

SVENSK STANDARD

SS-ISO 19155-2:2018



Fastställt/Approved: 2018-02-22

Publicerad/Published: 2018-02-23

Utgåva/Edition: 1

Språk/Language: engelska/English

ICS: 07.040; 35.240.01; 35.240.30; 35.240.50; 35.240.60; 35.240.70; 35.240.99

Geografisk information – Arkitektur för platsidentifierare (PI) – Del 2: Länkning av platsidentifierare (PI) (ISO 19155-2:2017, IDT)

Geographic information – Place Identifier (PI) architecture – Part 2: Place Identifier (PI) linking (ISO 19155-2:2017, IDT)

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The International Standard ISO 19155-2:2017 has the status of a Swedish Standard. This document contains the official version of ISO 19155-2:2017.

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Denna standard är framtagen av kommittén för Geodata, SIS/TK 323.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Abbreviated terms	2
4.1 Abbreviated terms.....	2
4.2 UML Notation.....	3
4.3 Backward compatibility.....	3
5 Conformance	3
5.1 General.....	3
5.2 Linking mechanism: gml:id.....	3
5.3 Linking mechanism: UUID.....	3
5.4 Linking mechanism: URL.....	3
6 Place Identifier (PI) concept	4
6.1 General.....	4
6.2 PI structure.....	4
7 PI linking	4
7.1 Overview.....	4
7.2 PI linking directionality.....	5
7.3 PI linking model.....	7
8 PI linking mechanisms	7
8.1 Overview.....	7
8.2 Linking mechanism: gml:id.....	8
8.2.1 Overview.....	8
8.2.2 Linking from a PI.....	8
8.2.3 Linking to a PI.....	8
8.2.4 Instance examples using gml:id.....	8
8.3 Linking mechanism: UUID.....	9
8.4 Linking mechanism: URL.....	9
Annex A (normative) Abstract test suite	10
Annex B (normative) Encoding using gml:id to link with GML	11
Annex C (normative) Encoding using gml:id to link with GML application schemas	16
Annex D (normative) Encoding using UUID for linking	19
Annex E (normative) Encoding using URL for linking	21
Annex F (informative) Use case examples	22
Annex G (informative) RDF examples of linking PIs	27
Bibliography	34

SS-ISO 19155-2:2018 (E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

A list of all parts in the ISO 19155 series can be found on the ISO website.

Introduction

The Place Identifier (PI) architecture (ISO 19155) defined the conceptual model of a place and specified normative encodings, for Place Identifiers, not specific to any type of geographic feature. In this document, three mechanisms are presented that define how Place Identifiers can be linked with features or objects in other encodings. Even though the identifiers of those features or objects may not specifically be a place, they may be referred to conceptually as “other identifiers.”

[Figure 1](#) depicts the abstractions of linking mechanisms among feature/object encoding rules.

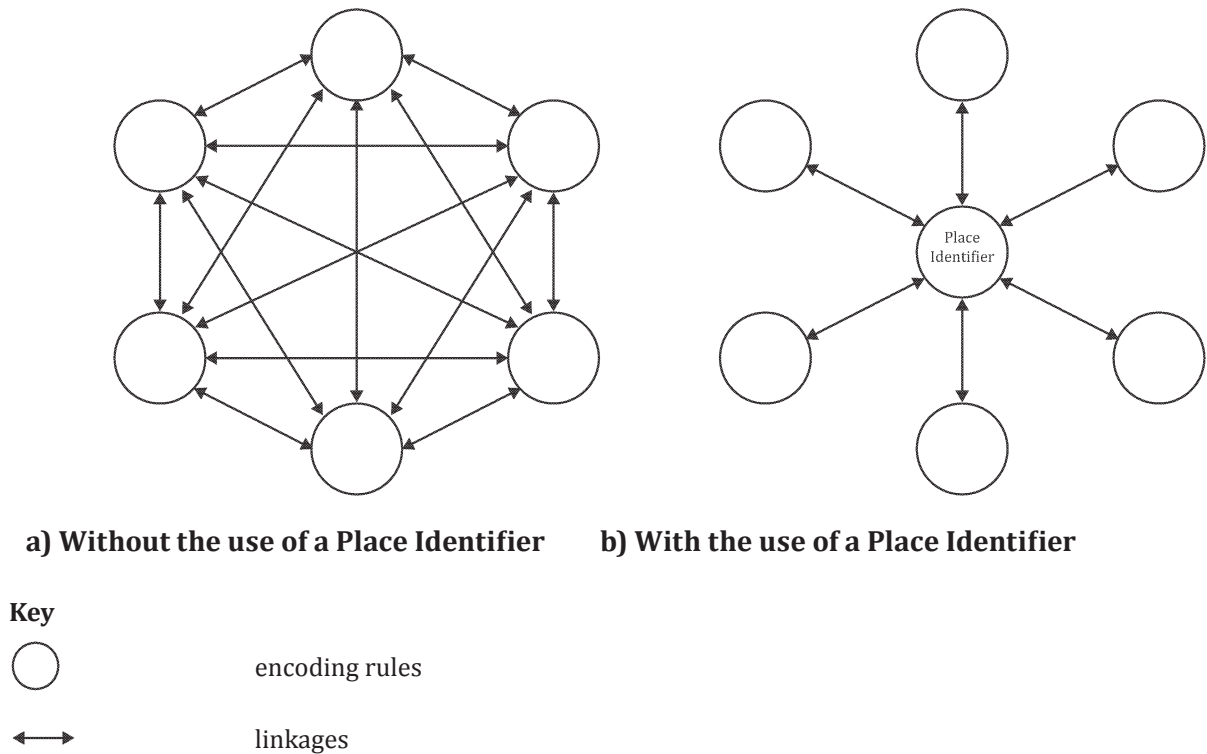


Figure 1 — Linkages with other encoding rules

The linking mechanisms presented in this document are based on accepted information technology for object identification and reference using gml:id, UUID, or URL. By using these linking mechanisms with the rules defined here, and according to the type of encoding rule being linked to, Place Identifiers can more uniformly be related to features and objects — other identifiers — in other encodings. This extends the functionality of those other identifiers, in different encodings, by linking with Place Identifiers encoded in GML.

Existing PI data can complement a range of other encodings through the use of the linking mechanisms defined in this document.

For example, a group of Place Identifiers representing stores in a shopping mall can be associated with the specific locations inside the shopping mall represented by a GML data set.

Geographic information — Place Identifier (PI) architecture —

Part 2: Place Identifier (PI) linking

1 Scope

This document defines the following three mechanisms for linking Place Identifiers (PIs) (see ISO 19155) to features or objects existing in other encodings:

- Id attribute of a GML object (gml:id) as defined in ISO 19136;
- Universally Unique Identifier (UUID) as defined in IETF RFC 4122;
- Uniform Resource Locator (URL) as defined in IETF RFC 1738.

These PI linking mechanisms are enabled using xlink:href as defined in W3C XML Linking Language (XLink).

While the identifiers of these features or objects can sometimes identify a place, within the scope of this document, the identifiers of features or objects existing in other encoding domains are referred to conceptually as other identifiers.

This document further defines that when PIs are encoded, as specified in ISO 19155, using the Geography Markup Language (GML) (ISO 19136), they are linked using gml:id to other GML encoded features. The details of encoding GML instances using gml:id are specified in a normative annex.

Additional normative annexes define encodings for linking Place Identifiers to other identifiers using UUID and URL and present examples for their use.

This document is applicable to location-based services, linked open data, robotic assisted services and other application domains that require a relationship between PIs and objects in either the real or virtual world.

This document is not about creating a registry of Place Identifiers linked to specific features or objects, and support of linking mechanisms other than gml:id, UUID, and URL is out of the scope of this document.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 19103, *Geographic information — Conceptual schema language*

ISO 19136:2007, *Geographic information — Geography Markup Language*

ISO 19155:2012, *Geographic information — Place Identifier (PI) architecture*

IETF, *Universally Unique IDentifier (UUID) URN Namespace*, RFC 4122, July 2005

IETF, *Uniform Resource Locators (URL)*, RFC 1738, December 1994

SS-ISO 19155-2:2018 (E)

W3C XML Linking Language (XLink) Version 1.1 — Recommendation, 06 May 2010

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 19155 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

Place Identifier (PI) link

relationship established between PIs and other identifiers in different encoding domains

Note 1 to entry: While the identifiers of these features or objects can sometimes identify a place, within the scope of this document, the identifiers of features or objects existing in other encoding domains are referred to conceptually as “other identifiers”.

Note 2 to entry: These “other identifiers” can exist outside of the PI architecture.

3.2

Place Identifier (PI) linking mechanism

means used to define a *place identifier (PI) link* (3.1)

4 Abbreviated terms

4.1 Abbreviated terms

BIM	Building Information Model
CSV	comma-separated values
IFC	Industry Foundation Class
GUID	Globally Unique Identifier
OGC	Open Geospatial Consortium
PI	Place Identifier
RDF	Resource Description Framework
SVG	Scalable Vector Graphics
UML	Unified Modeling Language
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
URN	Uniform Resource Name
UUID	Universally Unique Identifier
XML	eXtensible Markup Language

4.2 UML Notation

In this document, conceptual schemas are presented in the Unified Modeling Language (UML). The user shall refer to ISO 19103 for the specific profile of UML used in this document.

4.3 Backward compatibility

This document uses the concepts defined in the Place Identifier (PI) Architecture (ISO 19155) without modification. Therefore, no backward compatibility issues exist in this document.

5 Conformance

5.1 General

This document defines three conformance classes, specified in 5.2 to 5.4, matching the requirements classes of the three linking mechanisms defined in Clause 8. Any PI linking mechanism for which conformance with this document is claimed shall pass all of the requirements of the abstract test suite specified in Annex A.

5.2 Linking mechanism: gml:id

PI linking for which gml:id conformance is claimed shall pass all of the requirements specified in the abstract test suite in A.2.

Table 1 — Conformance class: Linking mechanism: gml:id

Conformance class	/conf/19155-2/5/5.2
Dependency	A.1
Requirements	/req/linking_mechanism/GML_ID
Tests	A.2

5.3 Linking mechanism: UUID

PI linking for which UUID conformance is claimed shall pass all of the requirements specified in the abstract test suite in A.3.

Table 2 — Conformance class: Linking mechanism: UUID

Conformance class	/conf/19155-2/5/5.3
Dependency	A.1
Requirements	/req/linking_mechanism/UUID
Tests	A.3

5.4 Linking mechanism: URL

PI linking for which URL conformance is claimed shall pass all of the requirements specified in the abstract test suite in A.4.

Table 3 — Conformance class: Linking mechanism: URL

Conformance class	/conf/19155-2/5/5.4
Dependency	A.1
Requirements	/req/linking_mechanism/URL
Tests	A.4