

# MyRadio

*Using .NET Framework 3.0*

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## 1. Introduction

I am using web radio for quite some time now and I was never curious in that particular technology. Then I came across a Microsoft Windows Vista Gadget that enabled a radio chooser and looked rather cool. It was quite small but didn't provide the possibility to change to stations. Limited by this and some other constraints within the Gadget I decided to create a little more scalable web radio program.

## 2. Interface

When the program is executed it will look like this:



The combo-box contains all predefined radio station. These stations can be found in the MyRadio.txt file which should exist in the *MyRadio* program folder. Beside this combo-box the play/pause button exists. Using this button the selected radio station will be contacted and the stream will be played. The slider next to this button can be used to change the volume of the sound. Sliding this control will automatically change the 'Volume:' value within the program. The volume indication start at 0 and can be moved to 100. Moving down will reduce the volume, while sliding up will increase the volume. Next to the volume control the balance control is arranged. Moving this slider will change 'Balance:' value within the program. Moving the slider down will move the balance of the sound to the left, while moving the slider up will move the sound to the right.

The first dash under the 'You are listening to:' text contains the name of the radio station which is played. The second dash can contain all sorts of status messages. When the program is loading a buffer, the progress of this process is showed here like '>>>10%>>>'. When the buffer is full, 100%, the radio starts playing. The buffer information can also be shown will playing a stream, in most cases this will happen when insufficient bandwidth is available for the player to keep the buffer filled. When a server or stream is giving issues or is redirected while connecting the message 'Downloading stream...' is shown. Under the second dash the 'Volume' and 'Balance' values are presented.



When the 'Volume:' label is double clicked the volume indicator will center to 50. And when the 'Balance:' label is double clicked the balance will be centered again.

When the mouse pointer is hovering over the station name label, the tooltip will show the string which actually points to the streaming server location.

When the systems volume control is set to mute and *MyRadio* is started a pop-up is shown stating that the volume is currently muted.

When the program was closed while it was playing streamed audio it will resume playing the selected station the next time it is started.

## 2.1. Filenames

Within the application folder the following files can exist:

Filename	Purpose
<b>Config.xml</b>	This file is an XML fragment containing the program settings. When a problem arises during the load process of this file a popup will show up stating 'Error in the configuration file'. The easiest way to solve this is to delete this file and restart <i>MyRadio</i> .
<b>MyRadio.txt</b>	Within this file all radio station information is collected. The information is arranged in the following format: <Station name>;<Url or Uri>

## 2.2. Installation

Since no installer is supplied with this program, use the following method to get it installed:

- Be sure that the .NET Framework version 3 is installed;
- Under the Program Files folder create a folder named 'MyRadio';
- Copy 'MyRadio.exe', 'MyRadio.txt' from the distribution package into the newly created folder;
- Create a shortcut on your desktop, start-menu or quick launch menu to the MyRadio.exe.

### 3. Techno Talk

During my investigation I found all kind of implementation exhibits, not necessarily created using C#. Some tools used P/Invoke to communicate with a started media player in the background, but all of them were using an external Windows MediaPlayer, RealPlayer or WinAmp player. The following snippets show one of the most common used methods I found:

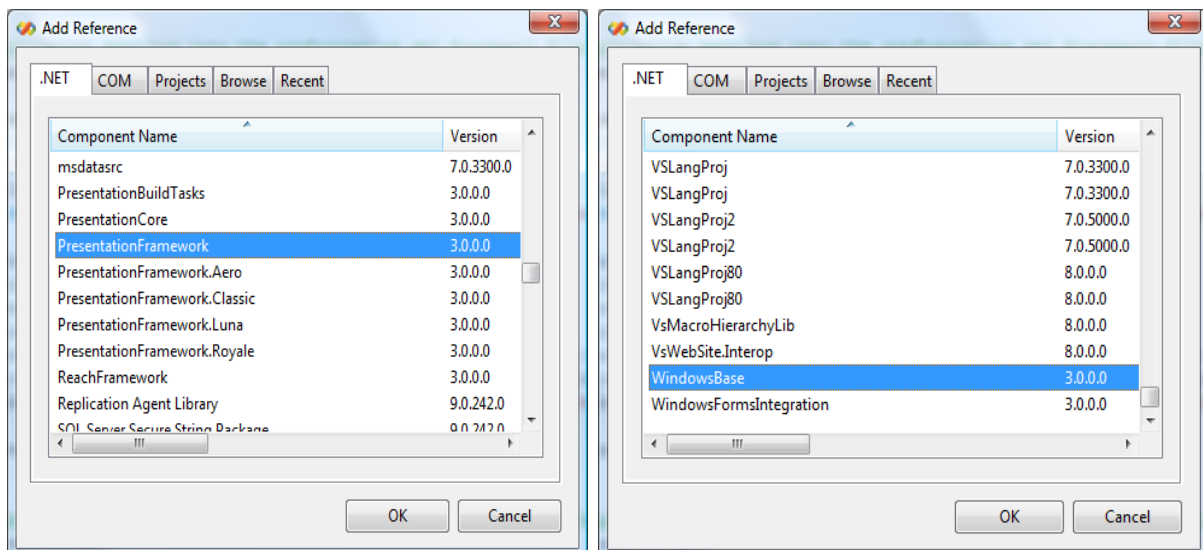
```
// Prepare process info:
ProcessStartInfo startInfo = new ProcessStartInfo();
startInfo.FileName = "wmplayer.exe";
startInfo.WindowStyle = ProcessWindowStyle.Hidden;

// Start playing the required stream:
startInfo.Arguments="http://www.radiosite.com/asx/channel01.asp";
Process.Start(startInfo);

// Stop playing the required stream:
foreach (Process pr in Process.GetProcessesByName("wmplayer"))
    pr.Kill();
```

Although this does fulfill the job, it actually doesn't give direct control to the actual media player object.

So I decided to figure out how to create and use a MediaPlayer object. Prior to be able to use a MediaPlayer component, two references must be added within the solution. The first is called PresentationCore, using the PresentationCore.dll, and the second is WindowsBase, using the windowsbase.dll, which enabled the Freezable functionality. The Freezable object is required to increase the application performance during intensive actions like handling streaming media. These can be added within the IDE by using the Project->Add Reference menu item.



After adding these references the following namespace must be added:

```
using System.Windows.Media;
```

This namespace allows the creation of the MediaPlayer object:

```
MediaPlayer mPlayer = new MediaPlayer();
```

## 4. History

The following table shows the version history:

Version	Comment
V 1.0	First edition of <i>MyRadio</i>

### 4.1. To-do

The following table shows my to-do list for the next release of this program:

Comment
<b>Add an additional form to manage the radio stations.</b>
<b>System-tray support when minimized.</b>

### 4.2. Requirements

This program is created using both .NET 2.0 and .NET 3.0 Framework technologies.

We have not been able yet to fulfill test under the Microsoft Windows XP operating system.

## 5. Appendix A Radio list

The following table contains a list with all stations which are available within this distribution.

Name	Country	URI or URL
<b>BNR Nieuwsradio</b>	NL	<a href="http://streams.kpnwebcast.nl/cgi-bin/reflector.cgi?stream=kpnmms_bnr,kpnmms_bnr2&amp;title=BNR.nl+live+radio">http://streams.kpnwebcast.nl/cgi-bin/reflector.cgi?stream=kpnmms_bnr,kpnmms_bnr2&amp;title=BNR.nl+live+radio</a>
<b>CAZ!</b>	NL	<a href="http://www.garnierstreamingmedia.com/asx/caz_audio_01.asp">http://www.garnierstreamingmedia.com/asx/caz_audio_01.asp</a>
<b>Classic FM</b>	NL	<a href="http://www.garnierstreamingmedia.com/asx/classicfm.asp">http://www.garnierstreamingmedia.com/asx/classicfm.asp</a>
<b>Dance.FM</b>	NL	<a href="http://www.garnierstreamingmedia.com/asx/dancefm.asp">http://www.garnierstreamingmedia.com/asx/dancefm.asp</a>
<b>Juize.FM</b>	NL	<a href="http://www.garnierstreamingmedia.com/asx/juizefm_high.asp">http://www.garnierstreamingmedia.com/asx/juizefm_high.asp</a>
<b>Kink Classics</b>	NL	<a href="http://www.garnierstreamingmedia.com/asx/kink_classx.asp">http://www.garnierstreamingmedia.com/asx/kink_classx.asp</a>
<b>Kink.FM</b>	NL	<a href="http://www.garnierprojects.com/streamingmedia/kinkfm/kinkfm.asx">http://www.garnierprojects.com/streamingmedia/kinkfm/kinkfm.asx</a>
<b>Lounge Radio</b>	CH	<a href="http://www.lounge-radio.com/stream.asx">http://www.lounge-radio.com/stream.asx</a>
<b>Radio 1</b>	NL	<a href="http://switch.streamgate.nl/cgi-bin/streamswitch?streamid=42&amp;a=.asx">http://switch.streamgate.nl/cgi-bin/streamswitch?streamid=42&amp;a=.asx</a>
<b>Radio 10 Gold</b>	NL	<a href="http://www.radio10gold.nl/page/asx/">http://www.radio10gold.nl/page/asx/</a>
<b>Radio 2</b>	NL	<a href="http://switch.streamgate.nl/cgi-bin/streamswitch?streamid=44&amp;a=.asx">http://switch.streamgate.nl/cgi-bin/streamswitch?streamid=44&amp;a=.asx</a>
<b>Radio 3FM</b>	NL	<a href="http://switch.streamgate.nl/cgi-bin/streamswitch?streamid=46&amp;a=.asx">http://switch.streamgate.nl/cgi-bin/streamswitch?streamid=46&amp;a=.asx</a>
<b>Radio 4</b>	NL	<a href="http://switch.streamgate.nl/cgi-bin/streamswitch?streamid=48&amp;a=.asx">http://switch.streamgate.nl/cgi-bin/streamswitch?streamid=48&amp;a=.asx</a>
<b>Radio 5</b>	NL	<a href="http://switch.streamgate.nl/cgi-bin/streamswitch?streamid=50&amp;a=.asx">http://switch.streamgate.nl/cgi-bin/streamswitch?streamid=50&amp;a=.asx</a>
<b>Radio 538</b>	NL	<a href="http://www.garnierstreamingmedia.com/asx/radio538.asp">http://www.garnierstreamingmedia.com/asx/radio538.asp</a>
<b>Rock Radio</b>	UK	<a href="http://www.therockradio.com/rock2.asx">http://www.therockradio.com/rock2.asx</a>
<b>RTL FM</b>	NL	<a href="http://media.rtl.nl/rtlfm/livestream/rtlfmbroad.asx">http://media.rtl.nl/rtlfm/livestream/rtlfmbroad.asx</a>
<b>Q-Music</b>	NL	<a href="http://www.q-music.nl/asx/q-music.asx">http://www.q-music.nl/asx/q-music.asx</a>
<b>Sky Radio</b>	NL	<a href="http://www.garnierstreamingmedia.com/asx/skyradio.asp">http://www.garnierstreamingmedia.com/asx/skyradio.asp</a>
<b>Top 2000</b>	NL	<a href="http://www.omroep.nl/live/top2000radio.asx">http://www.omroep.nl/live/top2000radio.asx</a>
<b>Veronica</b>	NL	<a href="http://www.garnierstreamingmedia.com/asx/veronicaradio.asp">http://www.garnierstreamingmedia.com/asx/veronicaradio.asp</a>
<b>V-Radio</b>	NL	<a href="http://www.garnierstreamingmedia.com/asx/v-radio.asp">http://www.garnierstreamingmedia.com/asx/v-radio.asp</a>

It doesn't matter if a URL or URI is entered, *MyRadio* is programmed to auto detect this and supports both.