A URN Namespace For The ucode
draft-ishikawa-yrpunl-ucode-urn-03

Abstract

   This document describes a URN (Uniform Resource Name) namespace for
   ucode, an identifier system for objects and places. The ucode
   technology is used in many applications, and this document provides a
   URN namespace for ucode to enable its use in Internet-related devices
   and software.

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1 Introduction

   ucode [UCODE] is an identifier to be stored in many types of tags
   (not limited to RFID tags). Its allocation and management is handled
   by Ubiquitous ID center [UIDC]. The embedding of ucode in many type
   of tags (RFID tags, optical code, infrared markers, and even sound
   source) is also specified by Ubiquitous ID center.

   Basic length of ucode is 128 bits, but it is extensible in units of
   128 bits if necessary.

   ucode has been devised to identify objects and places where existing
   standard doesn't fit the application needs or the scope of the
   applications, or the allocation policy of existing standard is too
   limited for small users or individual users.

   Applications that use ucode take advantage of the Internet
   extensively. Use of ucode is open to anybody. Those who wish to have
   ucode allocated can do so either by having ucode subspace allocated
   to them directly from Ubiquitous ID center or obtain tags that have
   pre-stored ucode in them. Tags which can store ucode are certified
   as ucode tags, and their reader specification is published so that
   there will be many readers available for such tags.

   By having URN (uniform resource name) for ucode, we can facilitate
   the use of ucode in many Internet-related devices and software for
   the benefit of existing and future users of ucode and people who will
   access such tags attached to objects and places. Since the
   application based on ucode can run across organizational boundaries,
   and spread across regions and countries, we request a formal URN NID
   assignment for 'ucode'.

2 'ucode' Registration Template

Namespace ID:

   'ucode' requested

Registration Information:

   Registration Version Number: 1
   Registration Date: 2011-12-21

Declared registrant of the namespace:

    T-Engine Forum
    2-20-1, Nishi-Gotanda
    Shinagawa, Tokyo, 141-0031, JAPAN
    office@t-engine.org
    Tel: +81-3-5437-0572

Declaration of syntactic structure:

    The structure of the name space for 'ucode' using the hexadecimal
    representation of identifier is as follows using ABNF [RFC5234].

    UCODE-URN = "urn:ucode:" ucode-name
    ucode-name = "_" ucode-number
    ucode-number = 1*ucode-value
    ucode-value = 32HEXDIG
    HEXDIG   = DIGIT / "A" / "B" / "C" / "D" / "E" / "F"
    DIGIT   = %x30-39
                        ; 0-9

    NOTE 1: "1*" at the start of ucode-number definition is not a typo.
    Although the currently used ucode [UCODE] is 128-bits (16 octets),
    thus requiring 32 hexadecimal characters to represent serially, ucode
    is designed to be extensible in increment of 128 bits. So in the
    distant future, we may need to repeat the chunks of 128 bits. This
    is why "1*" precedes ucode-value.

    NOTE 2: ucode-name start with a "_". The reason is as follows. This
    ucode-name is also intended to be used as an identifier as a tag for
    XML [W3CXML]. An XML tag can't start with a digit. We insert "_" at
    the beginning to make sure ucode-name starts with a non-digit,
    i.e.,"_" since ucode-number can start with a decimal digit.

    An example

    The 128-bit ucode value, 0123456789ABCDEF0123456789ABCDEF, expressed
    in a series of hexadecimal digits, is expressed as follows:

    urn:ucode:_0123456789ABCDEF0123456789ABCDEF

Relevant ancillary documentation:

    ucode, the identifier expressed by ucode-number, is managed by
    Ubiquitous ID Center [UIDC], which is a sub-organization of T-Engine
    Forum [TEF]. "Ubiquitous Code: ucode" [UCODE] defines this
    identifier system.

Identifier uniqueness considerations

   'ucode' namespace is managed by Ubiquitous ID Center. Ubiquitous ID
   Center assigns the identifier, ucode, in such a way that the
   uniqueness of 'ucode' name space will be maintained.

Identifier persistence considerations:

   The assignment process guarantees that names are not reassigned and
   that the binding between the name and its resource is permanent,
   regardless of any standards or organizational changes or the
   assignment period.

Process of identifier assignment:

   Names are assigned by Ubiquitous ID Center and by any entities that
   are sub-delegated by Ubiquitous ID Center. This assignment process
   is based on "ucode Management Implementing Procedures" [UCDMIP]
   established by Ubiquitous ID Center.

Process of identifier resolution

   The process of identifier resolution is currently based on "ucode
   Resolution Protocol" [UCSURP]. It will be enhanced by using newer
   Recommendations from ITU-T and/or standards from ISO.

Rules for lexical equivalence:

   The entire UCODE-URN is case-sensitive.

Conformance with URN syntax:

   There are no special reserved characters. The URN of this namespace
   conform to RFC 2141 [RFC2141] and RFC 3986 [RFC3986].

Validation mechanism:

   No special consideration.

Scope:

   Global.

3 IANA considerations

   This document includes one URN Namespace registration request for
   'ucode' to be entered into the IANA registry for URN NIDs.

4 Namespace considerations

ucode, the identifier expressed by ucode-number, is a unique
identification number to identify a tangible object or a place.
Additionally, ucode can be assigned to "content" or "information"
that does not exist in the real world, and a "concept" that is yet
more abstract.

ucode has been devised to identify objects and places where existing
standard doesn't fit the application needs or the scope of the
applications, or the allocation policy of existing standard is too
limited for SMEs (Small to Medium Enterprises), small scale research
laboratories at academic institutions, or individual users.

ucode is only an identification number, and its value (or its sub
bit-fields) does not contain any pre-assigned meaning. Any relevant
information about the object or place to which a ucode is assigned is
stored in a data server that can be reached after a "resolution
process" [UCSURP]. This resolution process usually occurs over the
Internet.

ucode can be assigned to an object to be identified regardless of the
type of application. ucode is expected to be stored in any kind of
tags (2D optical code, RFID, and other form of tags) and it provides
a framework where anyone can obtain unique numbers for identification
purposes.

ucode has been designed to provide the services outlined in ITU-T
recommendation, "Service description and requirements for multimedia
information access triggered by tag-based identification" [ITU-T-
F771] and to operate in the framework of "Architecture of a system
for multimedia information access triggered by tag-based
identification" [ITU-T-H621].

ucode architecture is general enough to cover many applications for
the users.

5 Community Considerations

This namespace enables ucode to be stored in tags that can store URN,
and ucode related information to be described as metadata. This
allows exchange of descriptions regarding objects and places among
multiple organizations.

We expect many small-scale providers who will offer ucode tags to
small users as well as large scale providers who will hand out more
than millions of tags to users.

The resolution servers and applications will be available to general
users with appropriate access control over the Internet. The
published specification for resolver and access services for 'ucode'
allows the creation of client software for the many types of
computers including small mobile terminals and ever popular
smartphones.

6 Security Considerations

There are no additional security considerations other than those
normally associated with the use and resolution of URNs in general.

7 References

7.1 Normative References

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7.2 Informative References

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[UIDC]   Ubiquitous ID Center.   http://www.uidcenter.org/

[TEF]   T-Engine Forum.   http://www.t-engine.org/

Contributors

    Ken Sakamura
    Noboru Koshizuka
    Katsunori Shindo
    Tomonori Usaka, and
    other past and current members of uID architecture group at the
    University of Tokyo and YRP Ubiquitous Networking Laboratory (YRP
    UNL).

Acknowledgments

    We would like to thank the members of T-Engine Forum who have built
    applications using ucode and offered valuable feedback. (Application
    examples from these members can be found at uidcenter web sites
    [UIDC], and www.youtube.com: search for "uidcenter" without the
    quotes.)

Authors' Addresses

    Chiaki Ishikawa
    YRP Ubiquitous Networking Laboratory
    2-20-1, Nishi-Gotanda
    Shinagawa, Tokyo, 141-0031, JAPAN

    Tel: +81-3-5437-2270
    FAX: +81-3-5437-2271
    EMail: chiaki.ishikawa@ubin.jp