

RSS Support in Nokia Video Center

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Multimedia

NOKIA

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Change history

September 26, 2006	Version 1.0	Initial document release

1 RSS support in Nokia Video Center

Real Simple Syndication (RSS) [1] is a widely used Internet specification for describing Internet content for automated reader applications. The format is commonly used for new services in the Web browser environment. RSS is also increasingly being used to describe video services available on the Internet.

The Nokia Video Center application supports RSS for video service metadata descriptions. Metadata defines additional information about the content to help selecting the video that is interesting to the user.

This document describes only video centric RSS usage as supported by the Nokia Video Center application. Browser or audio service applications based on RSS descriptions are beyond the scope of this document.

1.1 The Nokia Video Center application

Nokia Video Center is a new feature in the newest Nokia Nseries devices. In Nokia Video Center, the user can browse different services and service content offering metadata. The user can then stream or download the video for consumption in the device.



Figure 1: Nokia Video Center service selection view



Figure 2: Example service's video offering selection view

1.2 Environment

Nokia Video Center connects to Internet services using standard Internet protocols. RSS-based video services are assumed to be Internet-accessible services. Devices can access services from WLAN hot spots and WLAN-enabled home Internet access points, and by using cellular 2G and 3G data services to connect to the Internet.

It is a service-dependent decision if Internet availability is offered, or if the service is provided by, for example, a cellular operator with access restricted to the operator's network.

Services may be free to the user, or the user may pay for the content consumed. User charging is supported as a subscription-based service. Charging can be based on time, for example, a monthly fee. The user's account management is carried out with standard browser technologies.

2 Video-on-demand and Video feeds services

In this document the phrase "video-on-demand service" is used to describe a branded service that is visible in the service selection view (see Figure 1). If a service is provisioned to the device, that is, the service address and the logo location are sent to the device, the service is placed on this main level of service selection.

The user's manually added RSS feeds are placed in the Video feeds service in the service selection view. Selecting the Video feeds' service opens a list of RSS feeds (see Figure 3). RSS element usage depends partially on whether the RSS feed is a video service-type (i.e., provisioned) or a Video feeds-type in the Nokia Video Center application. Content selection in the selected feed is shown in Figure 2.



Figure 3: Video feeds view's RSS feed listing example

3 Service operation

3.1 Service provisioning to the device

A user can register with an RSS-based video service using a device Web browser, and the service can provision the service settings (URL address, logo, name, description) to the device in the browser HTTP response. Nokia Video Center accepts simple XML-based provisioning documents. It is possible to define user authentication for the service using standard HTTP authentication [2]. Additionally, Short Message Service (SMS) or Multimedia Messaging Service (MMS) messages can be sent to advertise the service, with a Web link to the service where the user can download the settings. The provisioned service is visible as a branded service in the service selection view.

The user can also manually add RSS feeds to the Nokia Video Center application in the video center service view options. The manually added RSS feed is added to the general Video feeds service in the Nokia Video Center application. Authentication is possible also for a manually added feed, but the user name and password must be separately informed to the user.

3.2 Service usage

Service usage can be divided into metadata and content consumption features. Metadata is downloaded to the device when the user selects the service. Figure 2 shows an example view of how metadata is presented to the user. The user can see the name of the content and possibly a thumbnail image for the content. Additional information, for example, a description, may be provided, and can be found under the Options menu on the device UI.

3.2.1 RSS metadata download

RSS metadata is downloaded using the standard HTTP protocol [3]. Download is automatic when the service or RSS feed is selected. The Web server technology for modification time stamps should be used so that unnecessary data transfer is avoided. The downloaded RSS document is parsed, stored in the device replacing any older description, and the content descriptions are rendered to the UI.

3.2.2 Video download

If the content metadata shows that the content is fetched using HTTP, the user has the possibility to “download” to the device the content selected in the content selection view. Content is downloaded to the device and stored in either device memory or in the memory card. The user is shown the download progress in the content selection view. Content is visible in the Nokia Video Center My Videos application.

3.2.3 Video streaming

If the content metadata shows that the content is streamed to the device using RTSP and RTP protocols, the user has the possibility to “play” the content selected in the content selection view. Content is streamed to the device and rendered to the user immediately. Content is not stored in the device.

4 Nokia Video Center RSS element support

```
<?xml version="1.0" encoding="utf-8" ?>
<rss version="2.0" xmlns:media="http://search.yahoo.com/mrss/">
  <channel>
    <title>Example Mobile News</title>
    <link>http://255.255.255.255</link>
    <description>News service to your Mobile</description>
    <image>
      <url>http://255.255.255.255/logo/service.PNG</url>
      <link>http://255.255.255.255/</link>
      <title>Logo</title>
      <height>112</height>
      <width>96</width>
    </image>
    <item>
      <enclosure url="rtsp://255.255.255.255/news/24/newest.3gp"
        length="39567360" type="video/3gpp" />
      <media:thumbnail url="http://255.255.255.255/logo/news.PNG" width="150"
        height="125" />
      <title>Hourly news</title>
      <description>Hourly news stream</description>
      <link>http:// 255.255.255.255/news/24/</link>
    </item>
    <item>
      <enclosure url="rtsp://255.255.255.255/news/finance/finnews.3gp"
        length="43745280" type="video/3gpp" />
      <media:thumbnail url="http://255.255.255.255/logo/finance.PNG"
        width="150" height="125" />
      <title>Financial news</title>
      <description>Financial news stream</description>
      <link>http://255.255.255.255/news/finance </link>
    </item>
  </channel>
</rss>
```

Example 1: Example RSS description for video service

4.1 RSS support

4.1.1 RSS element

RSS is the root element in the RSS description XML document. The supported RSS version is 2.0.

4.1.2 RSS channel element

The channel element contains the item descriptions available.

4.1.3 Channel title element

4.1.3.1 Provisioned service

For provisioned service, the provisioning title is used as the service name.

4.1.3.2 RSS feed

The title element is shown to the user as the RSS feed title header in the Video feeds list.

4.1.4 Channel link element

The channel link element is not utilized by the Nokia Video Center application.

4.1.5 Channel description element

4.1.5.1 Provisioned service

For provisioned service, the provisioning description is used as a service description in the service selection view.

4.1.5.2 RSS feed

The user-visible description of service content is in the RSS feed listing, Feed details in the Options menu.

4.1.6 Channel image element

4.1.6.1 Provisioned service

The provisioning format allows a description of the service's logo (URL address, from where the logo is downloaded to device). If the RSS document contains an image element, the provisioned logo is overwritten with the image element.

The image is shown as the brand image of the service in the service selection view.

4.1.6.2 RSS feed

The *image element* is used in the RSS feed listing as the feed thumbnail.

The *URL element* is used to fetch the image. The URL should be absolute, i.e., contain the domain name and path. The image must be a GIF, PNG, or JPEG.

Height and *width elements* should be used to indicate the image size. The size should be 128 x 96 pixels. The Nokia Video Center application will scale the image to a suitable size to fit into the title pane.

The *title element* can be used inside the image element, but it is not rendered in the UI if the logo is not available.

4.1.7 *Item PubDate element*

The *PubDate element* is used by the Nokia Video Center application to show the RSS feed update date to the user.

4.1.8 *Channel item element*

This item is the description for a video offered to the user. Each item that the Nokia Video Center application supports as video format is shown to the user in the content selection view. Device support for the video format is analyzed from an *enclosure* URL file extension and from *type* parameters.

The item contains title, link, and description elements.

4.1.8.1 *Item enclosure element*

The *item enclosure element* contains the video content of the item.

The *URL* parameter must be an HTTP absolute URL to a valid 3GP or MP4 file or absolute streaming URL (*rtsp://*) to a valid 3GP or MP4 streaming file. See Chapter 5 for more specific information on protocols and video formats.

The *Type* parameter must be the MIME type of the content. Currently accepted MIME types are:

- video/3gpp
- video/mp4
- video/vnd.rn-realvideo
- application/vnd.rn-realmedia
- application/sdp
- video/x-m4v
- video/m4v

The *Length* parameter is strongly recommended for downloaded videos. The Nokia Video Center application can identify if the device has free memory for the video download or can free up the needed amount of memory to download the video.

4.1.8.2 *Item link element*

The *link element* is a URI to the Web page corresponding to the RSS channel. The Nokia Video Center application can open a normal browsing session to the given link, enabling the user to fetch more information and allowing additional service possibilities (voting, donations, etc.).

4.1.8.3 *Item pubDate element*

The *pubDate* is used to show the user when the item was added to the channel.

4.1.8.4 *Item guid element*

The *guid element* is a global identifier for the item. The Nokia Video Center application can use it to identify content as new (not previously published in the RSS loaded to the device).

4.2 MRSS extension support

Nokia Video Center supports the Yahoo media RSS extensions [3]. Extension usage must be identified in the XML document RSS element with the namespace <http://search.yahoo.com/mrss/> and <http://www.rss-specifications.com/>.

4.2.1 *Item MRSS Thumbnail element*

The *Thumbnail element* contains an absolute URL parameter to an image. The image format must be GIF, PNG, or JPEG. Image width and height are defined. The size should be 128 x 96 pixels. The image is used as a thumbnail for the item element(s).

5 Delivery protocols and video format parameters

Nokia Video Center application support for streaming and download protocols is based on the S60 platform.

This document describes the protocol formats for the recommended H.264 video codec. Other formats (for example RealNetworks codec, MPEG-4 simple profile, and H.263) are supported as defined by the S60 platform and individual device capabilities; see <http://www.forum.nokia.com/audiovideo>.

Sections 5.1 and 5.2 define the baseline for video services, supported by Nokia Nseries devices launched in 2006 (Nokia N72, Nokia N80 and later).

5.1 Download

Download uses HTTP version 1.1 as defined in [3]. User authentication is supported with the Internet standard HTTP authentication [2].

Recommended video is H.264/AVC format; see Section 5.3. Downloaded video bit speed is supported up to 384 kbit/s.

Recommended audio format is MPEG-4 LC AAC. Recommended bit speed is 48kbit/s.

The downloaded file must be a 3GPP file (.3gp) or MPEG-4 file (.mp4). For MPEG-4 files, the file major brand must be mp42 (MPEG-4 header field).

5.2 Streaming

Streaming protocol control is based on the RTSP protocol [5]. RTP streams follow the generic definition of [6].

Recommended video is H.264/AVC format; see Section 5.3. Streaming MUST be carried out using the RTP packetization scheme as defined in [8]. Recommended bit speed is 192 kbit/s.

Recommended audio format for streaming is MPEG-4 LC AAC packetized for streaming following the LATM packetization format [7] . Recommended bit speed is 48kbit/s.

5.3 H.264/AVC format and parameters

The H.264/AVC profile to use is Baseline profile, level 1.2.

Recommended video resolution is QVGA size, 320 x 240 pixels. Recommended frame rate is 15 fps. The latest Nokia Nseries devices like Nokia N93 support up to 30 fps.

6 Terms and abbreviations

Term or abbreviation	Meaning
GIF	Graphics Interchange Format
HTTP	Hypertext Transfer Protocol
IP	Internet Protocol
JPEG	Joint Pictures Experts Group
MMS	Multimedia Messaging Service
MRSS	Media RSS
PNG	Portable Network Graphics
RTP	Real-Time Protocol
RTSP	Real-Time Streaming Protocol
RSS	Real Simple Syndication
SMS	Short Message Service
UI	User Interface
URL	Uniform Resource Locator
WLAN	Wireless Local Access Network
XML	Extensible Markup Language

7 References

- [1] Real Simple Syndication Specification, Version 2.0, <http://blogs.law.harvard.edu/tech/rss>
- [2] HTTP Authentication: Basic and Digest Access Authentication, RFC 2617, <http://www.ietf.org>
- [3] HyperText Transfer Protocol – HTTP1.1, RFC 2616, <http://www.ietf.org>
- [4] Media RSS, Version 1.1.1, <http://search.yahoo.com/mrss>
- [5] Real-Time Streaming Protocol (RTSP), RFC 2326, <http://www.ietf.org>
- [6] RTP: A Transport Protocol for Real-Time Applications, RFC 3550, <http://www.ietf.org>
- [7] RTP Payload Format for MPEG-4 Audio/Visual Streams, RFC 3016, <http://www.ietf.org>
- [8] RTP Payload for Transport of H.264/AVC Content, RFC 3984, <http://www.ietf.org>

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