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The 'leaptofrogans' URI Scheme

Abstract

This document describes the 'leaptofrogans' Uniform Resource Identifier (URI) scheme, which enables applications to launch Frogans Player on a given Frogans site. Frogans is a medium for publishing content and services on the Internet, defined as a generic software layer on the Internet. Frogans Player is software that enables end users to browse Frogans sites.

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Table of Contents

1. Background Information	2
1.1. About Frogans	2
1.2. About the OP3FT	3
2. The Need for a New URI Scheme and Its Purpose	3
3. Choice of the Scheme Name	4
4. Scheme Syntax	5
4.1. URI Scheme	5
4.2. IRI Usage and Encoding	6
5. Trademarks	6
6. IANA Considerations	7
7. Security Considerations	7
8. References	8
8.1. Normative References	8
8.2. Informative References	8
Authors' Addresses	9

1. Background Information

1.1. About Frogans

Frogans is a medium for publishing content and services on the Internet. From its inception in 1999, the medium was designed as a generic software layer running on top of the original Internet infrastructure (i.e., the TCP and IP protocols and the Domain Name System (DNS)), alongside other existing layers such as E-mail or the World Wide Web.

As a medium, Frogans is not meant for publishing Web sites, but Frogans sites, a kind of site founded upon a different format, enabling a different kind of communication between end users and publishers of content and services.

Frogans is intended to be complementary to the World Wide Web; it is not intended to be a replacement. This is analogous to instant messaging, which was not intended to and did not replace E-mail.

Compared to the World Wide Web, Frogans suggests publishing content and services that involve visual rather than text-based communication, focused content rather than long pages, and natural interaction rather than complex user interfaces. For further information on the reasons for introducing Frogans on the Internet, and for an in-depth discussion of the similarities and differences between Frogans sites and Web sites, see [FSDL], Section 1.4 ("Frogans sites and Web sites").

The technology making up the medium, i.e., the Frogans technology, includes multiple components such as:

- o An XML-based language, called Frogans Slide Description Language [FSDL], used to develop Frogans sites.
- o International identifiers, called Frogans addresses [IFAP], used to access Frogans sites. Each Frogans site has its own Frogans address.
- o Browsing software, called Frogans Player, enabling end users to browse Frogans sites. An end user opens a Frogans site by entering its Frogans address in Frogans Player.
- o A registry, called the Frogans Core Registry (FCR), that contains all Frogans addresses registered by Frogans site publishers. The registry operator, called the FCR Operator, ensures the resolution of Frogans addresses when end users enter them in Frogans Player.

1.2. About the OP3FT

Created in 2012, the Organization for the Promotion, Protection, and Progress of Frogans Technology [OP3FT] is a dedicated, non-profit organization whose purpose is to hold, promote, protect, and ensure the progress of the Frogans technology, in the form of an open standard, available to all, free of charge.

As part of its mission, the OP3FT develops and releases technical specifications, reference implementations (including Frogans Player), and various policies, which define the rights and responsibilities of all stakeholders involved in the technology worldwide.

2. The Need for a New URI Scheme and Its Purpose

Generic software layers running on top of the original Internet infrastructure offer mechanisms that enable end users to easily go from one layer to another, in both directions. For example, end users can easily launch their usual Web browser on a given Web page from a message in their usual E-mail client; in the other direction, end users can easily launch their usual E-mail client with a given E-mail address from a Web page in their usual Web browser. This is commonly achieved using URIs [RFC3986].

As regards Frogans as a medium, in the outgoing direction, FSDL enables Frogans site publishers to include way-out buttons in their Frogans sites. These buttons enable end users to launch their usual Web browser on a given Web page, or to launch their usual E-mail

client with a given E-mail address. This is achieved by associating a URI with each of those way-out buttons (the scheme of the URI can be any of 'http', 'https', or 'mailto').

Conversely, in the incoming direction, Web-site publishers should have a means to include in their Web pages links that enable end users to launch Frogans Player on a given Frogans site. Likewise, people writing E-mail messages should have a means to include in their messages links that enable recipients to launch Frogans Player on a given Frogans site. More generally, any end-user application should be able to launch Frogans Player on a given Frogans site.

To achieve this, a new URI scheme, containing a Frogans address, is needed.

Given that Frogans, as a medium, does not enable deep linking for Frogans sites, there is no need for additional information in the new URI scheme other than the Frogans address.

The use of a media type as a means to include on a Web page a link that enables end users to launch Frogans Player on a given Frogans site was tested in 2006 with the registration of the 'vnd.frogans.ltf' media type with IANA [LTF]. But use of a media type was determined to be unsatisfactory for several reasons. First, for any such link included on a Web page, the author of the Web page had to create and host a .ltf file on the Web server hosting that Web page, which was cumbersome. Furthermore, prior to creating such links, the author had to ask the server administrator to associate the .ltf files with the 'vnd.frogans.ltf' media type on the server. Alternatively, the author could create a link via a redirection service that would generate a .ltf file on the fly while associating it with the 'vnd.frogans.ltf' media type. But that alternative raised privacy concerns and potentially added latency for end users. Finally, on the Web browser side, it appeared that using a media type from a Web page to launch another application did not always work, especially on mobile devices.

3. Choice of the Scheme Name

The name chosen for the new URI scheme is 'leaptofrogans'.

This scheme name was chosen in compliance with [RFC7595], Section 3.8 ("Scheme Name Considerations").

The following shorter names were discussed, but they were not chosen:

- o 'ltf': this name, an acronym for "leap to Frogans", was considered insufficiently descriptive, especially for typical end users who have little technical knowledge.
- o 'leapto': this name was considered overly general, and it is not specifically associated with Frogans.
- o 'frogans': this name was rejected because it could create confusion between URIs based on this scheme and those Frogans addresses that start with "frogans".

4. Scheme Syntax

Frogans addresses [IFAP] are international identifiers made up of Unicode characters. Thus, a method for encoding non-US-ASCII characters is necessary when the new scheme is used as a URI. The new scheme can also be useful as an IRI [RFC3987] in contexts where IRIs are allowed.

4.1. URI Scheme

The syntax for the 'leaptofrogans' URI scheme is:

```
leaptofrogans-uri = "leaptofrogans:" pct-encoded-frogans-address
```

where pct-encoded-frogans-address is a Frogans address compliant with [IFAP] and whose Unicode characters are each encoded as follows:

- o If the character is a US-ASCII character, do not replace it and skip to the next character. Note that according to [IFAP], the US-ASCII character cannot be the U+0025 PERCENT SIGN character.
- o Otherwise, apply steps 1 through 3 below:
 1. Convert the character to a sequence of one or more octets using UTF-8 [UTF-8]
 2. Convert each octet to %HH, where HH is the hexadecimal notation of the octet value. Note that this is identical to the percent-encoding mechanism in Section 2.1 of [RFC3986].
 3. Replace the original character with the resulting character sequence (i.e., a sequence of %HH triplets).

Examples of 'leaptofrogans' URIs:

- if the Frogans address is the string of US-ASCII characters "Network-Name*Site-Name", the URI is as follows:

```
leaptofrogans:Network-Name*Site-Name
```

- if the Frogans address is the string of Unicode characters U+7F51, U+7EDC, U+540D, U+002A, U+7AD9, U+540D (which is a Chinese translation of the Frogans address in the previous example), the URI is as follows:

```
leaptofrogans:%E7%BD%91%E7%BB%9C%E5%90%8D*%E7%AB%99%E5%90%8D
```

4.2. IRI Usage and Encoding

The syntax for an IRI corresponding to the 'leaptofrogans' URI scheme is:

```
leaptofrogans-iri = "leaptofrogans:" frogans-address
```

where frogans-address is a Frogans address compliant with [IFAP] and encoded in UTF-8 [UTF-8].

In contexts where both URIs and IRIs are allowed, end-user applications can use either a URI or an IRI based on the 'leaptofrogans' URI scheme when launching Frogans Player on a given Frogans site. This is because Frogans Player must interpret both URIs and IRIs based on the 'leaptofrogans' URI scheme. If the U+0025 PERCENT SIGN character is found in the string, then the string will be interpreted by Frogans Player as a URI; otherwise, it will be interpreted as an IRI.

5. Trademarks

In order to enable all users worldwide to use the Frogans technology in a clearly defined, secure, and perpetual environment, the OP3FT Bylaws [BYLAWS] provide for the implementation of an intellectual property policy.

In this context, the OP3FT is the holder of the "Frogans" trademark that is registered in France, the United States, and other countries around the world. The right to use the "Frogans" trademark in references or as part of initiatives in connection with the Frogans technology is granted in the OP3FT Trademark Usage Policy [OTUP].

6. IANA Considerations

In accordance with the guidelines and registration procedures for new URI schemes [RFC7595], IANA has registered 'leaptofrogans' URI scheme as follows:

Scheme name: 'leaptofrogans'

Status: Permanent

Scheme syntax: See Section 4 of RFC 8589.

Scheme semantics: See Section 2 of RFC 8589.

Encoding considerations: See Section 4 of RFC 8589.

Applications/protocols that use this scheme name: Frogans Player as well as any end-user application (such as a Web browser or an E-mail client) wishing to launch Frogans Player on a given Frogans site.

Interoperability considerations: There are no known interoperability concerns related to use of the 'leaptofrogans' URI scheme.

Security considerations: See Section 7 of RFC 8589.

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References: RFC 8589

7. Security Considerations

The author of a Web page can create a link where the true nature of the URI is hidden in the link text that is visible to end users. The same applies for an E-mail message and other end-user applications.

For URIs based on the 'leaptofrogans' URI scheme, the risk of confusion is mitigated because Frogans Player must always display the real Frogans address contained in the URI, and it must always require confirmation by the end user before opening the corresponding Frogans site.

Also, an end-user application may provide a URI containing a Frogans address that is not valid. This does not represent a risk because, before asking for confirmation by the end user, Frogans Player must

always verify that the Frogans address contained in the URI is compliant with [IFAP], and it must always raise an error if the Frogans address is not compliant.

8. References

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[OTUP] OP3FT, "OP3FT Trademark Usage Policy", March 2017,
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