frequencyInHertz: A measureNamedNumericallyBy that names a Frequency with its ValueInHertz

Direct Supertypes

[Frequency](#_4d236a66f843987219a804ef6afc523c)

## Class Horsepower <<Unit Value>>

Horsepower (hp) is a unit of measurement of power (the rate at which work is done). There are many different standards and types of horsepower. This model uses the 746 watt interpretation of horsepower.

Direct Supertypes

[Power](#_3745f124f1cc015fec7fe26151906902)

## Class Hour <<Unit Value>>

A unit of time: 60 Minutes.

[DTV] hour: the precise time unit that is quantified by '3600 seconds'

Direct Supertypes

[Scalar Duration Value](#_48f07627e1ed98952166a877f1135130)

## Class Inch <<Unit Value>>

A unit of length.

Direct Supertypes

[Length](#_f656aa6b144fc8f9a9295af8a4eef943)

## Class Joule <<Base Unit Value>>

The joule (symbol J, also called newton meter, watt second, or coulomb volt) is the SI unit of energy and work.

Direct Supertypes

[Energy](#_41055f8949448d35956d884172766a18)

## Class Kelvin <<Base Unit Value>>

[NIST-SI] The kelvin, unit of thermodynamic temperature, is the fraction 1/273.16 of the thermodynamic temperature of the triple point of water.

[IDEAS] temperatureInKelvin: A measureNamedNumericallyBy that names a ThermodynamicTemperature with its ValueInKelvin

Direct Supertypes

[Temperature](#_494f3688c4c43d837eb999b90a5db325)

## Class Kg per cubic meter <<Base Unit Value>>

The SI unit for density.

Direct Supertypes

[Mass Density](#_1ad446d565020076cf191ea45b81bc65)

## Class Kilogram <<Base Unit Value>>

[NIST-SI] The kilogram is the unit of mass; it is equal to the mass of the international prototype of the kilogram. [NIST-SI]

[IDEAS] massInKilograms: A measureNamedNumericallyBy that names a Mass with its ValueInKilograms

Direct Supertypes

[Mass](#_eb212f1c3bf88424f9e10c9cbf0feb1d)

## Class Kilogram per cubic meter <<Base Unit Value>>

The SI Unit of density.

Direct Supertypes

[Concentration (Mass)](#_7801b130982e4fe764750a243eb469e6)

## Class Kilometer <<Unit Value>>

A unit of length, the SI measure of distances equal to 1000 meters, and equivalent to 3280.8 feet or 0.621 mile.

Symbol: km.

Direct Supertypes

[Length](#_f656aa6b144fc8f9a9295af8a4eef943)

## Class Kilometer per Hour <<Base Unit Value>>

The SI unit of speed

Direct Supertypes

[Speed](#_32d17f1bf390323d84647e38936e46db)

## Class Kilowatt hour <<Unit Value>>

The watt-hour (symbolized Wh) is a unit of energy equivalent to one watt (1 W) of power expended for one hour (1 h) of time.

Direct Supertypes

[Energy](#_41055f8949448d35956d884172766a18)

## Class Liquid Volume <<Quantity Kind>>

Volume of a liquid.

Direct Supertypes

[Volume](#_bcacb37514ebc2cbf84f71684c11d38a)

## Class Meter <<Base Unit Value>>

The meter is the length of the path traveled by light in vacuum during a time interval of 1/299 792 458 of a second.[NIST-SI]

The meter, (SI unit symbol: m), is the fundamental unit of length in the International System of Units (SI).

[IDEAS] lengthInMeters: A measureNamedNumericallyBy that names a Mass with its ValueInKilograms

Direct Supertypes

[Length](#_f656aa6b144fc8f9a9295af8a4eef943)

## Class Meter per second squared <<Base Unit Value>>

The SI Unit of acceleration.

Direct Supertypes

[Acceleration](#_1f9cbd09db67682fc5685c4b16b5acd9)

## Class Mile <<Unit Value>>

The mile is an English unit of length standardized as exactly 1.609344 kilometers.

Direct Supertypes

[Length](#_f656aa6b144fc8f9a9295af8a4eef943)

## Class Miles per Hour <<Unit Value>>

U.S. unit of speed.

Direct Supertypes

[Speed](#_32d17f1bf390323d84647e38936e46db)

## Class Millimeter <<Unit Value>>

A unit of length equal to one thousandth of a meter and equivalent to 0.03937 inch.

Abbreviation: mm.

Direct Supertypes

[Length](#_f656aa6b144fc8f9a9295af8a4eef943)

## Class Millisecond <<Unit Value>>

A unit of time: 1/1000th of a second.

[DTV] millisecond

Direct Supertypes

[Scalar Duration Value](#_48f07627e1ed98952166a877f1135130)

## Class Minute <<Unit Value>>

A unit of time: 60 seconds.

[DTV] minute : the precise time unit that is quantified by '60 seconds'

Direct Supertypes

[Scalar Duration Value](#_48f07627e1ed98952166a877f1135130)

## Class Mole <<Base Unit Value>>

The mole is a unit of measurement used in chemistry to express amounts of a chemical substance, defined as the amount of any substance that contains as many elementary entities (e.g., atoms, molecules, ions, electrons) as there are atoms in 12 grams of pure carbon-12.

Direct Supertypes

[Amount of Substance](#_973b3cbc58736809bcd9458296b56b5b)

## Class Mole Per Cubic Meter <<Base Unit Value>>

The SI unit for amount-of-substance concentration.

Direct Supertypes

[Concentration (amount of substance)](#_afaace0898704546b1ab328dcd10d2ea)

## Class Month <<Unit Value>>

[DTV] month: the nominal time unit that is the duration of a time interval required for one rotation of the Moon in its orbit around the Earth, approximated to a number of days.

[OWL] xsd:gMonth

Direct Supertypes

[Scalar Duration Value](#_48f07627e1ed98952166a877f1135130)

## Class Newton <<Base Unit Value>>

The SI unit of force. Equivalent to 100,000 dynes. A Newton is equal to the force that would give a mass of one kilogram an acceleration of one meter per second per second.

Direct Supertypes

[Force](#_8c62379c2bad2dd1748b4b76d86d20cc)

## Class Ounce-Mass (US) <<Unit Value>>

U.S. Unit of Ounce representing Mass.

Direct Supertypes

[Mass](#_eb212f1c3bf88424f9e10c9cbf0feb1d)

## Class Pascal <<Base Unit Value>>

The SI unit of pressure, equal to one newton per square meter (approximately 0.000145 pounds per square inch, or 9.9 × 10-6 atmospheres).

Direct Supertypes

[Pressure](#_dcef7fc7621bdfdc343069e327979d53)

## Class Pint (US) <<Unit Value>>

Unit of liquid volume: 2 pints = 1 quart (qt) = 57.75 cubic inches.

Direct Supertypes

[Liquid Volume](#_f56fb28da5401bb69f2782a7cdf24e45)

## Class Pound-Force <<Unit Value>>

Pound-force is equal to the gravitational force exerted on a mass of one avoirdupois pound on the surface of Earth.

Standard gravity is not constant but usually taken to be 9.80665 m/s2 (about 32.174 049 ft/s2) in the context of the surface of the earth.

Direct Supertypes

[Force](#_8c62379c2bad2dd1748b4b76d86d20cc)

## Class Pound-Mass (Imperial) <<Unit Value>>

A unit of mass that is exactly 453.59237 grams.

Direct Supertypes

[Mass](#_eb212f1c3bf88424f9e10c9cbf0feb1d)

## Class Pound-Mass (US lb) <<Unit Value>>

The pound avoirdupois, which forms the basis of the U.S. customary system of mass, is defined as exactly 453.59237 grams.

The avoirdupois pound is legally defined as a measure of mass, but the name pound is also applied to measures of force.

See also: http://www.nist.gov/pml/wmd/metric/upload/frn-59-5442-1959.pdf

Direct Supertypes

[Mass](#_eb212f1c3bf88424f9e10c9cbf0feb1d)

## Class PSI <<Unit Value>>

Unit of pounds per square inch.

Direct Supertypes

[Pressure](#_dcef7fc7621bdfdc343069e327979d53)

## Class Quart (US) <<Unit Value>>

Unit of liquid volume where 4 quarts = 1 gallon (gal) = 231 cubic inches [NIST-UNITS].

Direct Supertypes

[Liquid Volume](#_f56fb28da5401bb69f2782a7cdf24e45)

## Class Radians <<Base Unit Value>>

A unit of an angle where there are 2 PI radians in a circle.

Direct Supertypes

[Angle](#_31202bbc0993b03b18c141dc69cdf1ee)

## Class Radiation Absorbed Dose (rad) <<Unit Value>>

One of the two units used to measure the amount of radiation absorbed by an object or person, known as the “absorbed dose,” which reflects the amount of energy that radioactive sources deposit in materials through which they pass. The radiation-absorbed dose (rad) is the amount of energy (from any type of ionizing radiation) deposited in any medium (e.g., water, tissue, air). An absorbed dose of 1 rad means that 1 gram of material absorbed 100 ergs of energy (a small but measurable amount) as a result of exposure to radiation. The related international system unit is the gray (Gy), where 1 Gy is equivalent to 100 rad. For additional information, see Doses in Our Daily Lives and Measuring Radiation. [NRC]

Direct Supertypes

[Absorbed Dose (Radiation)](#_1e3b05fbfc313e756221d5a7225e0ec2)

## Class Roentgen (R) <<Base Unit Value>>

A unit of exposure to ionizing radiation. It is the amount of gamma or x-rays required to produce ions resulting in a charge of 0.000258 coulombs/kilogram of air under standard conditions. [NRC]

Direct Supertypes

[Radiation Exposure](#_abe88bc0a91ed24edd079b2509b90912)

## Class Roentgen Equivalent Man (REM) <<Unit Value>>

One of the two standard units used to measure the dose equivalent (or effective dose), which combines the amount of energy (from any type of ionizing radiation that is deposited in human tissue), along with the medical effects of the given type of radiation. For beta and gamma radiation, the dose equivalent is the same as the absorbed dose. By contrast, the dose equivalent is larger than the absorbed dose for alpha and neutron radiation, because these types of radiation are more damaging to the human body. Thus, the dose equivalent (in rems) is equal to the absorbed dose (in rads) multiplied by the quality factor of the type of radiation [see Title 10, Section 20.1004, of the Code of Federal Regulations (10 CFR 20.1004), "Units of Radiation Dose"]. The related international system unit is the sievert (Sv), where 100 rem is equivalent to 1 Sv. [NRC]

Direct Supertypes

[Dose Equivalent (Radiation)](#_a5b5e0a01a20e05d84221c1728bdba69)

## Class Scalar Duration Value <<Unit Value>>

Number and time unit together giving magnitude of a duration.

[DTV]

Definition:if the atomic duration value is a precise atomic duration value, then the time unit is the reference duration to which the ratio of the duration quantified by the atomic duration value is taken

Definition:if the atomic duration value is a nominal atomic duration value, then the time unit is the reference duration to which the ratio of exactly one element of the duration value set specified by the atomic duration value is taken

Example:“45 minutes” has the time unit ‘minute’



1. Scalar Duration Value

Direct Supertypes

[Duration](#_d9db3dc8aabfa0d4d5626f091381927f), [Scalar Quantity](#_41b700dd2a5b4e5f06052735d0098d00)

## Class Second <<Base Unit Value>>

[NIST-SI] The second (symbol: s) is the base unit of time in the International System of Units (SI) and is also a unit of time in other systems of measurement (abbreviated s or sec); it is the second division of the hour by sixty, the first division by 60 being the minute.

[DTV] second: The second is the duration of 9 192 631 770 periods of the radiation corresponding to the transition between the two hyperfine levels of the ground state of the cesium 133 atom.

[IDEAS] Second: A measureNamedNumericallyBy that names a Time with its ValueInSeconds

Direct Supertypes

[Scalar Duration Value](#_48f07627e1ed98952166a877f1135130)

## Class Sievert (Sv), <<Base Unit Value>>

The international system (SI) unit for dose equivalent equal to 1 Joule/kilogram. 1 sievert = 100 rem. Named for physicist Rolf Sievert.

Direct Supertypes

[Dose Equivalent (Radiation)](#_a5b5e0a01a20e05d84221c1728bdba69)

## Class Square Feet <<Unit Value>>

Area measured in feet.

Direct Supertypes

[Area](#_14f1c14b43c491b4da145162055cce16)

## Class Square Meter <<Base Unit Value>>

Area measured in SI meters.

Direct Supertypes

[Area](#_14f1c14b43c491b4da145162055cce16)

## Class Volt <<Base Unit Value>>

The SI unit of electromotive force, the difference of potential that would drive one ampere of current against one ohm resistance.

Direct Supertypes

[Electric Potential](#_036ecb2e939a2ff6a872bc81e1a868e1)

## Class Watt <<Base Unit Value>>

The SI unit of power is the joule per second (J/s).

Direct Supertypes

[Power](#_3745f124f1cc015fec7fe26151906902)

## Class Yard <<Unit Value>>

A Unit of length equal to 3 feet.[NIST-UNITS]

Direct Supertypes

[Length](#_f656aa6b144fc8f9a9295af8a4eef943)

## Class Year <<Unit Value>>

The period of 365 days (or 366 days in leap years) starting from the first of January, used for reckoning time in ordinary affairs.

[DTV] year: the nominal time unit that is the duration of a time interval required for one revolution of the Earth around the Sun, approximated to an integral number of days

[OWL] xsd:gYear

Direct Supertypes

[Scalar Duration Value](#_48f07627e1ed98952166a877f1135130)

# OnticHealthGeneric::Values

The values package defines the concepts of values and quantities expressed in units.

Values may be differentiated from entities in that values have no independent lifetime or "identity" other than the value its self. E.g. the number 5 "just is" and can't be changed. Properties and relations referencing values can, of course, change but the values are constant.

The failure to properly express units in data models often results in errors, inefficiencies and risk. Translation and federations between models, schema and data sources that is not cognizant of the units used would be even more error prone and risky. For example, what does “Speed limit 50” mean? For these reasons the SMIF language provides specific support for specifying quantity kinds and unit types in conceptual, logical and physical models. The SMIF mapping rules may then perform the appropriate unit conversions.

The foundation of information specification in SMIF at all levels is the type system. Types specified for all properties and relations involving values must match the types of the related values. The concepts of units and values as defined in "VIM" [JCGM 200-2008] is used as the basis for defining the types used in SMIF to guarantee type safety of quantities across different representations. Since many existing models and schema do not include well defined units some effort may be required to find and then specify the implicit units based on documentation, SME interviews or inspection of data or source code. It is recommended that the units used by external models and schema be determined prior to attempting federation and integration of information based on those models or schema.

**VIM [JCGM 200-2008] concepts of quantities and units**

VIM defines

* quantity: property of a phenomenon, body, or substance, where the property has a magnitude that can be expressed as a number and a reference [ed. to a unit]
* kind of quantity (kind): aspect common to mutually comparable quantities
* measurement unit (unit): real scalar quantity, defined and adopted by convention, with which any other quantity of the same kind can be compared to express the ratio of the two quantities as a number

**SMIF concepts of quantities and units**

SMIF uses the VIM concepts to define "quantity values" and types to capture the quantity kind and unit. Types are defined for each Unit. The goals for this type based approach are:

* That it is clearly grounded in semantics as defined in VIM
* That a type may be used to specify the range of a property or relation involving unit based values.
* That a quantity value (e.g. 5 grams) be representable as a simple number with a type.
* That there is a clear type hierarchy starting with a representationally independent type in a conceptual model (e.g. mass) that can be further specialized to a specific unit in a logical model (e.g. grams) and further specialized to be represented by a physical data type (e.g. “double”).
* That external models and schema may have unit specifications asserted without changing the schema.
* That a quantity of an entity be able to be referenced without a specific quantity value being known (e.g. John’s weight).
* That systems of units such as [ISO-80000] or [OMG QUDV] (A part of SysML) be able to be directly referenced as the definition of a unit.

SMIF defines three types to realize the above goals: Quantity Kind, Unit Type, Base Unit Type. SMIF also defines Quantity Values, which are instances of unit types.

In VIM a quantity has a magnitude that is expressed as a number and a reference. The SMIF quantity value is the numeric value of such a quantity where the reference is specified by the “unit reference” property of the quantity value’s type. The quantity value’s type is a “Unit Type”. The Unit type has attributes for converting a unit to a base unit, a symbol and a unit reference. Based on VIM the unit reference may be “a measurement unit, a measurement procedure, a reference material, or a combination of such” and is specified with a description that contains reference information. In summary, the reference of a SMIF quantity value is determined indirectly through its unit type. A quantity value has exactly one unit type and exactly one Quantity Kind. A quantity value expressed in any unit of the same quantity kind may be converted to any other unit of the same quantity kind.

This type-based sapproach allows specification of a property at the conceptual (quantity kind) logical (unit type) or physical (unit type with a numeric type) levels. Such specifications use the same type-based approach used for other aspects of the models. Given this information a SMIF implementation may correctly and reliably convert between compatible types regardless of representation. Please see the specification of the value types, attributes and relationships for more detail.

**Example:**

* A specification for a road segment has a property “Speed limit”.
* The type of this property in a reference conceptual model is “Speed:Quantity Kind”.
* A unit “Kilometer per Hour:Unit Type” is defined as a subtype of “Speed:Quantity Kind” with a “unit reference” of “[ISO-80000.4] Kilometer per Hour”. Note that quantity kinds and unit types would normally be defined in reference models that correspond to a “system of units”.
* Miles per hour is also defined as a subtype of Speed.
* A physical schema defines “Speed-KPH: Integer”.
* A SMIF mapping rule maps “Speed limit” to “Speed-KPH” and asserts a type of “Kilometer per Hour” on the “Speed-KPH” end.
* A data file defines a road “Route One” with a speed limit of 100:KPH-Int.
* When converted to a U.S. application this speed limit of route one can be viewed as 62:MPH-Int.

## Diagram: Values



1. Values

## Diagram: Values Doc



1. Values Doc

## Diagram: Values Only



1. Values Only

## Class Base Unit Type

One unit type of a quantity kind may be marked as the base unit within a system of units. The base unit provides the basis for conversions between units of the same quantity kind. The base unit always has a ratio of one and an offset of zero.

Type of a [JCGM 200:2008] measurement unit that is adopted by convention for a base quantity

[FIBO] (type of) Base Unit: a measurement unit that is defined by a system of units to be the reference measurement unit for a base quantity

There ma be at most one base unit for a quantity kind within a system of units.

Direct Supertypes

[Unit Type](#_39752efcbaab9607add739271f66a4d1)

## Class Quantity kind

[JCGM 200:2008] A Quantity Kind is an aspect common to mutually comparable quantities represented by one or more units. Units with a common quantity kind may be algorithmically converted to any other unit of that quantity kind. e.g. temperature.

Quantity kinds are a supertype of unit types which are then a type of all quantity values, Quantity values are mutually comparable with all other quantity values categorized by the same quantity kind.

[FIBO] QuantityKind: a categorization type for “quantity” that characterizes quantities as being mutually comparable

[DOLCE] Quality Space

Direct Supertypes

[Value Type](#_2bef849c709052a1096624316d93b460)

## Class Quantity Representation

A quantity representation defines a way to measure a quantity kind as a unit type or scale

Direct Supertypes

[Quantity kind](#_39ad79745fa1229d1b7089c7e3d9b77f)

## Association Referenced System of Units

Relationship between a system of units and the set of unit types defined within that system.

Association Ends

defined within system : [System of Units](#_9745d975f173d1aad27d317833752d31) [0..1]



The system of units in which a unit is defined and is the basis for ratio and offset.

By default the system of units is "si": http://www.iso.org/iso/iso\_catalogue/catalogue\_ics/catalogue\_detail\_ics.htm?csnumber=30669

unit of system : [Unit Type](#_39752efcbaab9607add739271f66a4d1) [\*]



Unit type defined within a system of units

## Class Scalar Quantity <<Value>>

Direct Supertypes

[Unit Value](#_e79a8c8e0284d51d332531e5a63c1e6c)

Attributes

<<Restriction>> : [Number](#_0157206663f5a2c33a25243a0f7d99d3) [0..\*]



The value of a quantity that, when multiplied by the unit defined in a subtype of quantity kind, specifies a measurement value such as 3 Meters.

## Class Structured Value <<Value>>

A value that may have sub-elements (owned properties) defined as "structure property type".

Direct Supertypes

[Value](#_e31475aed8f6ab7db3b8aae1e826c3b3)

## Class System of Units

[JCGM 200:2008] A set of base units and derived units, together with their multiples and submultiples, defined in accordance with given rules, for a given system of quantities.

[FIBO] SystemOfUnits: a set of measurement units associated with a system of quantities, together with a set of rules that assign one measurement unit to be the base unit for each base quantity in the system of quantities and a set of rules for the derivation of other units from the base units

Direct Supertypes

[Namespace](#_f22cdf8557004883ab5bd7e00637cd4c)

## Class Unit Type

A Unit type is a type of a quantity value referencing a specific unit. A Unit Type a required type of a property representing a quantity.

Each quantity value has a reference as defined by the "unit reference" property of the quantity value's type.

[JCGM 200:2008] A Unit is a real scalar quantity, defined and adopted by convention, with which any other quantity of the same quantity kind can be compared to express the ratio of the two quantities as a number. e.g. Degrees Centigrade, Miles.

Each unit type represents refinement of a quantity kind using generalization and is thus substitutable for that quantity kind. Typically quantity kinds are used in conceptual models and unit types in physical or logical models.

Unit types may only subtype quantity kinds or other units.

Note that unit types are not units, but the type of quantity values expressed with respect to a common unit as defined in [JCGM 200:2008].

[IDEAS] MeasureCategory: A MeasureType whose members are recognized types of MeasureInstance.

Direct Supertypes

[Quantity Representation](#_f1daf97b9b92ea3ac92e59fbc15e22dd)

Attributes

ratio : [Real Value](#_8903075e2fe5174af59eefd2a14ed826) [0..\*]



The multiplier by which to multiple the referenced unit to convert to the base unit within a system of units.

offset : [Real Value](#_8903075e2fe5174af59eefd2a14ed826) [0..\*]



The difference between zero in the referenced unit and zero in the base unit after the ratio is applied within a system of units.

symbol : [String Value](#_7c9dabdd623b5e214dfd7dbbb23cc367) [0..\*]



The accepted symbol for the unit referenced by the unit type

unit reference : [IRI Identifier](#_f2f3735a98b6ee1b11d4d15ecc9679bd) [0..1]



The unit reference is the reference to a unit shared by all quantities values that are instances of a unit type.

[JCGM 200:2008] A reference can be a measurement unit, a measurement procedure, a reference material, or a combination of such. For magnitude of a quantity.

Typical references include ISO 8000 and OMG QUDV.

## Class Unit Value <<Value>>

A unit value is a numeric magnitude with a unit type that may be used as the value of a quantity property as defined by [JCGM 200:2008]. The reference of the quantity is defined by the "unit reference" property of the Unit Type.

e.g. 5cm is an instance of the unit type "Centimeter"

Each unit value has exactly one UNit Type as a type.

In a physical model a quantity value must have a type that specifies its unit (e.g. "Gram"). The magnitude shall be expressed using "hasValue"

[JCGM 200:2008] A quantity is a property of a phenomenon, body, or substance, where the property has a magnitude that can be expressed as a number and a reference.

Note: A quantity as defined here is a scalar. However, a vector or a tensor, the components of which are quantities, is also considered to be a quantity.

[IDEAS] ScaleMapping: A CoupleType whose members are all the couples linking MeasurePoints to RealNumbers. The CoupleType (i.e. the set of couples) represents the scale.

[FIBO] QuantityValue: number and measurement unit together giving magnitude of a quan-tity

[Guizzardi] (quale): A point in a n-dimensional quality domain

Direct Supertypes

[Structured Value](#_1fe331dffce355376f5eddd54d6825ec), [Value](#_e31475aed8f6ab7db3b8aae1e826c3b3)

Attributes

hasValue : [Measurement Value](#_aa329e5a283a733da679fdbd415850f1) [0..\*]



The value of a quantity that, when multiplied by the unit defined in a subtype of quantity kind, specifies a measurement value such as 3 Meters.

[OWL] rdf:value restricted to abstract quantity

## Class Value

A Value is an atomic. immutable piece of information without a specific lifetime or identity independent of the value. Values include numbers, strings and other atomic "primitive" data. Values also include structured values, which are immutable.

In UML values may be defined by the name of an instance specification with a value type.

[IDEAS] Representation: A SignType where all the individual Signs are intended to signify the same Thing.

[ISO11404] The identification of members of a datatype family, subtypes of a datatype, and the resulting datatypes of datatype generators may require the syntactic designation of specific values of a datatype.

[OWL] data values

Direct Supertypes

[Thing](#_6fc933c79c6038a48c8d9b3700b64dca)

## Class Value Type

A type categorizing values where a value is an atomic piece of information without a specific lifetime or identity independent of that value. Values include numbers, strings and other atomic "primitive" data.

[IDEAS] RepresentationType: A Type that is the Powertype of Representation.

[FUML] DataType

[ISO11404] datatype: set of distinct values, characterized by properties of those values, and by operations on those values

[OWL] rdfs:Datatype (Note that some values are represented as OWL classes)

Direct Supertypes

[Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)

# OnticHealthSpecific

## Diagram: Notes



1. Notes

# OnticHealthSpecific::Clinical Situation

## Diagram: Clinical Situation



1. Clinical Situation

## Class Adverse Situation <<Role>>

An adverse situation is a situation classified as contrary to desired outcomes.

Direct Supertypes

[Any Role](#_eb9719483c5285d39be117ca681afa25), [Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)

## Class Clinical Activity

a clinical activity is an activity performing a healthcare function

Direct Supertypes

[Activity](#_7b140b32efd980b218435cbb95798380), [Clinical Situation](#_c5f03055257800e6efe75023a75bdd7a)

## Class Clinical Assessement

Direct Supertypes

[Clinical Knowledge Acqusition](#_4df1eb4c529ef158aa753e03366b2586)

## Class Clinical Exclusion

Direct Supertypes

[Clinical Opinion](#_560f7a5d1d3ed121370c7954a8478efc), [Exclusion](#_a7029013e649deeabee8d7213b334dcc)

## Class Clinical Intervention Activity

Direct Supertypes

[Clinical Activity](#_98317c83ded585d1efada85722619f40), [Course Of Action](#_2c1ea52dc24245720b0e67b934e100dd)

## Class Clinical Knowledge Acqusition

Direct Supertypes

[Clinical Activity](#_98317c83ded585d1efada85722619f40), [Knowledge Acqusition](#_ea4fbdb5da64209c9a7b06962b4c0e3f)

## Class Clinical Observation Activity

Direct Supertypes

[Clinical Knowledge Acqusition](#_4df1eb4c529ef158aa753e03366b2586), [Observation Activity](#_dee615f9e44d1e2052d3573f6f1fc7b8)

## Class Clinical Opinion

Direct Supertypes

[Clinical Situation](#_c5f03055257800e6efe75023a75bdd7a), [Inferred Belief](#_d6a58eccfb49026ff2c2466c45bf1c5f)

## Class Clinical Procedure

Direct Supertypes

[Clinical Intervention Activity](#_042edccf6913720962b08bfb7e264a63)

## Class Clinical Request

Direct Supertypes

[Request](#_999f1e003227e778ae3632a6639f1648)

## Class Clinical Situation

a situation involving some process of healthcare.

Direct Supertypes

[Ontic Situation](#_3b6dc697de97ce073daecd87bcd5dcaa)

## Class Consult

Direct Supertypes

[Clinical Knowledge Acqusition](#_4df1eb4c529ef158aa753e03366b2586)

## Class Diagnosis

Direct Supertypes

[Clinical Opinion](#_560f7a5d1d3ed121370c7954a8478efc), [Conclusion](#_d27f76ce480449c25ef0672975eb1a41)

## Class Dosage Form

Direct Supertypes

[Discreet Thing](#_6ef1dbf4983daf69e5425cbaf8e11659)

## Class Encounter

Direct Supertypes

[Clinical Activity](#_98317c83ded585d1efada85722619f40)

## Association finding

Association Ends

has finding : [Ontic Situation](#_3b6dc697de97ce073daecd87bcd5dcaa) [0..\*]



determined by : [Knowledge Acqusition](#_ea4fbdb5da64209c9a7b06962b4c0e3f) [0..\*]



## Class Infered Observation Activity

Direct Supertypes

[Clinical Observation Activity](#_091f5e6f79068321bbbd789b505b0887)

## Class Medication <<Role>>

Direct Supertypes

[Substance](#_6c52cbab523aeb147bb492cebf98a5d0)

Attributes

has strenght : [Concentration](#_8a52e0e6c7ddc8e3f8ec1278411a485d)



## Class Medication Activity

Direct Supertypes

[Clinical Intervention Activity](#_042edccf6913720962b08bfb7e264a63)

Attributes

has dosage : [Amount of Substance](#_973b3cbc58736809bcd9458296b56b5b)



has route : [Human Body Part](#_97d0c106282f00353fcaf751758b9f80)



## Class Recomendation Activity

a recommendation is a clinical activity suggesting a particular state or activity

Direct Supertypes

[Clinical Activity](#_98317c83ded585d1efada85722619f40)

## Class Risk Assessement

Direct Supertypes

[Clinical Opinion](#_560f7a5d1d3ed121370c7954a8478efc), [Conclusion](#_d27f76ce480449c25ef0672975eb1a41)

## Class Sense Observation Activity

Direct Supertypes

[Clinical Observation Activity](#_091f5e6f79068321bbbd789b505b0887)

## Class Specimen <<Role>>

Direct Supertypes

[Any Role](#_eb9719483c5285d39be117ca681afa25), [Physical Entity](#_e8de7be0b7deb58decd0be7d10c50eb1)

## Class Subject <<Role>>

Direct Supertypes

[Participant](#_b4401436185956a165d3b9d8de6c6b8f), [Person](#_cdc29d2819530ccaeba6b720b8983fee)

## Class Substance

Direct Supertypes

[Physical Entity](#_e8de7be0b7deb58decd0be7d10c50eb1)

## Class Vital Sign Measurement

Direct Supertypes

[Measurement Result](#_246aad5e499a3dae61ae5b5418deab0c)

## Class Vital Sign Measurement Activity

Direct Supertypes

[Measurement Activity](#_311770c205be82af5ce92c3f02e8aa08), [Sense Observation Activity](#_a26c5d4e436789b8b43f4a4e19b79058)

# OnticHealthSpecific::Diagrams

## Diagram: Allergy



1. Allergy

## Class Food Type

Direct Supertypes

[Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)

# OnticHealthSpecific::Health Conditions

## Diagram: Health Conditions



1. Health Conditions

## Class Actual Vital Sign

Direct Supertypes

[Actual Situation](#_9cd852c0e87e03590c79a63151bf9a8e), [Vital Sign](#_5c5c63c417da4b7e591d574fd8fdc2a3)

## Class Allergen Type <<Role>>

a substance that causes an allergic reaction.

Direct Supertypes

[Identifiable Type](#_1c92ae371f6075c6031e3d53d4149bfb)

## Class Allergic Reaction

Direct Supertypes

[Health Event](#_23e37e50b3000170eb575aa7c22c9a97)

## Class Allergy Intolerance Condition

A food intolerance or a reaction to another substance you ate may cause the same signs and symptoms as a food allergy does — such as nausea, vomiting, cramping and diarrhea. Depending on the type of food intolerance you have, you may be able to eat small amounts of problem foods without a reaction.

Direct Supertypes

[Health Condition](#_58ba3d80e72371a8a0179fe1646d4a49)

Associations

: [Allergy Type](#_a5cbf0d997c4c5d9c1661070f91ee154) [1] *Redefines*: has type:[Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



## Class Allergy Type

Direct Supertypes

[Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)

## Class Disease

Direct Supertypes

[Health Condition](#_58ba3d80e72371a8a0179fe1646d4a49)

## Class Geneome

the haploid set of chromosomes in a gamete or microorganism, or in each cell of a multicellular organism.

Direct Supertypes

[Health Quality](#_36a08a70e6a644e536e852bfbdf9b71a)

## Class Health Condition

a group of symptoms that together are characteristic of a specific disorder, disease, or the like.

Direct Supertypes

[Health State](#_0c441a64c78a7301688602c2917f6e02)

Associations

<<Restriction>> : [Health Event](#_23e37e50b3000170eb575aa7c22c9a97) [0..\*] *Subsets*: enables:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



: [Type](#_4f4ad21bf676d3e6a5c0f355d83345e1) [1..\*] *Subsets*: has type:[Type](#_4f4ad21bf676d3e6a5c0f355d83345e1)



latest event of condition : [Health Event](#_23e37e50b3000170eb575aa7c22c9a97) [0..1] *Subsets*: enables:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) has latest:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



first event of condition : [Health Event](#_23e37e50b3000170eb575aa7c22c9a97) [0..1] *Subsets*: enables:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06) has first:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



## Class Health Event

Direct Supertypes

[Occurrence](#_799617cb54756b9414625779f3b740cc)

Associations

<<Restriction>> : [Health Condition](#_58ba3d80e72371a8a0179fe1646d4a49) [0..\*] *Subsets*: enabled by:[Situation](#_0a2767712bb9a7ff9e4b2313d0312b06)



<<Restriction>> : [Person](#_cdc29d2819530ccaeba6b720b8983fee) [1] *Redefines*: affects:[Identifiable Thing](#_aa050de8310b74df540d7772f2579de8)



## Class Health Quality

Direct Supertypes

[Health State](#_0c441a64c78a7301688602c2917f6e02), [Quality State](#_691f47488c9ad7e3f73bc1e8d91283ab)

## Class Health State

a state of affairs for the subject relating to their well being

Direct Supertypes

[State](#_2f02569bb8334e33923ced03f32e144d)

## Class Vital Sign

Direct Supertypes

[Health Quality](#_36a08a70e6a644e536e852bfbdf9b71a)

Associations

has body site : [Human Body Part](#_97d0c106282f00353fcaf751758b9f80) [0..1]



## Class Vital Sign Benchmark

Direct Supertypes

[Benchmark](#_e7d96334cf2ed81f6ae9f1442cce68cc), [Vital Sign](#_5c5c63c417da4b7e591d574fd8fdc2a3)

# OnticHealthSpecific::Human Characteristics

## Diagram: Human Characteristics



1. Human Characteristics

## Class Arm

Direct Supertypes

[Human Body Part](#_97d0c106282f00353fcaf751758b9f80)

## Class Brain

Direct Supertypes

[Human Body Part](#_97d0c106282f00353fcaf751758b9f80)

## Class Head

Direct Supertypes

[Human Body Part](#_97d0c106282f00353fcaf751758b9f80)

## Class Human Body Part

Direct Supertypes

[Physical Entity](#_e8de7be0b7deb58decd0be7d10c50eb1)

## Class Leg

Direct Supertypes

[Human Body Part](#_97d0c106282f00353fcaf751758b9f80)

# OnticHealthSpecific::Medications

## Diagram: Medications



1. Medications

## Class Dispense

provide a medication to a patient or caregiver

Direct Supertypes

[Clinical Activity](#_98317c83ded585d1efada85722619f40), [Transfer Resource](#_03af3ae6c8ff941fab32ddc440e3c257)

## Class Immunization Activity

Direct Supertypes

[Medication Activity](#_1887f2bf7e8d84a570ddcb3217c9de85)