



UPLI Repairs Property Identification System Specification v1.0

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UPI Representation

The Universal Property Identifier (UPI) is represented as a hyphen delimited string of characters without padding in hierarchical order.

Nominally, the ID is formatted as:

{COUNTRY}-{SUB-COUNTRY}-{SUB-COUNTY}-{PROPTYPE}-{LOCAL-ID}-{SUB-PROPERTY-ID}

Example UPIs

The following table illustrates several property scenarios and their corresponding UPI designation.

UPI	Scenario
US-04015-N-R-11022331-N	APN 110-22-331 in Maricopa County, Arizona Maricopa County has no parent authority for assigning parcel numbers
US-42049-49888-R-1213666-N	APN 121-13-666 in Millcreek Township within Erie County, PA, (sub-county)
US-36061-N-R-010237502R1-N	Building 1/23/7502R1 in New York County (Manhattan Borough)
US-36061-N-S-010237502R1-113	Building 1/23/7502R1 in New York County (Manhattan Borough) Unit 113
US-06075-N-T-40010333-10	Lot 10 on parcel 40010333 in San Francisco, which is currently under construction
US-13051-N-R2-1122444-N	Parcel 112-2-444 in Savannah, GA, which has been assigned twice before to otherwise unrelated parcels
US-36061-N-S-0122213-118	Parking space 118 in parking garage building 0122213 in Manhattan, New York County, NY

Universal Property Identification System Specification v1.0

Real Estate Standards Organization
Universal Property Identifier
System Specification - Version 1.0

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Section 1.0 - Introduction and Description

Introduction

Purpose

The real estate community has been challenged to provide a universal way to describe properties as unique entities. The identifier should be at a given time unique across all other properties represented in this identification system. Further, the identifier should be ubiquitous such that anyone can derive and generate the identifier in a decentralized way, enabling services to provide detailed data in other dimensions for a given property.

Although the UPI can be generated using publicly available attributes, not all organizations will be capable of generating the ID. Organizations that maintain detailed public records history or otherwise have access to public records can readily create the UPI. Organizations that do not maintain this information will be able to obtain the UPI from their records vendor.

Once an organization discovers or derives the Universal Property Identifier (UPI), that UPI can be used to obtain information from other services that reference the identifier. Some examples of services that might be offered based on a UPI might be parcel shape, parent area demographics, price estimates, crime statistics, previous loan, insurance claim or deed history, just to name a few.

It should be noted that the UPI is a reference ID, to be useful correlating property information in otherwise disparate systems. It is not intended to be a unit that carries information, although it inevitably does. Similarly, there is no anticipated use case to decode the UPI, except for validation. It is expected that any associated property information will be referenced by the UPI as a single, whole unit.

Universal Property Identifier (UPI)

Description

The Universal Property Identifier (UPI) is composed of information in its attributes, generally already available as a standard. These attributes are represented hierarchically to enforce uniqueness and a general structure of increasing focus. Each level of the hierarchy is also a container that provides scope for the following segment of the identifier.

The approach follows a hash-type model whereby the target property is ultimately identifiable by its concentrically narrower location attributes. Although the identifier is not purposefully designed to be a data or attribute container, those components making up the identifier can be extracted using this specification if desired for validation.

In theory, all subordinate entities ultimately describe the lowest level of granularity of the hierarchy, namely real property, and even property units just below the recorded entity. This extra step allows the representation of stock cooperatives and other sub-property components may be leased, transferred or otherwise distinguishable. Any geographically-based level of the hierarchy can also be described geospatially.

An important note of this identification system is that it attempts to represent the present, or current state only. As property changes, divides, consolidates or otherwise changes shape, identifiers may come and go. Property lineage can be tracked, maintained and reported on using external services if desired. However, with this version of the specification, requests for data using the UPI will be assumed to be the currently defined UPI. Historical UPIs would be much easier to track with this system.

The Identifier is comprised of alphanumeric digits and hyphens only. Letters used are expected in uppercase, however the identifier is not case-sensitive.

Section 2.0 - Components

Section 2.1 - Country Code

Section 2.2 - Sub-Country Code (Country = "US")

Section 2.3 - Sub-County Code (Country="US")

Section 2.4 - Local Property Identifier (Country = "US")

Section 2.5 - Property Type (Country="US")

Section 2.6 - Sub-Property Identifier

Section 2.7 - UPI Representation

Section 2.1 - Country Code

The first component of the UPI is the country code. The code is given by the ISO-3166 two-digit country code in which the property resides. It is the primary global scope for the identifier.

Note: the balance of this identifier specification concerns itself with resource standards defined for the United States (*Country Code "US"*). Although other countries are envisioned to follow a similar model for this specification in the future, the details of each country's subdivision can be unique, and therefore require similarly unique treatment.

Section 2.2 - Sub-Country Code (Country = "US")

For the United States, ANSI has assumed maintenance of FIPS 6-4 as INCITS 31, last revised in 2014. INCITS 31 provides additional data than FIPS 6-4, but retains the underlying and defined county code system. The Sub-Country code is defined as the 5-digit code which is comprised of the two-digit state code as a prefix, followed by three digit county code. These codes are published in either FIPS 6-4 or INCITS 31 and currently maintained by the American National Standards Institute (ANSI). FIPS 6-4 nomenclature is officially retired, but the acronym and codes are still widely used. Although the FIPS 6-4 designation was retired, and maintenance of the list was transferred, the codes are still widely known as FIPS codes.

FIPS Class codes are given for each FIPS code, and revise with each census. The class codes are shown in the following table. (**Note:** that the only codes that apply to this specification for use with the UPI are H1, H6, and C7)

Note: H6 and C7 FIPS entries represent independent cities, and/or county government equivalents as allowed by their parent state. For example, the major New York City Boroughs have their own FIPS codes under class H6.

Class Code	Description	Applicability
H1	Identifies an active county or statistically equivalent entity that does not qualify under subclass C7 or H6.	
H4	Identifies an active county or statistically equivalent entity that does not qualify under subclass C7 or H6.	N/A
H5	Identifies census areas in Alaska, a statistical county equivalent entity.	
H6	Identifies a county or statistically equivalent entity that is really a coextensive or governmentally consolidated with an incorporated place, part of an incorporated place, or a consolidated city.	
C7	Identifies an incorporated place that is an independent city; that is, it also serves as a county equivalent because it is not part of any county, and a minor civil division (MCD) equivalent because it is not part of any MCD.	

From: <https://www.census.gov/geo/reference/codes/cou.html>

Class codes are not used in the identifier directly. Class codes are used to determine valid FIPS codes that a property falls under for use with this component.

Note: The use of FIPS for sub-country identifier is only applicable to the United States. However, other countries have similar hierarchies defined, and similar representations can be constructed.

Section 2.3 - Sub-County Code (Country="US")

Sub county codes are provided for in this specification for future scenarios where county subordinate entities might maintain parcel numbers, and they are not recognized by FIPS. If there is no sub-county authority identified in FIPS, the value "N" shall be used.

Codes for use with the Sub-County codes, if/when required are maintained by ANSI and located at the link found in the appendix. These codes identify county subdivisions. Not all subdivisions are used, only those areas that provide governmental oversight that includes property taxation and/or identification. For the United States, this generally applies to townships, primarily in the eastern part of the nation.

For the County Subdivision resource maintained by ANSI, each identified subdivision has a functional status it is aligned with. Several statuses are of no interest for this specification, namely census statistical areas, inactive governments and other fictitious entities. Typically, those areas with a functional status of "A" will maintain property information. In any case the entity that is the de facto source of the local property identifier, often called APN, is the entity whose corresponding ANSI FIPS code is referenced in this specification.

Functional Status	Descriptions
A	Identifies an active government providing primary general-purpose functions
B	identifies an active government that is partially consolidated with another government but with separate officials providing primary general-purpose functions
C	Identifies an active government consolidated with another government with a single set of officials
F	Identifies a fictitious entity created to fill the Census Bureau's geographic hierarchy
G	Identifies an active government that is subordinate to another unit of government
I	Identifies an inactive governmental unit that has the power to provide primary special-purpose functions
N	Identifies a nonfunctioning legal entity
S	Identifies an active government that is partially consolidated with another government but with separate officials providing primary general-purpose functions

From: <https://www.census.gov/geo/reference/codes/cousub.html>

As this table of status codes may change, the point of including here is informational only. The codes can serve as guideline of applicability, but any county subdivision which functions as the authoritative source will have their identifier in the table found at the link.

Section 2.4 - Local Property Identifier (Country = "US")

Real property which is on tax rolls have a "*parcel number*" which is a unique way for a given taxing or other governing authority to represent the property. This identifier is used with alphanumeric characters only. Any padding using alphanumeric characters in use by the taxing entity shall be observed and used for this component.

For example: Parcel Number 001-22-098 is represented as 00122098.

Presumably, these parcel numbers are unique in the scope of their assigning entity, or the assigning entity could not differentiate them. The assigning entity could have a separate identification system for different types of property.

For example: Tribal lands might have an independent system of property numbers for a given county / sub county. If so, this would be extensible using the PropertyType Identifier in the previous section, although formal identification would need to be discussed to update the standard for these cases if/when they arise.

Section 2.5 - Property Type (Country="US")

Property Type	Description
R[n]	<p>Real Property.</p> <p>Real property is the nominal case for this specification.</p> <p>If a property has been reassigned this number within the scope of its parent assignment authority, n may be incremented from zero. n is an optional specification and reserved exclusively for cases of reassignment.</p> <p>This property type presumes the property is a registered with its governing authority and assessed for taxes.</p>
S	<p>Stock Cooperative, Apartment, Commercial unit, or similar assigned ownership or occupation.</p> <p>These sub-property types do not exist as taxable entities, but rather as subordinate pieces or units of a parent, taxable property. Since these properties define and assign subunits, the property itself is still tangible, potentially transferrable or leasable, has a location, and is definable in this specification.</p> <p>These properties are expressed as the local property identifier, or assessor's parcel number of the parent parcel with a suffix representing the unit number or designation.</p>
T	<p>Temporary or Proposed Designation.</p> <p>When a property has no Local Property Identifier yet, as in the case of properties where construction or subdividing is proposed or planned by the owner, this designation can be used. If this designation is used, the LPI of the parent parcel is referenced, with a hyphenated suffix representing the lot number or similarly defined sub-property indicator.</p> <p>When the temporary status concludes, the UPI will change to the parcel identifier assigned by the applicable authoritative source.</p>
B	<p>Building Component</p> <p>A property may have multiple buildings located upon it. To identify a specific building, the UPI utilizes designation "B". When this property type is used, a corresponding building identifier is expected in the sub-property identifier segment. This allows the UPI to represent essentially any building in a unique way.</p> <p>Note that "units," or other sub-designations are not required to be represented within a building, so any such unit designation should still be unique within the property.</p> <p>For example, unit 101 in building A might be represented as A101 to avoid confusion with unit B101 in building B.</p>

The Property Type component is provided primarily as a mitigation strategy to differentiate otherwise conflicting local property identifiers in the future. This is especially true as the identifiers might collide when they originate as different property types, parcel number reassignment or reuse, etc. As such, the Property Type essentially governs the subsequent formatting of the UPI to the right.

It should be noted that any occurrence of a non-type "R" UPI will have a corresponding type "R" UPI. The converse is not true; that is, a type "R" real property UPI may stand on its own.

Section 2.6 - Sub-Property Identifier

A property can choose to identify its own subcomponents. This is an optional, and based on the Property Type designation.

Property Type	Sub-Property Identifier use
R	"N" sub property designation is expected, this is the property itself.
S	Unit Number, defined by the property ownership.
T	Lot Number, defined by owner or builder. Generally, this applies to cases where a formal parcel number has not yet been recorded, but where the property owner wishes to represent a sub property where subdividing is proposed or pending. It can be thought of as a temporary designation.
B	For building designations, the sub property identifier is a building identifier. Generally, this type is for multi-building properties and provides a means to identify each building component. The identifier is defined by the property owner.

The sub-property identifier is defined at the discretion of the property owner. Some examples of sub-property designations are shown in the next section.

Other capabilities of the extensibility of this system can be visualized by a non-traditional example: If a property was an open lot (*or garage building*) where spaces are leased, each space could have a property type “S” with each space having its own identifier.

Example garage building:

US-36061-N-0122213-R-N

Space 188 in the garage building:

US-36061-N-0122213-S-188

Building 65A on the parcel 12401001H:

US-04013-N-12401001H-B-65A

It is worth noting that such sub-property identifiers are generally not part of a recording at the county (or sub-county) level. Rather, this is information that comes from the only authoritative source, the property owner. As such, it might be maintained by a property data aggregator. This implies that the life of a property’s subcomponent is potentially fleeting; however this reflects the actual nature of identifying such subcomponents. In essence, the sub components of a property are always at the discretion of its owner.

Section 2.7 - UPI Representation

The Universal Property Identifier (UPI) is represented as a hyphen delimited string of characters without padding in hierarchical order.

Nominally, the ID is formatted as:

{COUNTRY}-{SUB-COUNTRY}-{SUB-COUNTY}-{LOCAL-ID}-{PROPTYPE}-{SUB-PROPERTY-ID}

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US-13051-N-1122444-R2-N	Parcel 112-2-444 in Savannah, GA, which has been assigned twice before to otherwise unrelated parcels
US-36061-N-0122213-S-118	Parking space 118 in parking garage building 0122213 in Manhattan, New York County, NY
US-04019-N-12401001H-B-65A	Steward Observatory (building 65A) at the University of Arizona Tucson, Pima County, AZ

Section 3.0 - Editors and Authors

The Universal Property Identifier System Specification was formulated and edited by:

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- Richard Torp (*Midwest Real Estate Data, LLC.*)
- Shawn Meissner (*REALTORS® Property Resource*)
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Appendix A: Glossary & Terms

APN	Assessor's Parcel Number. This may have different formats and rules depending on the area
FIPS	Federal Information Processing Standard 6-4, Counties and Equivalent Entities of the U.S., Its Possessions, and Associated Areas. Note: Re-named Federal Information Processing <i>System</i>
GNIS	Geographic Names Information System. Maintained by US Geological Survey jointly with the US Board on Geographic Names
INCITS	InterNational Committee for Information Technology Standards
INCITS 31	Codes for the Identification of Counties and Equivalent Areas of the United States, Puerto Rico, and the Insular Areas. See https://standards.incits.org/apps/group_public/project/details.php?project_id=204
LPN	Locally defined Parcel Number
NIST	National Institute for Standards and Technology See http://www.nist.gov
RESO	Real Estate Standards Organization
UPI	Universal Property Identifier

Appendix B: Background Publications and Information

NIST (*original source of FIPS*) – formal withdrawal of FIPS 6-4 as standards owner & replacements

<https://www.nist.gov/sites/default/files/documents/itl/FIPSCodesReplacementChart2014.pdf>

https://www.nist.gov/sites/default/files/documents/2016/12/15/withdrawn_fips_by_numerical_order_index.pdf

<https://www.nist.gov/sites/default/files/documents/itl/FIPSCodesReplacementChart2012.pdf>

<https://www.gpo.gov/fdsys/pkg/FR-2008-09-02/pdf/E8-20138.pdf>

Geographic Terms and Concepts - American Indian, Alaska Native, and Native Hawaiian Areas

https://www.census.gov/geo/reference/gtc/gtc_aiannha.html

2010 ANSI Codes for County Subdivisions

<https://www.census.gov/geo/reference/codes/cousub.html>

2010 FIPS Codes for Counties and County Equivalent Entities

<https://www.census.gov/geo/reference/codes/cou.html>

Appendix C: US County and Sub-Country References

ANSI County entities:

https://www2.census.gov/geo/docs/reference/codes/files/national_county.txt

ANSI Sub-county entities:

https://www2.census.gov/geo/docs/reference/codes/files/national_cousub.txt