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**Glass to Glass Internet Ecosystem URI and S-NAPTR Use  
draft-daigle-deen-ggie-uri-snaptr-00**

Abstract

This document defines the URI scheme "median" for "media networks" as defined in the Glass to Glass Internet Ecosystem work, as well as the necessary components to resolve median URIs using the S-NAPTR system.

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## Table of Contents

<a href="#">1.</a>	Terminology . . . . .	<a href="#">2</a>
<a href="#">2.</a>	Introduction . . . . .	<a href="#">2</a>
<a href="#">3.</a>	The role and purpose of the median URI . . . . .	<a href="#">2</a>
<a href="#">4.</a>	median URI scheme definition . . . . .	<a href="#">3</a>
<a href="#">5.</a>	Use of S-NAPTR for GGIE . . . . .	<a href="#">4</a>
<a href="#">5.1.</a>	S-NAPTR components . . . . .	<a href="#">4</a>
<a href="#">5.2.</a>	S-NAPTR example . . . . .	<a href="#">4</a>
<a href="#">5.3.</a>	After S-NAPTR... . . . .	<a href="#">5</a>
<a href="#">6.</a>	Acknowledgements . . . . .	<a href="#">5</a>
<a href="#">7.</a>	IANA Considerations . . . . .	<a href="#">5</a>
<a href="#">8.</a>	Security Considerations . . . . .	<a href="#">6</a>
<a href="#">9.</a>	References . . . . .	<a href="#">6</a>
<a href="#">9.1.</a>	Normative References . . . . .	<a href="#">6</a>
<a href="#">9.2.</a>	Informative References . . . . .	<a href="#">6</a>
	Authors' Addresses . . . . .	<a href="#">7</a>

## [1.](#) Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

## [2.](#) Introduction

This document specifies the "median" URI scheme for the Glass to Glass Internet Ecosystem (GGIE -- see [[I-D.deen-daigle-ggie](#)]) media objects, as well as its use of S-NAPTR ([[RFC3958](#)]) to find Media Address Resolution Service (MARS -- to be described in a future Internet-Draft) servers for a given median URI.

N.B.: there are significant design decisions still under discussion for the overall GGIE technology approach. Depending on the outcome of those discussions -- e.g., on whether or how to determine the equivalence between two media objects -- the approach proposed in this document may be changed significantly. Consider the use of S-NAPTR and domain names as placeholder proposals.

## [3.](#) The role and purpose of the median URI

The median URI scheme is used to find one or more Media Encoding Network (MEN) instances for a given media object, within the domain of a particular video distributor. (For a discussion of MEN, see the DASH MPEG MEN definition in [[I-D.deen-naik-ggie-men-mpeg-dash](#)]). Media objects are identified by industry-standard identifiers. This document specifies the use of EIDR ("Entertainment Identifier



Registry") identifiers ([[IS026234](#)]) for identifying video content in median URIs.

The components of the median URI are used to find the appropriate Media Address Resolution Service (MARS) server for the domain which is authoritative for that EIDR.

It is important to note that the median URI does not identify ALL instances of MEN for a given EIDR. Other domains may well have media encoding networks available for the video resource associated with the EIDR.

#### **4. median URI scheme definition**

This section fulfills the requirements for registration of the "median" URI scheme, per [[RFC7595](#)].

For now, it is assumed that the median URI scheme is not hierarchical and is opaque. As of this writing, it is assumed there is no need for relative URIs or queries and fragments as defined in the URI specification.

??? TBD: Re-read [RFC7595](#) and make sure this document fulfills all requirements

The median URI scheme has two main components: the identifier of the media that is sought, and the domain that will serve it.

The intention is that existing media identifier schemes can be incorporated for use in the median URI scheme, rather than creating any new ones. Therefore, the part of the media URI that handles the media identifier includes an indicator of the identifier type as well as the identifier itself. In this document, we define the use "EIDR" identifiers.

There may be many different domains that serve a given media object, in one or more formats. The median URI includes the particular domain that should be consulted for the media network that has been identified.

The basic syntax of the "median" URI scheme is as follows:

```
median-uri = "median:" + media-ID-type + ":" + media-ID + ":" + media-domain
media-ID-type = "EIDR" | <others to be defined later>
               any valid URI character or percent encoded reserved character>
media-ID = EIDR-ID | <to be defined later>
           any valid URI characters or percent encoded reserved characters>
EIDR-ID = "10.5240%2F" + Specific-EIDR
Specific-EIDR = 1*EIDR-chars
EIDR-chars = ALPHA / DIGIT / "-" / "." / "_"
media-domain = <domain name for which to look for the MARS service>
```

For example, the following median URI would be used to find the MEN associated with the movie "Despicable Me" in the example.com domain:

```
median:EIDR:10.5240%2F6933-25C9-299D-671A-24FB-V:example.com
```

## **5. Use of S-NAPTR for GGIE**

This section outlines the use of the S-NAPTR approach for finding MARS servers for a given median URI. Consequently, it defines the MARS "application service" for S-NAPTR.

Note that this is one method of discovering relevant MARS servers. Other methods may be defined (e.g., approaches that work directly from within web browsers).

### **5.1. S-NAPTR components**

The S-NAPTR components are as follows:

Application Unique String: The Application Unique String used in S-NAPTR is the "media-domain" component from the median URI.

Application Service: The Application Service is "MARS", for "Media Address Resolution Service".

Application Protocol: Currently, the only S-NAPTR Application Protocol defined for use with the MARS Application Service is "http".

### **5.2. S-NAPTR example**

For example, the MARS service for the URI "median:EIDR:10.5240%2F6933-25C9-299D-671A-24FB-V:example.com" could be found in the following NAPTR records: ??? need to update with appropriate protocol(s)

example.com.

```
;;      order pref flags
IN NAPTR 100  10  "a"   "MARS:http"      ( ; service
                                ""          ; regexp
                                mars.example.com. ; replacement
                                )
IN NAPTR 100  20  "s"   "MARS:x-ldap"      ( ; service
                                ""          ; regexp
                                _ldap._tcp.myldap.example.com. ; replacement
                                )
IN NAPTR 200  40  ""    "MARS:http"      ( ; service
                                ""          ; regexp
                                someisp.example. ; replacement
                                )
```

The example above provides 3 possible next steps for MARS service.

1. The lowest ORDER and PREF service for the "http" application protocol for MARS service, and is available at "mars.example.com", so the next step is to look up the address record for that domain.
2. Alternatively, if the client wants to use the "x-ldap" application protocol for MARS, the next step is to look up SRV records at "\_ldap.\_tcp.myldap.example.com".
3. Finally, an alternate (perhaps, backup) MARS service is available at "someisp.example". Since the FLAGS field is empty, the next step would be to look up NAPTR records for "someisp.example", to find available MARS services and protocols.

### **5.3. After S-NAPTR...**

After using the S-NAPTR approach, the client should have a pointer to a usable MARS server, which can be queried for the relevant information about MEN for the EIDR in the median URI. That process will be covered in the MARS definition document.

## **6. Acknowledgements**

Forthcoming.

## **7. IANA Considerations**

There will be IANA considerations for the registration of the "median" URI scheme.



There will be IANA considerations for the registration of S-NAPTR application services and protocols -- MARS and ???.

## **8. Security Considerations**

None (yet).

## **9. References**

### **9.1. Normative References**

[I-D.deen-daigle-ggie]

Deen, G. and L. Daigle, "Glass to Glass Internet Ecosystem Introduction", [draft-deen-daigle-ggie-01](#) (work in progress), June 2016.

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[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), DOI 10.17487/RFC2119, March 1997, <<http://www.rfc-editor.org/info/rfc2119>>.

[RFC3958] Daigle, L. and A. Newton, "Domain-Based Application Service Location Using SRV RRs and the Dynamic Delegation Discovery Service (DDDS)", [RFC 3958](#), DOI 10.17487/RFC3958, January 2005, <<http://www.rfc-editor.org/info/rfc3958>>.

[RFC7595] Thaler, D., Ed., Hansen, T., and T. Hardie, "Guidelines and Registration Procedures for URI Schemes", [BCP 35](#), [RFC 7595](#), DOI 10.17487/RFC7595, June 2015, <<http://www.rfc-editor.org/info/rfc7595>>.

### **9.2. Informative References**

[ISO26234]

International Organization for Standardization, "Information and documentation - Digital object identifier system", ISO C Standard 26324, 2012.



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