Uniform Resource Locators for Television Broadcasts

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2. Introduction

World-Wide Web browsers are starting to appear on a variety of consumer electronic devices, such as television sets and television set-top boxes, which are capable of receiving television programming from either terrestrial broadcast, satellite broadcast, or cable. On these devices, some of the URL schemes described in [1] are inappropriate. For example, many of these devices lack local storage, so the "file" scheme is of little use. This draft proposes a new URL scheme for uniquely identifying streams of television broadcasts on such devices.

3. Television URL

The basic structure of a television URL is:

    tv:<broadcast>

where broadcast is an alpha-numeric description of the data source. This description can take the form of an over-the-air broadcast call sign, a channel number, or a network identifier. For example:

    tv:wqed         the WQED station
    tv:12           channel 12
    tv:nbc          the NBC network

For a browser to understand non-numeric stream identifiers, it will require a local channel map for the device. The nature of this map and the way in which it is used will be browser- and device-specific and is beyond the scope of this draft. In this way, the "tv" scheme is
somewhat analogous to the "news" and "file" schemes in [1]: it merely names a television broadcast signal but assumes that the local browser has some means for actually retrieving that signal on the local device. A variety of software systems currently provide device-specific mappings from such identifiers to specific channel numbers. These systems can be incorporated into television sets or set-top boxes to facilitate the interpretation of television URLs by the client device.

4. BNF for Television URLs

The following is a formal specification for the new URLs:

```plaintext
tvurl           = "tv:" broadcast
broadcast       = call-sign | network-id | channel-number
call-sign       = 1*[ alpha | digit ]
network-id      = 1*[ alpha | digit ]
channel-number  = 1*digit
```

The definitions of alpha and digit are from RFC 1738.

The call-sign must follow the conventions for broadcast call-signs established by the International Telecommunications Union. These are assigned by national broadcasting authorities and are universally unique. Examples of television URLs using a call-sign are:

```plaintext
tv:wqed
```

```plaintext
tv:kqed
```

The network-ids are not currently assigned by an international body. These generally define streams of video content originating from a national network (such as NBC or CNN in the United States) which may be sent over a variety of frequencies in different locations as well as over a variety of media (often terrestrial broadcast, satellite broadcast, and cable). These network-ids should be registered with IANA before use to ensure that multiple networks are not using the same identifier. Conflicts between networks over identifiers will be resolved by IANA. [Author’s note: exactly how this registration will work remains to be worked out.] Examples of television URLs using a network-id are:

```plaintext
tv:nbc
```

```plaintext
tv:cnn
```

```plaintext
tv:bbc
```

Unlike call-signs and network-ids, channel-numbers are not intended to be universally unique and simply represent a given television channel on a particular device. When used with a channel-number, a television URL is similar to a file URL (without a hostname) in that it describes a purely local resource. An example of a television URL using a channel-number is:

```plaintext
tv:3
```

4. Acknowledgments

Many of the ideas in this document came out of conversations with Andrew Lochart. Other people who supplied valuable input include Matt Trifiro and Eric Del Sesto. The original draft of this URL scheme was
developed while the author was at Wink Communications.

5. Security Considerations

This new URL scheme is subject to the same security implications as the general URL scheme [1]. It is possible that the mere act of viewing a television broadcast signal may causes costs to be incurred to the viewer in some instances (eg, "pay-per-view" movies and events). Any software that uses this URL scheme to allow automatic tuning of a client device to a particular television broadcast signal should alert users before performing actions that may incur costs to the user.

6. IANA Considerations

IANA will register network identifiers for use in this URL scheme. [Author’s note: Exactly how the registration process will work and how disputes between registrants will be resolved has not yet been decided.]

7. References


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