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Internet Music & Audio Guide

Your computer's been silent for too long. The buzz surrounding MP3 has brought digital music to the fore, but MP3 is just the tip of the audio iceberg. The internet is awash with sound - music, radio, spoken word and even audio books. All that ear candy is just waiting to be heard and all you need is a bit of techno savvy and the right software to listen in.

Listening to audio from the internet is as simple as downloading an audio player, installing it, downloading a sound clip and opening it with the player. A player is an application that lets you listen to sound files, but many of them also support streaming audio or video. There are several sound formats and a huge variety of media players available on the web. Not all sites use the same audio format and not all media players support all formats or computer platforms. Thankfully, there are just a handful of popular formats and players.

Audio Formats

Audio files can be either uncompressed or compressed. Most of the early audio formats were uncompressed which means that sound files are bigger and take longer to download. Common uncompressed audio formats include WAV, the native audio format for Windows, and AIFF (Audio Interchange File Format), the native format for Macs. Sound files like any other file type can be recognized by their extensions like .wav or .mid.

With compression you can cram more sound into a smaller file which makes it faster to download. MPEG (Motion Picture Experts Group) is a type of audio and video compression with several standards. MP3 is a popular file format or codec (coder/decoder) that compresses a file to about 10% of its original size.

MP3 is short for MPEG-1 Audio Layer 3. The higher the audio layer, the more complex the encoding software which leads to better sound at higher compression. So a highly compressed file will sound better using Layer 3 encoding than using Layer 1 encoding. MPEG encoding compresses a file by stripping out all the irrelevant sounds that our brains would filter out anyway. Perception research has determined the general range of human hearing, and sounds beyond that range (like frequencies only dogs or elephants can hear) can be discarded with little impact on sound quality.

MP3s can be encoded at varying bit rates (the number of KB per second). The higher the bit rate, the better the sound quality. But the trade-off is a larger file. You can encode MP3s at bit rates from 8 kbps to over 1000 kbps. The usual standard is 128 kbps which provides CD like playback. At this rate, about a minute of music is 1 MB in size.

Another common type of audio file is MIDI (Musical Instrument Digital Interface). Technically it's not a digital audio format because a MIDI file doesn't actually contain a sound recording. A file or sequence contains a set of instructions for how a sound should be played back by a computer's sound card or a MIDI instrument like a keyboard. Think of MIDI like digital sheet music that your computer can read and play.

A MIDI sequence has to be created on a MIDI device which means that MIDIs are instrumental only though some sequencing programs can incorporate voice and sound effects. Playback must also be through a MIDI device so the sound quality of a file is dependent on the quality of your sound card or synthesizer. The advantages of MIDI are small files and easy sound editing. Sequencing programs let you edit musical notes much like you edit words with a word processor.

There's another audio format known as MOD (short for modules) which combines aspects of MIDI and WAV. A MOD file contains a sequence, the digital sheet music of MIDI, but in addition there are WAV samples of instruments playing various notes. Since a MOD contains all the samples necessary to play a song MOD files sound the same regardless of your sound card.

Plug-ins and players for MOD and MIDI files are freely available online for a variety of platforms. What makes MOD and MIDI music appealing is that much of it is original composition. So anyone can be a digital composer with practice and the proper software.

Streaming Audio

Instead of waiting for an entire sound file to download before you can play it, streaming lets you begin playing a file while it is still downloading. This alternative method of delivery is useful if you want to listen to a large file like a concert. With streaming audio, data from a web server is transferred as a continuous stream so you're downloading and listening at the same time. One popular application of streaming audio is internet radio.

Common streaming audio formats are RealNetwork's [RealAudio](#), Apple's [Quicktime](#) and [Windows Media Audio](#) (WMA). Some MP3 players like [WinAmp](#) support streaming MP3 as well.

Sound System

Regardless of the audio file format, the quality of your computer's sound system plays a large part in sound quality. MP3s can provide near CD quality playback, but relying on the average PC's built-in speakers means any audio file will sound tinny and muffled. A serious audiophile will have a set of external speakers, a 3D sound card and a subwoofer.

It's also possible to connect your PC to a conventional stereo system with the right cables. A device from [Sonicbox](#) can achieve the same thing wirelessly. One part of the device attaches to your PC and transmits an audio signal on an unused FM frequency which can then be picked up by the tuner in your stereo.

Audio Players & Other Applications

Audio Players

The audio players you use will depend on what formats are offered by the web sites you surf. Some sites offer the same audio file in two or three formats but most present a single choice. Limited cross-compatibility does exist between some players and files. For example, the latest versions of Quicktime, RealPlayer and Windows Media Player will play MP3s in addition to their own formats. However, some players only play their own proprietary formats so you'll need a [Liquid Audio](#) player to play Liquid Audio files and so on. Since no one owns the MP3 format there are dozens of different MP3 players.

The vast majority of players can be downloaded for free or offer free demo versions. A basic player opens a small window with regular audio control buttons like play, pause, rewind, fast-forward, stop and volume control. Most players let you arrange songs into playlists. Several players offer "pro" or "plus" versions that have additional features like graphic equalizers, bass or treble controls; but you'll have to shell out \$30-45 to get these advanced versions. Most popular free players like RealPlayer, Windows Media Player or Quicktime have PC and Mac versions. MP3 players are available for Mac, PC, Linux, Unix and some PDAs.

Not all sound formats require a separate player to operate. You can play WAV and MIDI files with the appropriate web browser plug-in. When you click to download an audio file your browser can detect if you have the right plug-in, and if you don't it can direct you to a download site. Clicking on an audio file usually automatically launches or spawns a separate window for a compatible audio player. You can also tinker with your browser preferences to make a certain player the default for a particular file type.

Portable Players

The latest techno gadgets are portable MP3 players. About half the size of a Walkman, you can download MP3 files from your computer into these battery-powered devices. You connect the player to your computer via parallel port or USB, and the tracks are stored in the player's RAM. Some players also pick up FM radio and act as voice recorders.

Most players have 32 or 64 MB of RAM, and some have expansion slots for extra memory cards. The next generation of player will have gigabytes of storage. The amount of music you can store also depends on the bit rate at which the MP3s are encoded; halving the bit rate will double the playing time. Listening to one of these sleek new MP3 players comes with a hefty price, around \$200-450. There are a number of models on the market and not all of them support both Mac and PC.

Other Audio Applications

In addition to player applications, you can get programs called jukeboxes. Once you've downloaded a bunch of songs or sounds to your computer you can use a jukebox to make playlists and manage your files. Jukeboxes also include CD rippers which allow you to extract the raw audio data from a CD and save it in an uncompressed format like WAV. Then an encoder application can encode the file as an MP3.

[RealJukebox](#) and [MusicMatch Jukebox](#) are popular freeware jukeboxes for Windows. Free all-in-one jukeboxes for the Mac include MusicMatch and [SoundJam MP](#). Another popular Mac jukebox is [AudioCatalyst](#) but you'll have to buy it.

To help you organize your files, some jukeboxes and players support ID3 tagging. These tags are blocks of data stuck onto the front of a MP3 file that provide additional information like song title, artist, album, date and genre. The latest ID3 version 2 tags can contain liner notes, album art, lyrics, and bios. Not all MP3s carry these tags, and if your player doesn't support ID3, the tags will just be ignored. Some players and jukeboxes can automatically retrieve the same information found in ID3 tags from Escient's online [CD database](#) (CDDB).

Once you've conquered the basics of downloading and playing sound files, there are numerous programs that will help you create your own audio files. If you own a CD-R (recordable) or CD-RW (rewritable) drive, you can then burn your own

tracks to CD. Commercial, shareware and freeware applications are available that let you turn your audio CDs, tapes or LPs into MP3s or other audio formats. Certain programs also allow you to mix and edit audio files once you've ripped the tracks from the original source.

Internet Radio

If you've ever wanted a shortwave radio but couldn't afford the price tag, internet radio is a great alternative. There are radio stations online from around the globe broadcasting all hours of the day. You can hear everything from news in New Zealand to electronica from someone's basement. Many web sites offer internet broadcasts of real-world radio stations, and other sites play purely online radio. Some stations adhere to the traditional music and announcer format while others just serve up the tunes. Most sites use either RealAudio or [Shoutcast](#) which is an MP3 streaming technology.

To access Shoutcast and Icecast streams you need an MP3 player like WinAmp or [FreeAmp](#) which are freeware. Mac users can download the latest free version of the [Destiny Media Player](#) or SoundJam MP. [MacAst](#) (formerly MacAmp) is also compatible but only the demo is free. Full-featured shareware players usually cost between \$30-\$60.

The coolest thing about Shoutcast is that it allows anyone to produce and broadcast streaming audio. If you have the technical inclination, you can download applications that let you set-up and run a broadcast server and produce your own radio programs.

Keep in mind that many of these streams are created in someone's basement so server capacity can be limited to just a handful of listeners. Other sites can handle hundreds or thousands of listeners. Servers also broadcast at differing bandwidths. Choose a station that is broadcasting at a bit rate your connection can handle. For instance, if you have a slow 28K modem you won't be able to handle a 128 kbps stream. For a list of Internet radio stations, click [here](#).

Music

No matter what your musical interests are you will be able to find songs in your favourite genres. If your tastes don't follow the mainstream you may have to search a little harder, but the web is as diverse as the people who make the web sites. The advent of MP3 has spawned a multitude of MP3 music directory sites like [MP3.com](#). Typically, they offer several categories of music from classical to trance and all stops in between.

Another way to develop your own music library is file sharing. Applications like Napster, Morpheus and Aimster allow Window users to join a community of music lovers looking to share music. With these programs you can chat, play music, search the music libraries of other users and download files. Users download audio files from other members' computers rather than a web server. Just remember that granting someone access to your hard drive can pose a potential security risk and is not for everyone.

The net also lets you experience live gigs from all over the globe. Several sites broadcast live concerts via streaming audio or video then archive the performances so you can tune in later if you missed the real time webcast. Another listening alternative is the online mix tape which lets you listen to a number of different artists with a similar sound. Some sites feature custom playlists created by popular artists so you can hear Jewel's favourite songs. You can also hear artists speak their minds in audio interviews.

Most audio files you'll run into are free to download. Though some sites and artists charge a nominal fee to download a MP3 song, normally 1-3 bucks. These songs are often advance peeks at new material from popular artists. You can also buy and download whole albums for around \$13-15. Musicians and other artists sign agreements with commercial sites to legally distribute their music.

On the net, it's always a challenge to protect artist copyright. Secure digital music formats like Liquid Audio and [a2b music](#) files are securely encrypted after compression to ensure that only the person who downloaded the track can play it. Liquid Audio files also come watermarked with a logo that guarantees the track is legal and authentic. MP3 files can also be encoded so that only the person who downloads the file can play it, however most are not.

Downloading MP3s and ripping tracks from audio CDs is perfectly legal. It's distributing files of copyrighted music which is illegal, similar to copying a CD to tape and giving it to someone else. Major commercial sites aren't carrying pirated content, but think twice about downloading Britney Spears from someone's home page. The music industry and technology companies are hoping to address the problem of piracy with the Secure Digital Music Initiative (SDMI). This group hopes to hammer out specifications for secure downloads of digital music. Click [here](#) for music links.

Audio Visuals & the Spoken Word

Visuals with Your Audio

<http://www.viewz.com/shoppingguide/musicprint.htm>

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To add a little panache to your listening experience you can also download visual enhancements for your audio player like skins or plug-ins. Skins are like designer fashion graphics for your player. If you're bored with the colour or the buttons on your player you can download and install a new skin for a different look.

Visualization plug-ins create nifty, if pointless graphics that change and morph with the music you're playing. Some internet radio stations also provide funky dynamic graphics that shift as the music streams. Skins and plug-ins are available for quite a few players, but the majority are designed for the WinAmp MP3 player.

Spoken Word

Although music gets the lion's share of attention, there's a wealth of spoken word content on the web. Audio books have been around in cassette and CD form for a while, and now you can listen to books online. Excerpts or complete texts of audio books are available in streaming audio. Many texts are free and a few sites let you download whole audio books for less than the cost of buying the CD or tape.

More literature is accessible in the form of audio dramas or poetry readings. Radio plays have gone digital with both new interpretations of classics like Shakespeare and new original productions. Poets of all description can be heard over the internet from old recordings of T.S. Eliot to modern rebels like Henry Rollins.

Educational and informational audio is also abundant. You can take language lessons, listen to lectures from universities or take in speeches from famous personalities. Audio programming about health, fitness, business, technology, news and travel is readily available from various sites. For rest and relaxation, you can kick back and listen to coverage of different sporting events or find a good laugh online with stand-up, sketch or musical comedy.

Conclusion

Surround yourself with the sounds of the internet. Download an audio player and start your sonic explorations. MP3 lets you hear emerging indie artists along side top 40 hits while digital musicians use MIDI and MOD to create new compositions. Internet radio brings news and music from the global village right to your hard drive. You can even snuggle up with a good audio book or go to the theatre with an audio drama. The web has its own audio ecosystem with a flourishing diversity of sounds simply waiting for you to tune in.

Links

[The MP3 and Internet Audio Handbook](#)

Bruce and Marty Fries have written an extensive guide to digital music on the internet. They provide information on all steps of the audio experience from choosing a player to ripping CDs and recording your own MP3s. There's also a section devoted to software tutorials for common audio applications.

[MP3now.com](#)

You can find a host of MP3 related links at this resource page. MP3now collects links to current news, software reviews, search engines, portable players and technical information.

Downloads

[CNET: MP3 Essentials](#)

CNET's guide provides downloads of several different types of audio software. Program categories include players, rippers, encoders, jukeboxes, search engines and Mac applications.

[Shareware Music Machine](#)

This vast download site contains music software applications for many audio formats and platforms. In addition to the usual players and plug-ins, you can find programs for recording, editing, and sampling digital music.

Internet Radio

[The MIT List of Radio Stations on the Internet](#)

MIT has compiled a massive database of real-world radio stations, many of which also broadcast on the internet. The lightning bolts indicate stations that broadcast online. You can search the database by radio call letters or browse listings by country.

[RadioSpy](#)

RadioSpy features a directory of Shoutcast, RealAudio and Windows Media internet radio stations sorted by genre, audio format and bit rate. Search the directory by station call letters or look for a station playing a certain song or artist. You can

also read music headlines, reviews and interviews.

[SonicNet](#)

Choose from a variety of radio stations each covering a specific musical genre. Some stations have playlists put together by guest DJ's like Amy Grant and Kenny Wayne Shepherd. If you sign up with SonicNet, you can create your own radio station and tailor the playlist to your tastes.

Spoken Word

[Wired for Books](#)

With a RealAudio player, you'll be able to listen to a mixed selection of books, poetry and drama. Readings of Shakespearean sonnets, Emily Dickinson's poems and Edgar Allan Poe short stories are a few of the audio offerings.

Music

[Listen.com](#)

At this large music directory, you'll find a broad selection of music broken down by genre. The "big shots" section lists mainstream artists while you can find comedy and audio books in the spoken word section. You can download both free and pay tracks in a variety of audio formats.

[Internet Underground Music Archive](#)

A great many independent artists showcase their talent on this site. Music is arranged by genre, plus there are sections for new arrivals and featured artists. Songs are available in both RealAudio and MP3 or tune in to one of the customizable radio channels.

MIDI and MOD

[MODPlug Central](#)

Find out more about the MOD format with these resources. Read the MOD FAQ then download a player or plug-in and hit the music archives. When you want to create your own music you can find information on recording and sampling.

[Midiworld](#)

There are sections on MIDI basics, composers and their music, software and places to get samples. Creative minds should check out the MIDI-Lab where collaborative and experimental MIDI is discussed.

Canadiana

[CBC Audio](#)

Canada's national broadcaster has a number of local radio stations that stream live in RealAudio. The page also provides links to newscasts and radio programs that can be heard online.

[KickInTheHead.com](#) The "True North, Strong & Loud!" is the motto of this site. Here you can explore a searchable database of Canadian artists with links to their official pages. Although you can find the big names like Alanis there's a wealth of unsigned talent in this country.

[TuneVault.com](#)

Inside the vault is a directory of Canadian indie artists mainly from Ontario. The site provides bios, discographies, links to official home pages plus news and album reviews. You can also download MP3s via the song links toMP3.com.

[The Virtual Gramophone: Canadian Historical Sound Recordings](#)

The National Library of Canada has produced an archive of music from the early decades of the 1900's. Take a trip in time with gramophone recordings of songs in both French and English from the catalogue of the Berliner company of Montreal. You can also search the audio database and read biographies of Canadian performers of the day.

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