

Flow of Events for Use Case – Show Geographical Element

Change Log	
08/10/2004	Renamed from UC-ShowFeature
30/10/2004	Finalized for pre-integrated model

Overview

Describes features or geographic elements within a map or plan. In this use case, the term geographic element is used to distinguish the idea from features used in geometric modelling. However, the term feature is used with GIS software applications.

A geographical element is a component placed in the map. It includes items such as

- archaeological items;
- network items such as roads, rivers etc.
- street furniture such as traffic lights, street lights, bus shelters and the like;
- trees and plants;
- non building constructions including markers, cairns, statuary and the like;
- ...etc.

Network items are discussed in a separate use case.

Note that an instance of a feature may be created as a whole/part relationship through IfcRelAggregates in which circumstance the individual parts of the feature remain identifiable and have own properties.

Process

Preconditions

- Map or plan is defined.
- Areas within which or adjacent to which the geographic element is to be located are defined.

Actors

Applicant

Main Flow

Flow	Entity
1. It is assumed that software applications will have available a library of geographic element shape representations that can be exported to appropriate formats.	IfcGeographicalElementType IfcRepresentationMap
2. An instance of a geographic element should be defined according to the definition of a geographic element type	IfcGeographicalElement
3. The range of available geographic element types should be determined according to the catalogue of required objects (not specified in this use case)	IfcGeographicalElementType
4. An instance of a geographic element may have a shape representation that may be defined as a representation map associated with the geographic element type (as an IfcTypeProduct) or it may have an explicitly defined shape representation associated with	IfcRepresentationMap IfcShapeRepresentation

	the geographic element occurrence.	
5.	Geographic element types with predefined representation maps may be defined within an external library	IfcGeographicalElementType IfcRepresentationMap
6.	Each type of geographic element will have a type property set that identifies the properties normally associated with that type within the catalogue.	IfcGeographicalElementType Pset_FeatureCatalog
7.	Note that a geographic element may be defined as existing or proposed through assertion of the IfcProjectOrder.PredefinedType→PLANNING APPLICATION and IfcProjectOrder.Status attributes that may be associated with each instance of a geographic element.	IfcProjectOrder.PredefinedType IfcProjectOrder.Status

Post Conditions

Geographic element is defined and shown

IFC Usage and Extension Requirements

Existing Entity/Class Usage

<i>Entity Class Name</i>	<i>Usage</i>
IfcProjectOrder	Defines the instance of a planning application that can be associated with a geographic element together with its status.
IfcRelDefinesByType	Relates the type of feature used to the instance of the feature within a map.

Existing Entity/Class with Proposed Modification

<i>Entity Class Name</i>	<i>Usage</i>

<i>A R M</i>	<i>Attribute</i>	<i>Cardinality</i>	<i>Datatype</i>	<i>Definition</i>

<i>A R M</i>	<i>#</i>	<i>Type (DER, U, WHERE)</i>	<i>Proposition</i>

Modified Datatype Requirement

<i>Datatype Name</i>	<i>Type (Enum, SEL, Def)</i>	<i>Usage</i>
IfcProjectOrderTypeEnum	Enumeration	Add PLANNINGAPPLICATION
IfcProjectOrderRecordTypeEnum	Enumeration	Add PLANNINGAPPLICATION

New Entity/Class Requirement

<i>Entity Class Name</i>	<i>Usage</i>
IfcGeographicalElementType	Specification of the type of geographic element to be used.

<i>Attribute</i>	<i>Cardinality</i>	<i>Datatype</i>	<i>Definition</i>
GeographicElementType	1	IfcLabel	The particular type of geographic element. Selection of the type is determined by the user and this may be drawn from a standard catalog of element types used in a given location.

<i>#</i>	<i>Type (DER, U, WHERE)</i>	<i>Proposition</i>

<i>Entity Class Name</i>	<i>Usage</i>
IfcGeographicElement	An instance of a geographic element of a particular type placed within a map. The type of geographic element is related to the instance using IfcRelDefinesByType

<i>Attribute</i>	<i>Cardinality</i>	<i>Datatype</i>	<i>Definition</i>

<i>#</i>	<i>Type (DER, U, WHERE)</i>	<i>Proposition</i>

Existing Property Set Usage

<i>Property Set Name</i>	<i>Usage</i>

Existing Property Set with Proposed Modification

<i>Property Set Name</i>	<i>Usage</i>

<i>ARM</i>	<i>Property</i>	<i>Type</i>	<i>Datatype</i>	<i>Unit</i>	<i>Definition</i>

New Property Set Requirement

<i>Name:</i>	Pset_FeatureCatalog
<i>Applicability:</i>	IfcGeographicalElement entities
<i>Applicable Classes:</i>	IfcGeographicalElement
<i>Applicable Type Value:</i>	
<i>IFC Version:</i>	2x3
<i>Definition:</i>	Definition from IAI: Properties that identify a geographic element type referenced from a catalog of such types (commonly known as a feature catalog). Allows for identification of the type from the catalog according to local standards, requirements or usage.

<i>Property</i>	<i>Type</i>	<i>Datatype</i>	<i>Unit</i>	<i>Definition</i>
Catalog	IfcPropertySingleValue	IfcLabel		The catalog from which the geographic element type concerned is identified
Identity	IfcPropertySingleValue	IfcIdentifier		The identity or code of the geographic element

				type within the catalog.
ElementName	IfcPropertySingleValue	IfcLabel		The name of the geographic element type as used in the catalog.
ElementItem	IfcPropertySingleValue	IfcLabel		A further qualification of the element name as used in the catalog. The element item may represent a subtype of the named geographic element type as in name = Building, item = House.
Description	IfcPropertySingleValue	IfcText		Narrative description providing further information about the element

Issue List

<i>Question</i>	<i>Answer</i>