

# NOVIX Sparx Library Mobile Video Streaming

*Usage and Specifications document*



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## **Introduction**

### ***Introduction to NOVIX Sparx***

NOVIX Sparx is a mobile video streaming suite from NOVIX Technologies that enables video streaming on low bandwidth networks, ideally suitable for GPRS networks.

Sparx is a complete software solution, coded in C++ available for Symbian, Windows Mobile, Linux or any custom platform. The platform does not use any architecture specific code, nor is there any platform dependence thereby retaining device/platform independence nature.

NOVIX Sparx enables following applications (not a comprehensive list):

- Mobile Video-On-demand
- Mobile IPTV
- Mobile Live Video Surveillance

### ***About this document***

The primary objective of this document is to enable you to develop your own application using NOVIX Sparx Mobile Video Streaming platform. This document describes the usage of the NOVIX Sparx Mobile Video Streaming Platform. Detailed architecture diagram is provided to enable in-depth understanding of the system.

This document is to be used in conjunction with the source code provided.

### ***Pre-requisite***

- You need to be fairly good with C/C++ coding, fair understanding of Object oriented programming required.
- You need to be familiar with application development on Symbian platform. You can download Symbian second edition SDK from <http://www.forum.nokia.com/info/sw.nokia.com/id/4a7149a5-95a5-4726-913a-3c6f21eb65a5/S60-SDK-0616-3.0-mr.html> (Select Second Edition FP 2 or 3).
- Note that you will need to install ActivePerl from <http://aspn.activestate.com/ASPN/Downloads/ActivePerl/>
- If this is the first application you are going to try on Symbian then we recommend you to go through these Symbian Booklets (These are available freely).
  - <http://developer.symbian.com/main/learning/press/essential/>
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Alternately, you can contact us at [lilesh@novix.in](mailto:lilesh@novix.in) or reach us through the contact info page available on [www.novix.in](http://www.novix.in)

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***About NOVIX Technologies***

NOVIX Technologies Pvt. Ltd. is a Multimedia compression and streaming company. Using its offerings like NOVIX Sparx, NOVIX Live and Multimedia SDK, developers can add video streaming functionality to their fixed or portable applications.

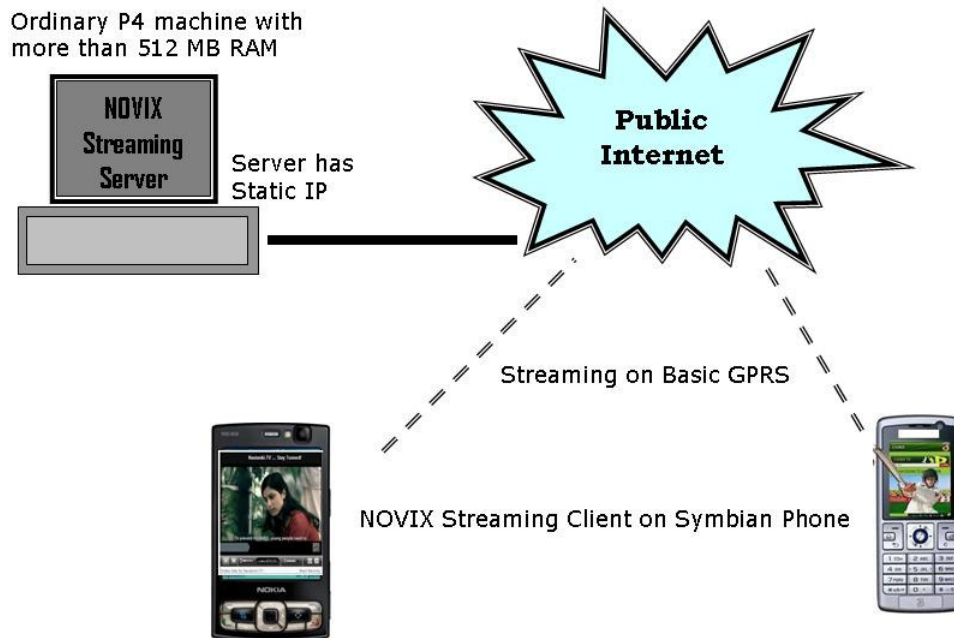
NOVIX Technologies is working hard to break the myth that video streaming requires 3G network. Using NOVIX Sparx platform, high quality mobile video streaming is possible over basic GPRS network.

NOVIX Technologies operates out of Thane, a city near Mumbai – the financial capital of India.

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## NOVIX Sparx Mobile Video Streaming Solution Architecture



- NOVIX Software Server runs on an ordinary PC
- Server is connected to Internet on a public IP without any firewalls or proxy servers
- NOVIX Streaming Client is installed on Symbian 2nd edition phone
- The phone has Basic GPRS enabled SIM card. So if you are using Hutch, use Hutch\_GPRS as the access point

### Novix SPARX Library

#### *Using NOVIX Sparx Streaming Server*

1. Create custom directory and place the NOVIX Streaming Server executable.
2. Create a subfolder called media and place the downloaded avi files in the media folder.
3. Run the Streaming Server binary

#### **Note:**

1. Streaming Server requires a public IP without any proxy servers or firewalls blocking direct access to Internet.

2. The media files make use of advanced video and audio compression algorithms. The downloadable NOVIX Streaming Server is restricted from streaming ordinary avi files.

### **Using Novix Sparx Library on Symbian Second Edition Phones**

The following is a step-by-step guide to enable mobile Video Streaming. An example code **NovixTestApp** is provided along with the NOVIX Sparx suite that performs the same steps as below. The developer can implement his code in the same example framework or create his own project in Carbide. If you prefer using the existing example application, then you can skip the steps below. Just compile the code and you are ready to go (see points 13, 14 and 15 below).

- 1) First install Symbian SDK and ActivePerl
- 2) Download "Carbide C++ 1.2" IDE [http://www.soft-go.com/view/Carbide.c++-Express\\_19632.html](http://www.soft-go.com/view/Carbide.c++-Express_19632.html)  
Note:
  - a. Download [Getting Started with Carbide.c++](#) screencast if you are using it for the first time.
  - b. Install Carbide 1.2. Create New Symbian C++ project. A typical Directory structure is automatically created.
- 3) You need to add novixstreamer.lib and fbscli.lib to your project. To do this, add the following lines in your Project to the mmp file (found in <proj\_install\_path>/group/\*.MMP)

```
LIBRARY      novixstreamer.lib    // uses NovixStreamer DLL
LIBRARY      fbscli.lib          // Required by CFbsBitmap
```

<See NovixTestApp\group\NovixTestApp.mmp:60>

Note: You need to place the .lib and the .dll file provided in this SDK in the ARMI release folder.

for eg. "C:\Symbian\8.0a\S60\_2nd\_FP2\epoc32\release\armi\urel"  
Also, put novixStreamer.h in your application include directory.

- 4) Include following header file in the AppUi Class of your Application

```
#include <NovixStreamer.h>          // CNovixStreamer
<e.g. NovixTestApp\inc\NovixTestAppAppui.h:37>
```

- 5) Also include the following Class Definitions

```
// FORWARD DECLARATIONS
class CNovixTestAppContainer;
class CNovixStreamer;
<e.g. NovixTestApp\inc\NovixTestAppAppui.h:40>
```

- 6) Inherit the MRendererK class defined in the Library and also define the RenderFrame Virtual Class.

```
class CNovixTestAppAppUi : public CAknAppUi, MRendererK
<e.g. NovixTestApp\inc\NovixTestAppAppui.h:51>
    virtual void RenderFrame();
<e.g. NovixTestApp\inc\NovixTestAppAppui.h:108>
```

7) Also Create an object of the CNovixStreamer Class from the DLL

```
CNovixStreamer* iNovixStreamerObject;
<e.g. NovixTestApp\inc\NovixTestAppAppui.h:114>
```

8) Initialize the CNovixStreamer object

```
iNovixStreamerObject = CNovixStreamer::NewL(*this);
<e.g. NovixTestApp\inc\NovixTestAppAppui.cpp:56>
```

9) Implement following functions

```
StartStreaming() - < e.g. NovixTestApp\inc\NovixTestAppAppui.cpp:147>
StopStreaming() - < e.g. NovixTestApp\inc\NovixTestAppAppui.cpp:167>
RenderFrame() - < e.g. NovixTestApp\inc\NovixTestAppAppui.cpp:181>
Example source code should help you to create your own application.
```

10) Important Functions to be noted are

```
PlayStreamVideo(urlName);
called at NovixTestApp\inc\NovixTestAppAppui.cpp:157
```

- It takes the server address with the file name to be played.

10) The function getBitmap() gets the current frame to be rendered. It is called inside the RenderFrame() function.

```
iAppContainer->iBitmap = iNovixStreamerObject->getBitmap();
```

11) Before drawing a frame, you need to check whether the bitmap is ready which is done using the boolean variable canDrawStreamBmp.

12) After the playing or to exit you should call StopStreamVideo() to stop streaming.

```
NovixStreamerObject->StopStreamVideo();
```

13) Now compile the application using following three steps

- a. from NokiaTestApp\group  
bldmake bldfiles
- b. abld build armi urel
- c. from NokiaTestApp\sis  
makesis NokiaTestApp.pkg

14) This will create a NokiaTestApp.sis file which can now be transferred and installed on any 2<sup>nd</sup> edition Nokia S60 symbian phones.

15) When this application is run from the phone, it will try to connect to Novix Streaming Server which is supposed to be running on the machine having an IP address mentioned in the function StartStreaming() in NovixTestAppAppui.cpp

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### **Contact Information**

In case you have any queries, drop us a line. If you notice any discrepancy in the usage instructions or if it doesn't work for you, let us know.

You may also call or write to us to give your feedback on this offering.

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