

**Using Universal Content Identifier as Uniform Resource Names  
draft-sangug-uci-urn-01.txt**

Status of this Memo

This document is an Internet-Draft and is subject to all provisions of [section 3 of RFC 3667](#). By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she become aware will be disclosed, in accordance with [RFC 3668](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/1id-abstracts.html>

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>

This Internet-Draft will expire on July 1, 2005.

Intellectual Property Rights (IPR) Statement

By submitting this Internet-Draft, I certify that any applicable patent or other IPR claims of which I am aware have been disclosed, or will be disclosed, and any of which I become aware will be disclosed, in accordance with [RFC 3668](#).

Abstract

This document describes a Uniform Resource Name (URN) namespace for the National Computerization Agency (NCA) for naming persistent digital resources such as musics, videos, texts, images, e-books and other types of digital resources produced or managed by NCA.

## 1. Introduction

NCA is a non-profit organization with a mandate to develop and promote information infrastructure and manage public digital contents in Korea and possibly worldwide.

NCA has been supervising digitalization projects with various organizations. The contents involved in such projects include millions of technical papers, cultural properties, educational materials, scientific research reports. Those organizations manage the digital contents in a standardized way set by NCA and provide users with various content services via internet.

NCA wishes to issue globally unique and persistent IDs to digital resources and assign relevant organizations as its registration agencies under Universal Content Identifier (UCI) scheme. It is beneficial for NCA, its registration agencies, and the value chain players in e-commerce, to have the UCI URN namespace, under which all the contents and components NCA produces and manages are digitally registered, identified and resolved.

NCA has been developing and operating the UCI system that provides registration, resolution, search, and administration functionalities. The functionalities are going to be added and modified once the use of UCI URN namespace is approved. NCA would like to assign unique, permanent, and location-independent names based on the URNs for the resources it produces or manages. See <http://www.nca.or.kr/eindex.htm> for more information on NCA.

This namespace specification is for a formal namespace.

## 2. Specification Template

Namespace ID:

"UCI"

Registration Information:

Registration Version Number: 1

Registration Date: 2004-07-xx

Declared registrant of the namespace:

Name : Sang-ug Kang

Affiliation: National Computerization Agency

Address : NCA Bldg. 77 Mookyo-Dong, Chung-Ku, Seoul, Korea

Phone : +82 (2) 2131-0443

Email : <sukang@nca.or.kr>

Web : <<http://www.nca.or.kr>> or <<http://home.uci.or.kr>>

Sang-ug

Expires July 1, 2005

[Page 2]

## Declaration of syntactic structure:

The Namespace specific string of all URNs assigned by NCA conforms to the syntax defined in [section 2.2. of RFC2141](#), "URN Syntax"[1]. The syntax convention is described in the form of ABNF rules [2] as the following.

```

UCI = prefix "-" instance *1(":" qualifier)

prefix = 1*(alphaDigit) *1(":" 1*(alphaDigit))
        *1("+" 1*(alphaDigit))
instance = 1*(trans / "%" HEXDIG HEXDIG)
qualifier = head 1*(alphaDigit) *2("-" head 1*(alphaDigit))
trans = alphaDigit / other
alphaDigit = ALPHA / DIGIT
head = "C" / "R" / "F"
other = "(" / ")" / "+" / "," / "-" / "." / "=" / "@" /
        ";" / "$" / "_" / "!" / "*" / "'"
reserved = "%" / "/" / "?" / "#"

```

The UCI identifier consists of two parts : prefix code and content code. The content code is also divided into instance code and qualifier code which is optional. A prefix code is given to a registration agency, subordinate registration agency, and/or its registrants such as 'G3000+music', 'I600', 'I500+paper' and so forth. A content code is issued to each individual digital resource such as 'cii90007', '8987409' and so on.

## Relevant ancillary documentation:

None.

## Identifier uniqueness considerations:

It is the responsibility of registration authority, or NCA, to guarantee the uniqueness of identifiers and the names of subordinate naming authorities. For example, a software tool developed and used by NCA checks if a UCI identifier is being reassigned and verifies that it is assigned to at most one resource, during the registration process.

## Identifier persistence considerations:

Registration Agencies are all eligible to maintain the usability of the UCI URNs for a reasonably long period. As a government sponsored organization, NCA will operate a backup service and make an effort to find a substitute in case a registration agency becomes out of operation.

Sang-ug

Expires July 1, 2005

[Page 3]

#### Process of identifier assignment:

Assignment of UCI identifier is delegated to the registration agencies. NCA appoints UCI registration agencies and provides its namespace by assigning a unique registration agency code which is a part of NSS. Followed by the authorized namespace, each registration agency sets its own identifier scheme that conforms to the UCI syntactic structure.

An UCI for a digital resource is issued by the registration agency, upon a request of a registrant. The following is an example identifier.

e.g., urn:uci:I700-2987098

where, I700 is a registration agency code and 2987098 is an identifier assigned to a digital content.

#### Process for identifier resolution:

Resolution is controlled by NCA and its delegates. The list of UCI registration agency codes is maintained by the registration authority. Each registration agency maintains the list of subordinate registrant codes and identifiers registered to the registration agency.

Identifier resolution steps are as follows.

- (Step1)Global resolution : NCA resolves which RA is dealing with the associated resource by parsing the registration agency code of the UCI.
- (Step2) Local resolution : The corresponding RA parses and resolves the rest of the identifier

The global resolution is performed by UCI resolution server that is open to public. (Currently <http://rootadmin.uci.or.kr:9000/> {UCI identifier} will give you resolution results.)

#### Rules for Lexical Equivalence:

The "prefix" is case-insensitive. So there will not be two registration agencies whose names differ only in case.

urn:uci:{prefix code}:

is case-insensitive for matches. Remainder of the identifier is case-sensitive.

Sang-ug

Expires July 1, 2005

[Page 4]

#### Conformance with URN Syntax:

The UCI syntax fully conforms to [RFC2141](#) syntax rules for both NSS and NID.

#### Validation mechanism:

Valid list of prefix code will be available via both on-line and off-line upon request. The validity of the rest of identifier can be offered via on-line service. (Currently at <http://rootadmin.uci.or.kr:9000/{UCI identifier}> by typing a query UCI identifier)

#### Scope:

Global.

### **3. Security Considerations**

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

### **4. Namespace Considerations**

The Korean government has been funding the UCI project with the vision that it will be an essential component in realizing interoperability of digital contents owned by individual institutes and organizations. The resolution service provided by NCA and its registration agencies via networks will play a central role in achieving such a goal. Moreover, the resolution service is open to the public without discrimination.

The assignment and use of identifiers is performed according to the rules established by NCA. It abides by the URN requirements and syntax. Within a UCI namespace, a registration agency manages subordinate namespaces and maintains the metadata of digital contents.

For making the service available to the public, a global resolution service is run by NCA through a service server and local resolution service is provided by the corresponding registration agency.

### **5. Community Considerations**

The assignment and use of identifiers within the namespace are open and the related rule is established by NCA. Registration agencies are evaluated and selected fairly and shall have the responsibility for processing registrant's requests for registering digital contents. Registration authority and registration agencies shall operate resolution servers for UCI namespace and subordinate





namespaces, respectively. Digital content users can access to the resolution servers to fetch resolution results. The reference software is developed and resolution servers are now in operation.

## **6. IANA Considerations**

This document requests the registration of the "UCI" namespace in the IANA registry of URN NIDs.

## **7. Normative References**

- [1] Moats, R., "URN Syntax", [RFC 2141](#), May 1997.
- [2] Crocker, D. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF", [RFC 2234](#), November 1997.
- [3] Daigle, L., van Gulik, D., Iannella, R. and P. Faltstrom, "URN Namespace Definition Mechanisms", [BCP 33](#), [RFC 2611](#), June 1999.

## **8. Authors' Addresses**

Kang, Sang-ug  
NCA Bldg. 77 Mookyo-Dong,  
Joong-Ku, Seoul,  
Korea

Phone: 82-2-2131-0443  
EMail: [sukang@nca.or.kr](mailto:sukang@nca.or.kr)

## **9. Full Copyright Statement**

Copyright (C) The Internet Society (2005). This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, such as by removing the copyright notice or references to the Internet Society or other Internet organizations, except as needed for the purpose of developing Internet standards in which case the procedures for copyrights defined in the Internet Standards process must be followed, or as required to translate it into languages other than English.



Expires: July 1, 2005

February 2005

The limited permissions granted above are perpetual and will not be revoked by the Internet Society or its successors or assignees.

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

#### Acknowledgement

Funding for the RFC Editor function is currently provided by the Internet Society.