UUID Identifier and Blockchain

Universally unique identifier for the un-identified

Artwork: Csoonline.com

- A Universally Unique IDentifier (UUID) URN Namespace
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A Universally Unique IDentifier (UUID) URN Namespace

Abstract

This specification defines a Uniform Resource Name namespace for UUIDs (Universally Unique IDentifier), also known as GUIDs (Globally Unique IDentifier). A UUID is 128 bits long, and can guarantee uniqueness across space and time. UUIDs were originally used in the Apollo Network Computing System and later in the Open Software Foundation's (OSF) Distributed Computing Environment (DCE), and then in Microsoft Windows platforms.

This specification is derived from the DCE specification with the kind permission of the OSF (now known as The Open Group). Information from earlier versions of the DCE specification have been incorporated into this document.

https://datatracker.ietf.org/doc/html/rfc4122

> One of the main reasons for using UUIDs is that no centralized authority is required to administer them (although one format uses IEEE 802 node identifiers, others do not). As a result, generation on demand can be completely automated, and used for a variety of purposes. The UUID generation algorithm described here supports very high allocation rates of up to 10 million per second per machine if necessary, so that they could even be used as transaction IDs.

> UUIDs are of a fixed size (128 bits) which is reasonably small compared to other alternatives. This lends itself well to sorting, ordering, and hashing of all sorts, storing in databases, simple allocation, and ease of programming in general.

Since UUIDs are unique and persistent, they make excellent **Uniform Resource Names**. The unique ability to generate a new UUID without a registration process allows for UUIDs to be one of the URNs with the lowest minting cost.

Format

```
time_low               unsigned 32   0-3    The low field of the
                          bit integer          timestamp

   time_mid               unsigned 16   4-5    The middle field of the
                          bit integer          timestamp

   time_hi_and_version    unsigned 16   6-7    The high field of the
                          bit integer          timestamp multiplexed
                                               with the version number

   clock_seq_hi_and_rese  unsigned 8    8      The high field of the
   rved                   bit integer          clock sequence
                                               multiplexed with the
                                               variant

   clock_seq_low          unsigned 8    9      The low field of the
                          bit integer          clock sequence

   node                   unsigned 48   10-15  The spatially unique
                          bit integer          node identifier

   In the absence of explicit application or presentation protocol
   specification to the contrary, a UUID is encoded as a 128-bit object,
   as follows:

   The fields are encoded as 16 octets, with the sizes and order of the
   fields defined above, and with each field encoded with the Most
   Significant Byte first (known as network byte order).  Note that the
   field names, particularly for multiplexed fields, follow historical
   practice.

   0                   1                   2                   3
    0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
   +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
   |                          time_low                             |
   +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
   |       time_mid                |         time_hi_and_version   |
   +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

```
|clk_seq_hi_res |  clk_seq_low  |         node (0-1)            |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                         node (2-5)                            |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

Identifiers: Persistent Cloud Objects

A **persistent object** is an object that retains its state even after the program that created it has terminated, typically by storing its state in a file or database for later retrieval. This allows the object to be reloaded and used again in future program executions.

A persist cloud object is a persistent object that **lives** in one or more cloud systems.

> **lives**: resides as in stored in storage devices, serialized and de-serialized, including all the code with

Usage

- Reusability: Persistent objects can be reloaded and used across different sessions of a program.
- Serialization: The process of converting an object's state into a format suitable for storage (e.g., converting to bytes).

Common Practices

- Serialization: Converting an object to a byte stream for storage.
- Deserialization: Restoring an object from a byte stream.

Cloud Tools

Apps and other related software applications as standalone functional units

Cloud Tools

CCN Free Form Editor

https://www.wolframcloud.com/obj/ccn2/AI/freeform/construct/editor?_embed=iframe

Cloud Tools

CCN UUID Editor

https://www.wolframcloud.com/obj/ccn2/AI/freeform/blockchain/editors/uuid?_embed=iframe

Use Cases

In both software and systems engineering, a **use case** is a structured description of a system's behavior as it responds to requests from external actors, aiming to achieve a specific goal.

Use Cases

Person with Identification Documents

- USA, the state of Virginia (proposed?) Personal Identity card
- With qrcodes, barcodes and multiple images and text.
- Symbol □□ does all the facial computing (neural nets), barcodes, qrcodes and image text
- This will empower a universal blockchained or bloxberged Digital object that could and should enable a new de-centralized identification card system.

```
□□:

□□:

//□□fills in numerous □content + □□etadata into the blockchain;
□□;

show "□□index";

save as photo_id;
```

"□□/index"

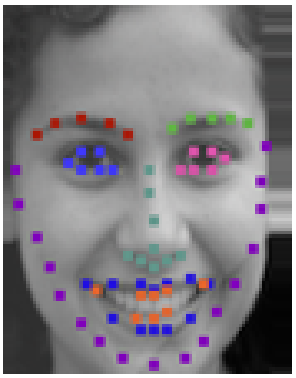




"□□/barsindex"



"□□/highlight"



"□□/text"

{

"image_text":"Vi soe VA, USA FEDERAL *\nLYQIM1A IDENTIFICATION CARD

_#n* a\n716700487 e\nTESSIER 8 Gender: Female, Orientation: Straight,

Age: 35,\nBELLA Fi Race: White\/ Non-Hispanic, Votes: Democrat,\nAd

srw aD *B88\"795-a202 5 Job: Industrial Machinery Repair Worker,

Security\n74 IN RD: 5 5 â??Answers: {The Truman Show, Omaha, White},\n

Dato of birt ry Marital status: married, Salutation: Mrs.\nOeio4rt988

A\na ED Height: 5â?? 6â?□ \nF BRO Weight: 136 ssn: Q\nNONE\n\ntek

items tebe IMT |"

}

"□□/bartexts"

{

"@<LF><FS><CR>ANSI

6360050101DL00300203DLDAQ3265188<LF>DAALOTT,ERIC,B,<LF>DAG763 TEST

STREET<LF>DAINEW YORK CITY<LF>DAJSC<LF>DAK10005 <LF>DARD <LF>DAS

    <LF>DAT   <LF>DAU601<LF>DAW170<LF>DAYBRO <LF>DAZBRO

<LF>DBA20241004<LF>DBB19911004<LF>DBC1<LF>DBD20140101<LF>DBG2<LF>DBH1

}

Color Keys

Blockchain by Bloxberg 2.0

CCN cloud systems

Image Processing + Bloxberg 2.0 Blockchain Digitals

{

"□□/face", "□□/face1", "□□/highlight", "□□/faces", "□□/index", "□□/text",

"□□/facials", "□□/boxes", "□□/bartexts", "□□/barsindex", "□□/⚲", "□□/□□", "□□

processed", "(□□)", "□□/type", "□□/curve", "□□/compressed", "(□□)",

"(⬡□□)", "⬡□□/type", "□□/type", "(□□)", "(⬡□□)", "⬡□□/type", "□□/type",

"□ /bloxberg/contexts", "□ /bloxberg/context1/@context",

"□ /bloxberg/context1/id", "□ /bloxberg/context1/type",

"□ /bloxberg/context1/issuer", "□ /bloxberg/context1/issuancedate",

"□ /bloxberg/context1/credentialsubject", "□ /bloxberg/context1/crid",

"□ /bloxberg/context1/cridtype", "□ /bloxberg/context1/metadatajson",

"□ /bloxberg/context1/proof", "□ /bloxberg/context2/@context",

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"□ /bloxberg/context6/id", "□ /bloxberg/context6/type",

"□ /bloxberg/context6/issuer", "□ /bloxberg/context6/issuancedate",

"□ /bloxberg/context6/credentialsubject", "□ /bloxberg/context6/crid",

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"□ /bloxberg/context7/issuer", "□ /bloxberg/context7/issuancedate",

"□ /bloxberg/context7/credentialsubject", "□ /bloxberg/context7/crid",

"□ /bloxberg/context7/cridtype", "□ /bloxberg/context7/metadatajson",

"□ /bloxberg/context7/proof", "□ /contents", "□ /hashlist", "□ /key_eth",

"□ /value", "□ /pdf", "□ /fullcredentialobject",

"□ /certificate", "□ /metadata",

}

"□□/♀"

"♀\"https://www.wolframcloud.com/obj/ccn2/freeform/ff/images/ff_free_blox_id_face.png\"♀\"\
https://www.wolframcloud.com/obj/ccn2/freeform/ff/images/ff_free_blox_\ id_facehighlight.png\"♀\"\
https://www.wolframcloud.com/obj/ccn2/freeform/ff/images/ff_free_blox_id_facehighlights.png\"♀\"\
https://www.wolframcloud.com/obj/ccn2/freeform/ff/images/ff_free_blox_id_index.png\"♀\"\
https://www.wolframcloud.com/obj/ccn2/freeform/ff/images/ff_free_blox_id_imagetext.json\"♀\"\
https://www.wolframcloud.com/obj/ccn2/freeform/ff/images/ff_free_blox_id_facialpoints.json\"♀\"\
https://www.wolframcloud.com/obj/ccn2/freeform/ff/images/ff_free_blox_id_barcodebox.json\""

"□□/□□"

"□□\"group\"->\"ff\"□□\"user\"->\"free\"□□\"ffname\"->\"blox_\ id\"□□\"publisher\"->\"CCN\"□□
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Full Credential Object

"□ /fullcredentialobject"

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hyUDCAP1c9BohuH45o3f64tEnAH3LQmJkzGKKixRqz9TtypnELSJwzeMPTWZNPTihHhL2P

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...

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tials/v1\",\"https://w3id.org/bloxberg/schema/research_object_

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...

"□ /pdf"

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\"https://www.wolframcloud.com/obj/ccn2/freeform/ff/blockchain/bloxberg2/cert_pdf/ff_free_blox_id_6.pdf\",

\"https://www.wolframcloud.com/obj/ccn2/freeform/ff/blockchain/bloxberg2/cert_pdf/ff_free_blox_id_7.pdf\"})"

Certificate 1



Certificate 7



Use Cases

Identified War Victim

base: **gaza-Nour-Suliaman-Alfarah-□□□□-□□-□□-□□-□□-□□□□**

uuid: adeb7e81-39d9-44bd-a631-e78313004657


```
□□"uuid"->"gaza-Nour-Suliaman-Alfarah-□□□□□□□□□□□□□□□□□□adeb7e81-39d9-44bd-a631-e78313004657"
□□"©"->"CC-BY-NC-ND 4.0"
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