

In the span of less than a decade, the World Wide Web portion of the Internet has grown from a simple, static, primarily character-based means for scholars to share information to a visually rich, interactive vehicle of mass communication. Until recently, however, it was not practical to broadcast audio or full-motion video over the Internet.

Now, with the introduction of RealNetworks' RealPlayer and Microsoft's NetShow, the scene is rapidly changing. Even users with 14.4 Kbps modems and relatively slow dial-up connections to the Internet can receive audio and video broadcasts using their favorite Web browser. In this chapter, you will learn how to obtain, install, and use these programs.

The Major Competitors: RealPlayer and NetShow

Both RealNetworks and Microsoft have developed technologies that make use of new protocols for transferring audio and video over the Internet, often using more than one protocol during a single transmission. The latest versions of RealPlayer and NetShow incorporate these protocols. The runtime players for these technologies are available for free from the developers and are built into Microsoft Internet Explorer 4.0. In later sections of this chapter, you'll learn how to download and install each one if you are using a different browser.

The following list describes some of the differences between RealPlayer and NetShow:

- On a 133MHz Pentium system, with a 28.8Kbps modem and a dial-up connection to the Internet, NetShow has an edge over RealPlayer in technical quality. The audio is better and the video a bit sharper and less murky. However, the playback is marred by frequent pauses as NetShow stops to buffer data before continuing.
- Playback is smoother with RealPlayer. In addition, RealPlayer offers more configuration options than NetShow, making it easier to fine-tune performance.
- Audio quality can be quite good with either program, but don't expect broadcast quality, at least not with a typical modem and a dial-up Internet connection. At a medium screen resolution of 800 x 600--fairly common among Windows users--the video image will occupy only about one-fifth of your screen. Frame rates can drop to as low as two per second when traffic on the Internet is particularly dense. Generally, the audio will continue uninterrupted and the player will drop frames to keep pace with the audio, so your video may look more like a series of slides than a full-motion image. Moreover, the image is likely to be fuzzy, somewhat like watching a kinescope of an early television program.

Choosing the Best Player for Your Needs

The needs that you have, rather than the products themselves, are likely to dictate which player you will use more. My guess is that you will probably find yourself using RealPlayer more often than NetShow because of the type of content offered on RealPlayer sites.

Some thoughts to consider with RealPlayer and NetShow:

- RealPlayer is directed squarely at the consumer market--people who browse the Web for pleasure as well as for business. The software has been designed for use with ordinary modems (28.8Kbps and even 14.4Kbps) and dial-up connections to the Internet, although the faster the connection to the Internet, the better its performance will be. RealPlayer sites tend to be oriented toward news, sports, and entertainment, with major broadcast news organizations providing the news and feature clips, live broadcasts of sporting events, and music videos galore.

- NetShow, on the other hand, appears to have been designed primarily for business use. The NetShow Player is only a small part of a large overall package that also includes server and content creation software. While there are good NetShow sites on the Internet, NetShow is used mostly on corporate intranets, where traffic and bandwidth are much less of a problem and it is easier to maintain a steady, controlled signal flow, although it can be found on some consumer-oriented sites as well.

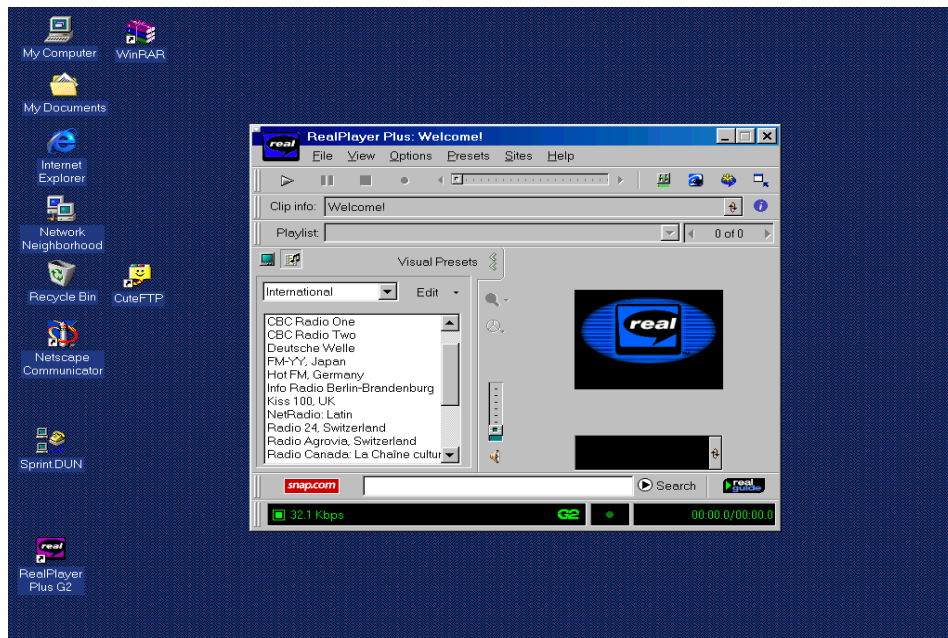
The good news is that you don't have to choose between the two products. The programs are free, easy to download and install, don't take up much disk space, and can coexist on the same system. Moreover, if you have Internet Explorer 4.0, you already have both of them.

Overview of RealPlayer and RealPlayer Plus

RealNetworks offers two runtime players--RealPlayer, which is free, and RealPlayer Plus, which can be ordered online.

NOTE: RealPlayer Plus offers several advantages over the standard version of RealPlayer, including 40 preset buttons, similar to those on a car radio, that you can configure for any Internet audio or video channel; the ability to download virtually an entire clip prior to playback, which can improve the playback of music videos; and a "Record" button, which permits you to save the clip to disk if the content provider has not disabled this feature in the clip itself.

The RealPlayer Plus interface has much of the "look and feel" of a typical multi-media player, including the Media Player that comes with Windows 95.



- At the center of the program is a window for video images. (This window does not appear when you play an audio file.)
- Below the title bar is a typical Windows menu bar, with File, View, Clip, Site, and Help drop-down menus.
- Above the video window, below the menu bar, is a VCR-like toolbar containing a combination play/pause button, a stop button, a progress slider, fast forward and rewind buttons, and the Real logo, with a link to the RealNetworks Home Page.
- Below the video window are six destination buttons: News, Tech, Sports, Finance, Entertainment, and Customize. These buttons can be configured to link to either full-motion video or audio-only briefings from a list preselected by RealNetworks.
- Below the buttons is an information block showing the Title, Author, and Copyright notice for the current item. At the bottom of this block is a window showing the status of the current file. This window includes information such as total time, elapsed time, and progress in downloading and buffering the data.
- To the right of the information block is a toolbar with a volume control slider and buttons for muting the sound, zooming the image, and compacting the RealPlayer window. The Zoom and Compact buttons are toggle buttons. Clicking the Compact button will reduce the number of

controls displayed. Clicking the Zoom button will enlarge the image if it can be enlarged.

In addition to the player itself, several other components are added to your system during the installation process. These components extend the audio and video capabilities of Web browsers and other software that may be installed on your system. Review these components in the following list:

- **RealPlayerPlus plug-in for Netscape Navigator** This plug-in works with Netscape Navigator 2.0 and later versions.
- **RealPlayerPlus Control for ActiveX** This control may be used by Internet Explorer 3.0, as well as by Visual Basic applications, running under Windows 95 and Windows NT. The control is not available for Windows 3.1. Support for RealPlayer is built into Internet Explorer 4.0 directly.
- **RealAudio Xtra for Shockwave** This component enables developers of Macromedia Shockwave movies to add RealAudio programming under Windows 95 and Windows NT. It is not available for Windows 3.1.

RealPlayer Plus has also the following features:

- Customizable buttons for additional audio and video sources, plus a scanning tool. The scan feature works much like the scan button on an audio tuner.
- A "PerfectPlay mode" option to the File menu. This option, which is intended for use with slow dial-up connections to the Internet, allows you to download a substantial portion of the audio or video clip, or even the entire file, before playing it. This is useful for music videos and other instances in which interruptions due to heavy traffic on the Internet can be particularly annoying.
- A record button, which enables you to record files (save them to your local drive) for playback offline.

RealPlayer and RealPlayer Plus are available for the Windows 95, Windows NT, and Power Macintosh platforms. For users of Windows 3.1, OS/2, Macintosh 68040, and UNIX platforms, RealAudio Player 3.0 is still available. If you have Internet Explorer 4.0, you already have a copy of the standard RealPlayer.

Before downloading the player, make sure that your computer system meets the requirements. For the Windows versions, you will need:

- Windows 95 or Windows NT 3.51 or later.
- 2MB of free space on your local drive.
- A Windows-compatible sound card.
- A 486 DX/2 66MHz or equivalent central processor, at a minimum, for audio only. For both audio and video, you will need at least a Pentium.
- 16MB of RAM.
- A 14.4Kbps modem at a minimum, with a 28.8Kbps or faster model recommended.
- A 32-bit Web browser, such as recent versions of Netscape Navigator and Microsoft Internet Explorer.
- An Internet Service Provider (ISP) or commercial online service, such as America Online, that uses a 32-bit winsock. (Windows 95's Dial-up Networking feature uses a 32-bit winsock, so if you can access your ISP through Dial-up Networking, you should be okay.)

Sites with Strong RealPlayer Content

Because the World Wide Web is so dynamic, any list of Web pages that I could provide at this writing would be obsolete in a few months. However, here are some pages that will get you started and that are likely to be around for a while:

- **The TimeCast home page**, at <http://www.timecast.com>. At the top of the page, you'll find three tabs: Live Guide, Audio Guide, and Video Guide. Each one will take you to a menu of sites covering a wide variety of subjects.

- While at the TimeCast site, be sure to check out the **RealVideo Showcase** page for examples of what RealNetworks believes to be outstanding use of RealPlayer technology.
- **AudioNet**, at <http://www.audionet.com>. This site lives up to its billing as "The Broadcast Network on the Internet." Whether you're looking for business seminars, music videos, live current events, sports broadcasts, or almost anything in between, you're likely to find it here. (AudioNet also has a section for Microsoft NetShow files at <http://www.audionet.com/netshow>.)

Overview of NetShow 2.0

Microsoft NetShow also uses a streaming protocol to deliver audio and video over the Internet. Its Active Streaming Format (ASF) files are based on an open, standards-based format that includes error correction.

NetShow uses both unicast and multicast technologies. Unicasting transmits a data stream whenever you, the user, request it. This gives you substantial control over playback. You can rewind, fast forward, stop, and start, as you can with your VCR. However, this technology requires substantial bandwidth and is best suited for corporate intranets. Also, it cannot be used for live broadcasts.

Multicasting, which is more like a television broadcast, allows the server to send a single batch of data over the network to many users at the same time. However, as a user, you do not enjoy the control over playback that unicasting allows. For example, the rewind, fast forward, and pause options are not available.

As with RealPlayer, NetShow can be run as either a stand-alone application or a browser plug-in. It can also be used in custom applications developed with tools such as Microsoft Visual Basic or Visual C++.

The NetShow player is part of a suite of products that also include a server and development tools. The server can also be used to host content for RealPlayer. An optional feature provides for full-screen video over high-bandwidth networks.

Installing NetShow

NetShow Player is an integral part of Internet Explorer 4.0 and is currently available for various versions of Windows, including Windows 95, Windows NT, and Windows 3.x, all running on Intel central processors. In addition, a Windows NT version for the DEC Alpha central processor is available. Beta versions for the Macintosh, Windows 3.x, and UNIX platforms are under development.

System requirements are as follows:

- **Windows 95 and Windows NT 4.0** At a minimum, you will need a 486 DX/2 66MHz central processor, 16-color display card, 16-bit sound card, 14.4Kbps modem, and Windows 95. This configuration is suitable for audio, audio plus images, and some full-motion video. I recommend a Pentium 120MHz or better central processor, 16MB or more of RAM, 256-color or better display card, 28.8Kbps modem or Ethernet network interface card, and Windows 95 or Windows NT 4.0. This configuration is suitable for all audio, audio plus images, and video.
- **Windows NT 3.51 with Service Pack 5** The requirements are the same for Windows NT 4.0, as discussed in the previous bullet.
- **Windows 3.x** At a minimum, you will need Windows 3.1 or Windows for Workgroups 3.11, 486 DX/2 66 MHz central processor, Super VGA display card, 8MB of RAM, 6MB of hard-disk space, Windows-compatible sound card, 14.4Kbps modem, and Video for Windows.

Using NetShow

The NetShow interface is much simpler than that for RealPlayer:

- Below the title and menu bars is an image window that does not open until you select a video file.
- Under the image window is a time indicator and a progress slider.
- Below these indicators are a Play/Pause button and a Stop button.
- To the right of the stop button is a bank of four controls: Previous Marker, Rewind, Fast Forward, and Next Marker. The marker buttons

are active only if the file has embedded markers and you have already passed at least one of them. Fast forward and rewind are not available if multicasting has been used to transmit the file to you, as is likely to be the case if you have downloaded the file via a dial-up Internet connection.

Here are some common actions that you will take when you use NetShow:

- To **play a file**, press the Play button. The button will become a Pause button while the file is being played back.
- To **pause the playback**, press the Pause button, which will turn back into a Play button.
- To **stop playback**, press the Stop button.
- To **access a marker**, press the Previous Marker or Next Marker button (if available).
- To **move forward**, press the Fast Forward button (if available).
- To **move backward**, press the Rewind button (if available).

Sites with Strong NetShow Content

Your best bet for good examples of NetShow material is to browse the NetShow portion of Microsoft's own Web site.



To access the Microsoft NetShow pages:

- Point your browser to <http://www.microsoft.com/windows/windowsmedia/> to start.
- Click the Gallery button in the left frame or go to <http://www.microsoft.com/netshow/examples.htm>.
- Also check out the NetShow showcase at <http://itv.net/front.htm>.
- Finally, check out AudioNet's NetShow section at <http://www.audionet.com/netshow>.