

FM or DAB Via Your CarPC ?

What are the options if any, what are the advantages and what are the pit falls to watch for ?



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An Overview

A key thing that most cars have included for many years is just a simple radio, whether a medium wave or a long wave set or even an up to date FM system they have been a form of entertainment for drivers and passengers alike for quite some time now. But that been said the radio – in what ever format its received in – is still a very popular and a commercially active medium... so if you want to have CarPC system but keep the radio aspect and even more importantly keep it integrated then this article should be able to provide a incite to the possibilities you can look at.



An FM Interface On A CarPC

What are the Options ?

Unfortunately there are very few options for the PC owner and even less for the CarPC owner. This all comes from the lack of a real standard item of hardware as ever OEM seems to do their own thing in this field. Although Hauppauge, a company you would expect to be in the forefront of this area really don't feature in the CarPC world – mainly due to cost of the hardware and their obvious lean towards the desk bound multimedia systems. More recently opportunities have appeared for companies to produce new radio hardware and standards around Microsoft Media Centre but very few seemed to have really taken up on it mainly I believe because of the Internet and its many streaming services. Don't expect great things from any of the current units out there as they are still very susceptible to the interference from the cars engine, because of this you may need to make sure your aerial reception is better than standard.



FM

:The DLink DRU-100



The DLink DRU-100

There are only two real viable options for the modern CarPCs the first is the more common DLink DRU 100. This is a very simple radio that was designed for use as an add-on to existing desktop systems.

It has three connections the first is a 3.5mm stereo jack that goes to your line in socket of your PC. This provides the sound to the system from the unit and is a pretty common feature of most external radios.

The second connection is a standard USB one, this allows the PC to control the tuning of the radio and allow feedback from it as well.

The third and final connection is the aerial which is a standard 'phono' or RCA connection, typically you would expect to use the supplied plug-in Aerial for a desktop install how ever its not really up to much when used in a car, so what's the trick ? The great thing about the DRU-100 is that it does use this standard connection so with a little time you can create RCA to ISO connector. Now if you do this be aware of one quirk that this unit has – that is that the feed is on the outside and the ground on the middle so you need to reverse them around in your connector, other than this there should be no problem connecting it up. That been said you may need to install an amplified aerial adaptor how ever a little more about that in a bit.

Software wise the DRU-100 is supported in most of the major CarPC apps out there such as Media Engine, Road Runner and FrodoPlayer which is a good thing. Where it does fall down is the supplied drivers are not very stable and can cause problems. To solve this you need to install an application called '[Radiator](#)'. This installs its own XP / Windows 2000 drivers which have been proven to be a lot more successful – the price for this free although a contribution is welcomed. Another little tip with these is to select where possible – 'Mute Aux Line When Off' – this is the port that your audio feed from the DRU-100 goes to on your PC... the reason... this prevent further sound coming from the unit when not in use as it does not really switch off.

Now for the really big problem around the DRU-100..... they don't make them any more. You may be able to purchase on for around £7-£15 either second hand or on eBay or at worst from some other enthusiast on one of the many world wide forums how ever most PC stores and retailers no longer stock them because they are such an old and not really in-demand item now which is where the Terratec Cinergy series cards step up.



The Terratec Cinergy 600 FM / RDS / TV PCI Card



Terratec Cinergy 600 (TV Only Version Shown)

Recently this card has been given advanced support via the Roadrunner Front end giving RDS information as well as the TV function. Again it is more suited to a desktop environment and as such is in a PCI card format and so far has proven a little better than the Dlink. Will this become the new standard ? I'm not sure as they are so far only supported by Roadrunner and also only seem to be available in main land EU. Another problem with this card is that it can also cost up to 7 times more than the Dlink how ever unlike the Dlink you can still buy this from supplier such as CarTFT.com.

It does come with a Remote control which is sort of useable how ever I would suggest that you programme it for use with Girder (<http://www.girder.nl>) and use with a IR receiver so you can programme the keys to be used on other screens and applications and not just the Cinergy.

Although slightly off topic the TV aspect allows you to accept and input from a device such as a DVD player or and other similar devices. This mean that you could spend more money on a better quality dedicated VGA screen rather than one that has TV built in and comes with the added advantage of you having the option of DTT (in Europe) which non of the current of forth coming VGA screens will offer built in.

Back on topic – again you have a standard RF connector for the TV aerial (Female) input and one for the FM Radio (Male) as well as an Audio out socket in the form of a 3.5mm socket. These mean that you can again for the FM portion of this card create a cable adaptor for connection to the cars ISO socket. Again be aware that you need to consider whether your car needs a amplified aerial adaptor or not.

For the TV portion I would suggest the use of twin glass mounted aerials purely on the basis of looks, if you do have the money though see if you can get a proper roof mount.



DAB (Digital Audio Broadcast)



Revo DAB

The bad news is that there is no real DAB solution out there at the moment. There have been a few popular units including the Psion Wavefinder and Modtech which were supported by an application called [DABar](#). This application had an API system which meant that it could be integrated with other applications although no project in the CarPC world has ever taken it up – this along with the demise and low take up of these units anyway basically leaves no choice at this stage should you wish to use DAB. You can still find them but Windows XP SP2 stops them working anyway.

That being a possible work around could use the [Revo](#) DAB unit. At £199 currently it is a cheap add on to any audio system and can be integrated with a CarPC via its RCA output in the same way as a DLink.

So how do you control it? Well unfortunately it does not include a USB connection of any kind so no tuning control or display information can be passed to the PC (- which Revo is a big shame) so you can either use [Girder](#) again to send out IR commands via its existing remote system or just simply place it on the dash board as Revo suggests but I am afraid that is just about it at the moment.

DAB Via DTT (Digital Terrestrial Transmission)

The last possible way of getting a good digital audio feed – although possibly limited in programme availability is by placing a DTT receiver in to your car.

Now before I go any further I must be very clear in the following: I really do not advise yourself watching any kind of moving picture while driving, its best at the very least to accept only the audio feed after tuning the box in while stationary, secondly I would strongly advise you to check your local laws on the subject. That being said we will assume that we are in the UK where all our radio channels that are received via DTT show a static graphic or text of some kind – which to be honest is no worse than some of the higher specification OEM TFT radio systems available now.



An Example Mobile DTT Tuner
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The above receiver is currently available from a number of sources on the web. It has the advantage to keep hold of the DTT signal while travelling at speed. This means you could tune in to say BBC Radio Four (which is available on DAB) and receive a high quality digital stereo feed from the local transmitter. Again this all depends on the DTT availability in your country as well which in the UK is not that bad, if not better at the moment than DAB's. Doing this also gives you a nice looking screen (although you need a TV card for the input) as the radio channels in the UK show their own station logos as I said before. Further more with a little time you may be able to make your front end work with Girder and in turn send out the Infrared signals to control the box giving you even tighter integration.

XM

As we are talking about DAB we might as well mention XM which is the US Digital Radio system. This system works via a satellite signal rather than ground based transmitters that DAB uses. Because a lot of the CarPC interface software comes from the US most of them support XM very well. I cant really comment on the hardware as I am based in the UK I have not been able to give it a go so I would suggest if you are reading this and you are interested that you visit MP3car.com and have a look around the forum for more information.



An Example XM Receiver

Internet Streaming

There is one other way to receive radio and all though this is a under used method it is very easy to implement. One other thing I must point out you do need some additional hardware (a GPRS/ 3G / EDGE receiver) and a reasonable data contract to go with it. Most mobiles now-a-days provide an in built modem that does exactly that so generally all you will need is either a Bluetooth adaptor or a USB cable of some kind.

In this case we will be using a GPRS card together with a PCMCIA to PCI adaptor and we will also assume that our front end is Winamp based such as Roadrunner or Frodooplayer.

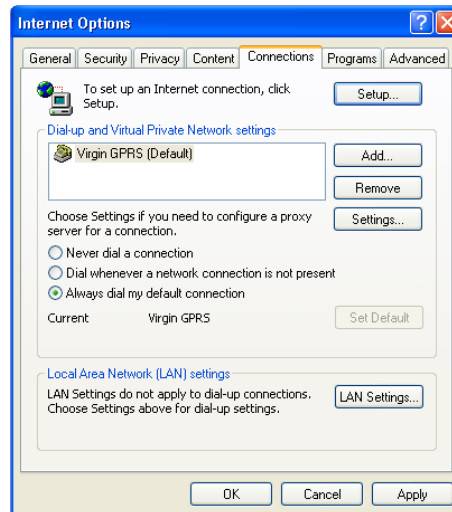
Be aware the quality of the audio will be dependant on the quality of the feed and the stability and bandwidth of your data connection and whether your provider allows data from the Internet and not just their own 'Walled Garden'.

There are two aspects to look at once you have your hardware installed to get this working; the first is the Internet connection. Simply set up the modem on your machine as a normal Internet connection as per your devices ISP (or network providers) instructions. In the case of our card here we simply have to use the bundled wizard to set up the modem driver, connection and GPRS settings for our ISP (network provider).



A PCMCIA GPRS Card In A PCI Adaptor

Once setup make sure you test the connection so you are sure it is viable and to allow you to also discount problems later on should you come across any. Then under Internet Explorer (yes again we are assuming your are using IE) go to tools/connections and make sure that the new connection is set up as default, also make sure that 'Always dial my default connection' is set up. Its worth noting that if you are been charged per MB of data via your mobile provider rather than an unlimited contract that you can set IE to disconnect after a period of none use, and its in this screen via 'settings' you do that.



A Typical Internet Explorer Setup

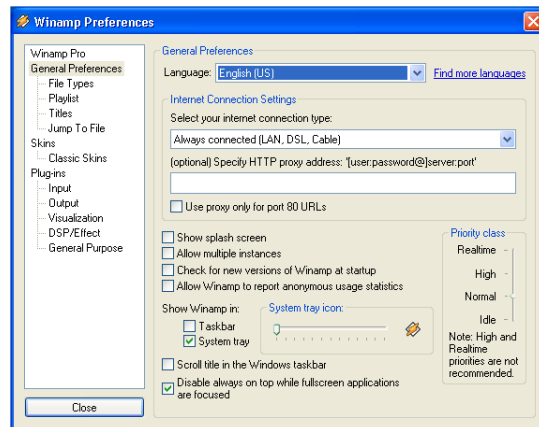
Next we need to set up the streaming side of the Internet radio system. In some respects this is half way done anyhow as Winamp already supports Shoutcast transmissions how ever for the more common commercial stations you need to enable it to use ASX (Windows Media streaming format) and Real Audio streaming. Installing the codec's is only part of that 'enabling' process so lets go though it all now for you.

First of all down load the latest version of Winamp, the full version not the lite version. Install this as normal (making sure you confirm your desired options first) then once completed take a copy of the winamp.exe from its install directory and place in to the directory of the front end



(make sure you back up the one your over-writing first). This gives that front end a version of Winamp that is capable of understanding what we will be doing next.

A tip for you here is this: if you find that Winamp appears every time you start your front end after the install simply go to the options, select 'general/on show' in system tray and disable 'always on top'. Then click ok, minimise Winamp and close it – it won't come back then.



The Winamp Options Screen

Any way I digress, next you need to install the codec's for Real Audio and Quicktime feeds (NB if you need to re-install MS codec's these are available from the Microsoft's site. The codec packs are available from <http://home.hccnet.nl/h.edskes/finalbuilds.htm>, just simply run and accept the defaults when asked. For the 'Real Alternative' codec's its advisable that you do not have the Real Audio player installed before you try and install them.

Now we are almost there, the next problem is helping Winamp understand the play information a feed file will give out, to do this we install the plug-in 'Playlist Loader' from (http://www.nunzioweb.com/daz/playlist_loader.html). Again simply follow the default prompts and away you go. Now this plug-in is being continually been updated so you may want to check on any current issues in the Winamp forum how ever the next set of instructions should work which ever version you use.

First either save the relevant feed file from the Internet or click on the link from the site you wish to listen to, at this point the feed should start playing. Now to save this information in a way that you can access via a CarPC front end you need to save a play list (or m3u) file to your hard disk. Simply place that file in the folder or subfolder where your music resides and then when you wish to play the feed use the navigator with-in what ever front end you're using to select it just like you would any other mp3 file.

If you are based in the UK then a good source of feeds is <http://www.radiofeeds.co.uk/> and if in the US then <http://www.xmradio.com/> is also a good source how ever this is a chargeable service, other countries should have similar feeds and sites.

My Conclusions

The option for radio feeds are very limited because the hardware really has not matured for the mobile user. Yes it has for the desktop user to a certain degree witch sort of gives us these options. Because of this new and innovative ways need to be found by our community to meet our needs and as such there are a few 'very custom projects' that are out there looking at creating specific hardware for the task. In the mean time though we have to make do which in some cases should be sufficient functional, and in others and just not enough.



Terran Brown – Biography



Terran has worked in the IT industry for 'Blue Chip' companies since the early 90's on various technical roles from wide area networking, to PC build and server support. Currently he works as a Project Manager for a leading international outsourcing company still working with large 'Blue Chip' customers. It was a result of his technical background that his interest in the CarPC technology grew to the point where he is now of the more recognised enthusiasts from the UK.

His project home site can be found at <http://www.letscommunicate.co.uk/carpc/>

About CarTFT.com



CarTFT.com was founded in spring 2003 with the goal to offer people a cheap way to integrate computers into cars. As we do a lot of cross-border selling we know that trustworthiness is everything in online business. That's why we try to support the community, offer external insurance for every order, and try to have large stocks to enable shipping of orders as fast as possible. We also try to resolve RMA cases within only days instead of weeks / months where possible.

Our "technical" goal is to offer products which allow the customer to have an open platform and no proprietary system, where he / she can't change anything.

- Additional Photos curtsy of <http://www.revo.co.uk/>
- Additional Photos curtsy of <http://www.cartft.com/>
- Additional Photos curtsy of <http://www.letscommunicate.co.uk/>
- Thanks to Guino ([Roadrunner](#)) for some of the Winamp information
- Additional Images curtsy of Stuart McLernon @ <http://www.inside-guide.co.uk/CarPC>

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