realplayer™ plus

REALPLAYER 8 PLUS USER MANUAL

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RealPlayer 8 Plus User Manual, Revision 1.0

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ABOUT THIS MANUAL

This manual has been created not to replace the Help feature that comes with your RealPlayer®, but to supplement it. To familiarize you with RealPlayer, this manual will step you through the following topics:

- Chapters 1-3: How to get up and running quickly with your new software.
- Chapters 4-5: Details about all of RealPlayer's features.
- Chapter 6: Streaming Media; what it is and how it works, answers to basic Streaming Media questions. It includes background and details that helps you under stand data streaming technology, the core of RealPlayer
- Chapter 7: Preferences. How you can customize RealPlayer to your own tastes and needs.
- Chapter 8: Troubleshooting common problems.

The remaining sections and Appendixes are reference sections to help you quickly find answers to common installation problems and pointers to other less obvious features (such as Appendix A: Keyboard Shortcuts on page 89).

Note

RealPlayer has a number of short-cut or right-click menus for Windows users. This manual will not cover these specifically.

Mac users can access right click menus by using a Control-Click combination.

Specific Windows-only differences are mentioned only as needed throughout this manual.

Document Conventions

Bold text indicates the names of commands, menu choices or buttons that you should select or click on your screen. **Bold** text may also indicate a URL (Internet address) that you can access through your browser.

Italics indicate new terms or ideas in this document. Many of these terms or ideas will be included in the Glossary.

`Monotype` indicates information that you must type in or that is displayed on your computer screen.

Points out features that were specially designed for RealPlayer Plus users.

INSTALLING REALPLAYER

Before you install RealPlayer, please take a moment to confirm that your computer meets minimum system requirements.

System Requirements

PC (Windows based computer)

Minimal Computer

- 120MHz Intel Pentium processor or equivalent
- 16MB of RAM
- 28.8Kbps modem
- 16-bit sound card and speakers
- 65,000-color video display card (optional; required for video)
- Windows 95 operating system
- Internet connection and web browser (I.E 4.01 or Netscape 4.0 or later)

Recommended Computer

- 200MHz Intel Pentium processor or better
- 32MB or more of RAM
- 56.6Kbps or better modem
- Full Duplex sound card and speakers
- 65,000-color or better video display card
- Windows 95, Windows 98, Windows 2000, or Windows NT 4.0 with Service Pack 4 or later.
- Internet connection and web browser (I.E 4.01 or Netscape 4.0 or later)

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Macintosh

Minimal Computer

- Mac OS 8.1 or later
- 64MB RAM
- Virtual Memory turned on, set to 65MB
- 604 PowerPC (200 MHz or better)
- 28.8Kpbs modem Internet Connection
- Browser support: Microsoft Internet Explorer 4.01 or later, Netscape 4.05 or later

Recommended Computer

- Mac OS 8.5 or later
- 64MB RAM
- Virtual Memory turned on, set to 128MB
- G3 233 (or faster) PowerPC
- 56.6Kbps or better Internet Connection for both audio and video
- Browser support: Microsoft Internet Explorer 4.01 or later, Netscape 4.05 or later

Windows 95/98/2000 and Windows NT Installation

To install RealPlayer

1. Close any open applications or programs that are currently running.
2. Insert the RealPlayer CD-ROM into your CD-ROM or DVD drive.

   If RealPlayer does not install automatically when you insert the CD into your CD-ROM or DVD drive, you can start the installation process manually.

1. Click **Start** to open your Start menu.
2. Click **Run**.
3. Type the letter for your CD-ROM or DVD drive and then type `setup.exe` (for example `D:\setup.exe`). The RealPlayer installation should begin.

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Follow the instructions that appear on your screen. If you are not connected to the Internet during installation, RealPlayer will attempt to connect to your Internet Service Provider (ISP) in order to electronically register your new Player.

4. At the completion of the installation, you will be shown some of the new features of RealPlayer and your browser will automatically connect to a Welcome page that will help you connect immediately to media content as well as offer additional information about how to use your Player. If you did not connect to the Internet earlier to electronically register your RealPlayer, your browser will attempt to dial your Internet Service Provider (ISP) to make the connection at this time.

Macintosh Installation

To install RealPlayer

1. Double-click the RealPlayer Installer. The installation process will begin. Follow the instructions in each of the screens that follow.
2. When installation is complete, your web browser will launch and take you to a Welcome page that will help you connect immediately to content as well as offer additional information about how to use your Player. If you did not connect to the Internet earlier to electronically register your RealPlayer, your browser will attempt to dial your Internet Service Provider (ISP) to make the connection at this time.

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WHERE TO GO FOR HELP AND INFORMATION

Chapter 2

RealNetworks wants your use of RealPlayer to be as easy and trouble free as possible. However, everyone needs help sometimes.

Below are several resources to assist you in resolving any problems you encounter.

Help with Using RealPlayer

Your first source for assistance when you have a question should be this manual or the Help file. To access Help, select **Contents** from your RealPlayer **Help** menu.

Note

Help files can be updated online. To check for and download the latest Help files, click **Help/Check for Updates**.

If you don't find your answer in Help or in this manual, RealNetworks has several other resources available on the Web (**http://service.real.com**).

Tips and Tricks:

The new Real.com Message Service offers RealPlayer Tips and Tricks delivered directly to your RealPlayer. To turn on Tips and Tricks, go to the **Upgrade** tab of your RealPlayer Preferences. Click **Settings...** in the Real.com Product Flashes section and then check RealPlayer Tips and Tricks. Learn more about RealPlayer messaging in Real.com Message Service on page 29.

Service and Support:

Service and Support is available to answer your otherwise unanswered technical support questions. Service and Support can be reached via the Internet at **http://service.real.com.**

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Customer Service

Customer Service:

Customer Service is available to help you with questions about your order, delivery, or payment.

Customer Service is available from 8am - 5pm (Pacific Time), Monday through Friday, toll-free in the United States and Canada at **888-768-3248.** Outside the United States and Canada, please dial **206-674-2650.**

You can also contact Customer Service via the Service and Support Web pages by going to **http://service.real.com.**

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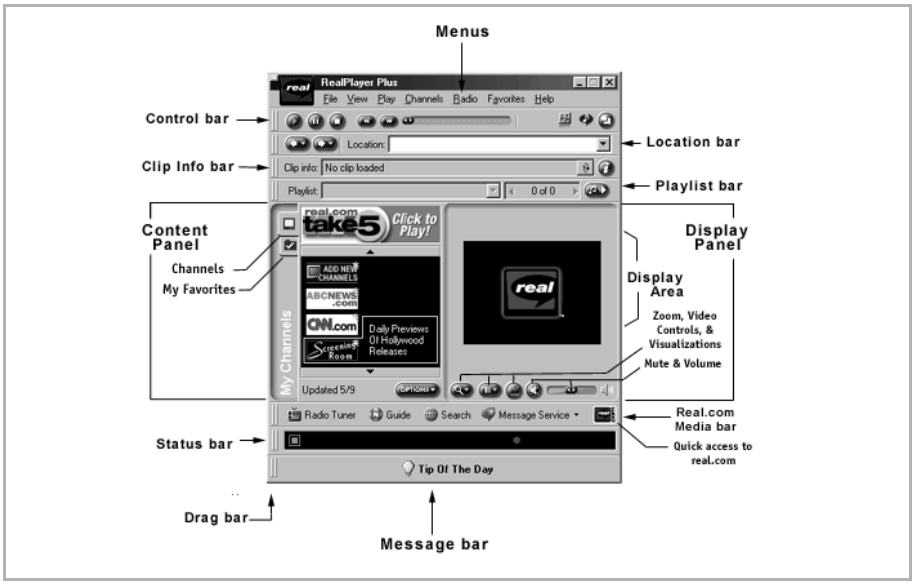
A QUICK LOOK AT REALPLAYER

Chapter 3

Overview

The following figure, Figure 3-1: RealPlayer Plus, is a visual quick reference for all the displays and controls that are on your RealPlayer (including the Plus features). Each of the specific areas labeled in this figure are illustrated and explained in detail later in the chapter. For additional information about each of these features, see Chapter 4: RealPlayer - The Basics and Chapter 5: The *Plus* in RealPlayer Plus, as well as the Help file available from your **Help** menu (select **Help** then **Contents...**).

Figure 3-1: RealPlayer Plus



This view of RealPlayer shows all of the bars and panels available in the default **View/Normal** display of the RealPlayer Plus.

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Tip

You can change the order of how these are stacked by using the *drag bar* to move any bar higher or lower in the stack. (Just click and drag.)

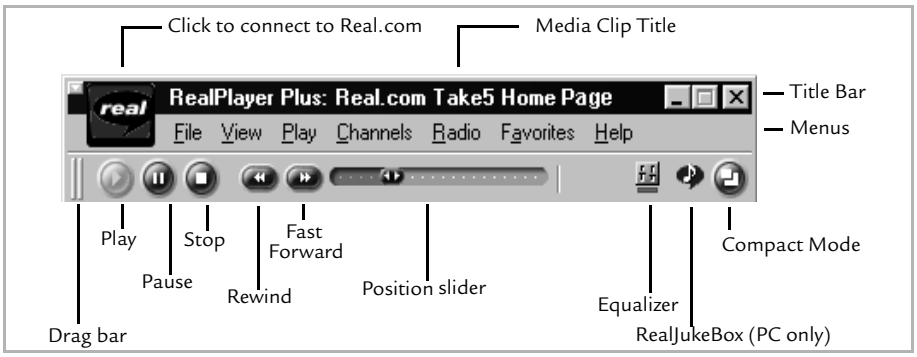
Note

Macintosh users will notice several minor visual differences from Figure 3-1: RealPlayer Plus.

Title and Menus

The **Title Bar** shows the program title (RealPlayer Plus) and the title of the media clip that is being played or was last played. (See Figure 3-2: Title, Menus, and Control bar.) Each of the pull-down menus lists commands to control the functions of RealPlayer. Most of the menu commands duplicate command buttons located on the player.

Figure 3-2: Title, Menus, and Control bar



Control bar

The **Control bar** allows you to navigate through the clip you are playing, with player control buttons and a playback position slider.

The Control bar also gives you access to the **Equalizer** (Plus only), **RealJukebox™**, and the **Compact Mode** toggle (which switches between the Normal and Compact views).

Additional Information

Learn more about Navigating through a clip on page 18.
Learn more about how to use the Equalizer on page 34.

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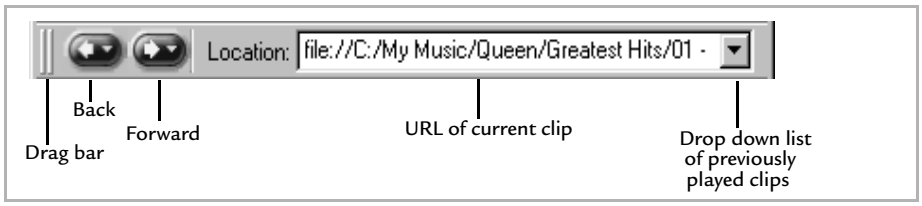
Location bar

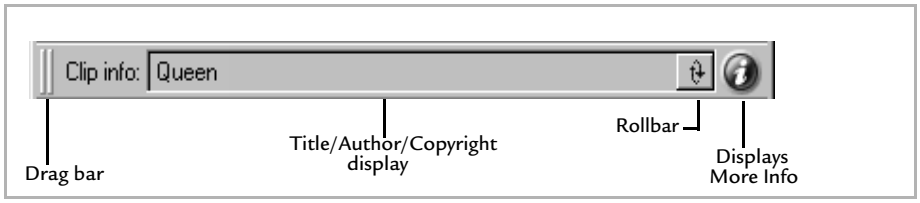
Figure 3-3: Location bar



The **Location bar** displays the *URL*, or address, of the currently loaded clip; this is similar to the address bar in your Web browser. Clips can be files stored on your computer, or they can be *streaming media* from a web site. Use **Back** and **Forward** to jump back and forth between the clips you were playing, just as you would with your Web browser. (See Location bar on page 25 for more information.)

Clip Info bar

Figure 3-4: Clip Info bar



The **Clip Info bar** displays information about the currently loaded clip. By clicking the **rollbar** you can make the information scroll past again. Clicking **More Info** opens a dialog with additional information if the content provider has supplied any.

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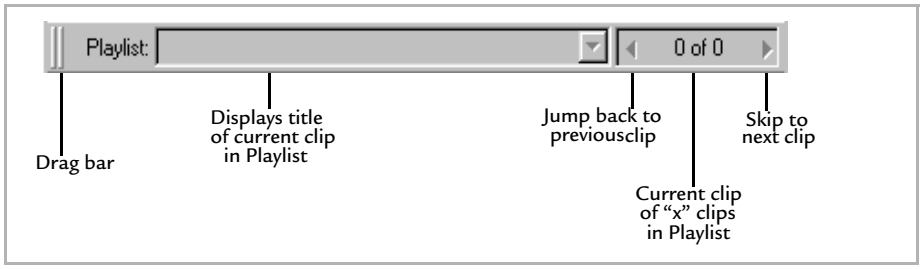
Playlist bar

Figure 3-5: Playlist bar



The **Playlist bar** will open automatically when you are playing a *multi-clip* (a clip that contains other clips in sequence). When the playlist is displayed, the title of the clip currently being played is displayed in the left text box; the number of clips in the playlist and the number of the current clip is indicated in the right text box. (See also Playlist bar on page 25.) To open the Playlist bar manually, use the View menu (**View/Playlist**).

Additional Information

You can create a multi-clip by selecting playable files (clips) from your local directory and dropping them into the player. (You can do this with a simple *click and drag*.) This creates a temporary **.ram* file that links the selected files.

When a multi-clip has been loaded into the player, the clips will be listed on the playlist bar and can be played in sequence or in random order (select menu command **Play/Shuffle Play**). Individual clips from the list can be selected from a pull down menu in the clip title box, or with the Jump back and Skip next buttons.

Content Panel

The **Content panel** provides access to *RealMedia™* on the Web. *My Channels* lists media channels that offer immediate access to new streamed multi-media content. With RealPlayer Plus, the Content Panel can also show *My Favorites*; a directory of folders that can be created and used to organize and access your favorite media clips. (More about favorite clips later, but this can include radio stations, media channels, and locally stored media clips.)

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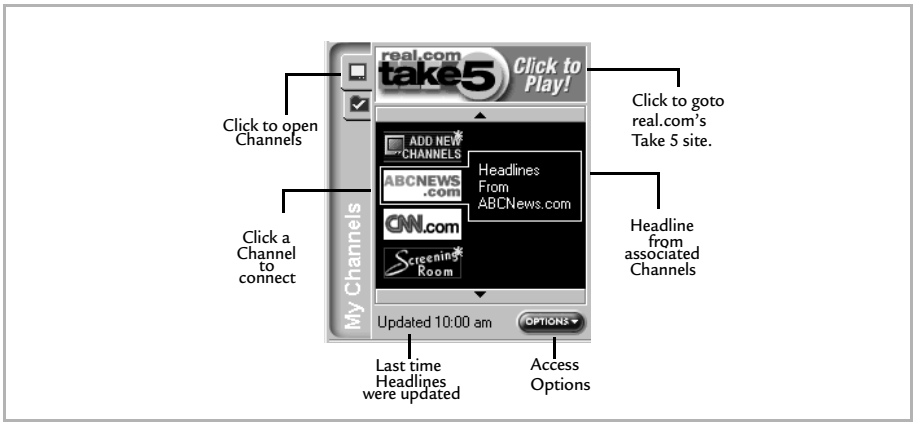
Figure 3-6: My Channels



My Channels shows a list of streaming media channels that you can personalize from the available RealChannels provided by Real.com™ for your RealPlayer. (See Figure 3-6: My Channels.) Above the Channels list you will also see *Real.com Take 5*. It's an all-media intenet experience. Real.com Take 5 is updated each morning, along with a special "best of" weekend edition. Click on the Real.com Take 5 icon to start playing this feature. (See Real.com Take 5 on page 21.)

You can customize your Channels list whenever you are on-line. Select from dozens of Channels provided by leading news, music, entertainment, sports, biz/tech, and health/science sources. (See also Channels on page 20.) All RealPlayer Channels take advantage of the new SMIL format which offers a richer experience by using multiple types of streams at once (see SMIL on page 52).

When you come across content that you want to return to regularly, you can use the **Favorites/Add to Favorites** command to bookmark the location (just like bookmarks on your web browser). You can display and select your favorite channels from the **Favorites** menu.

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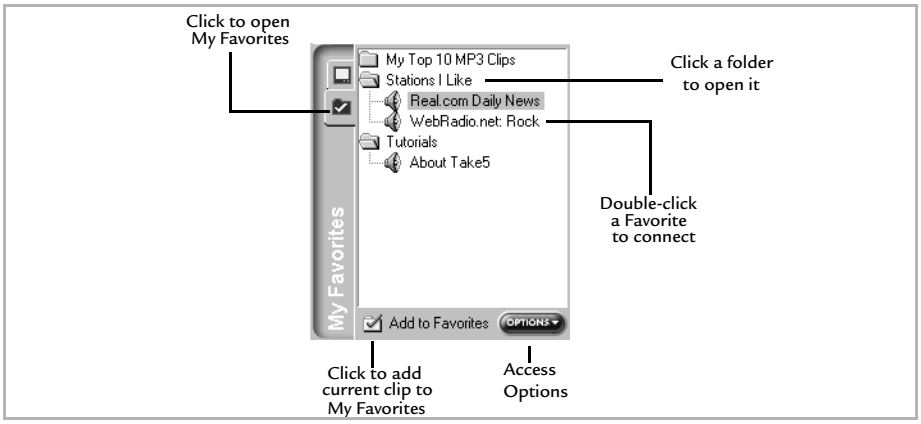
Figure 3-7: My Favorites



My Favorites is a list of links similar to bookmarks in a browser. You can add, remove, arrange, and even send Favorites to friends and co-workers (see Sharing Favorites on page 24). Favorites can be organized in folders and a single click will play the selected media. (See My Favorites on page 31 for more information).

Display panel

Figure 3-8: Display Panel (PC)

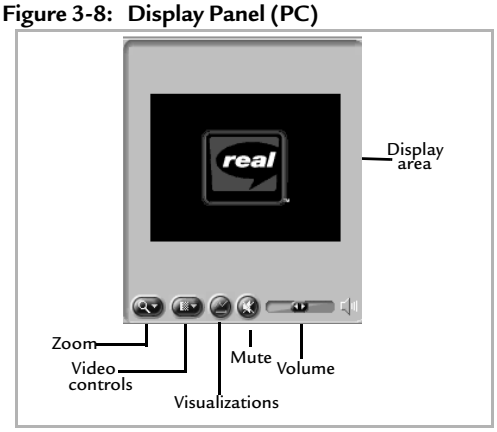
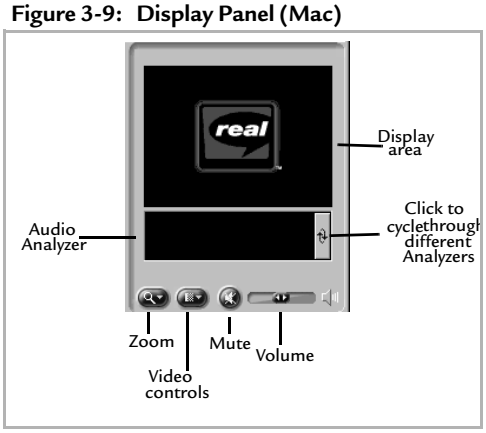


Figure 3-9: Display Panel (Mac)



The Display panel is where the visual part of a clip will be shown (text, graphics and images). It also hosts the **Zoom**, **Video Controls**(Plus onlyon;y), **Mute**, and **Volume**, as well as **Visualizations** (PC) or the **Audio Analyzer** (Mac) controls.

Learn more about the Visualizations and Audio Analyzer on page 26 and about the Video Controls on page 36. More can be found about the **Zoom** function in"Resizing" on page 30.

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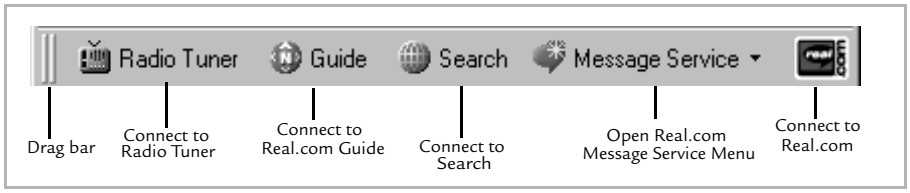
Real.com Media bar

Figure 3-10: Real.com Media bar

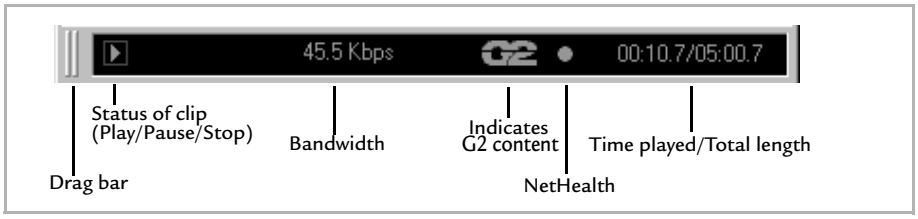


Click on the icons on the Media bar to access the following Real.com locations:

- **Radio Tuner:** Find links to real-time radio broadcasts.
- **Search:** Real.com's world wide web *RealMedia* search engine.
- **Guide:** Go to *Real.com Guide*, an up-to-date guide to streaming media on the web.
- **Message Service:** Select and view daily updated news and information messages.
- **Real.com:** View Real.com's home page.

Status bar

Figure 3-11: Status bar



The **Status bar** gives you quick answers about your current connection and the actual length of the clip you are playing. If you are connected to a *live* feed (such as a radio station that is currently broadcasting) the word "Live" will appear instead of a time. More detailed information about the **Status bar** is available in your Help file (**Help**/**Contents...**).

Additional Information

"G2" content refers to streaming media that is encoded or streamed with the advanced data streaming technology developed by RealNetworks®.

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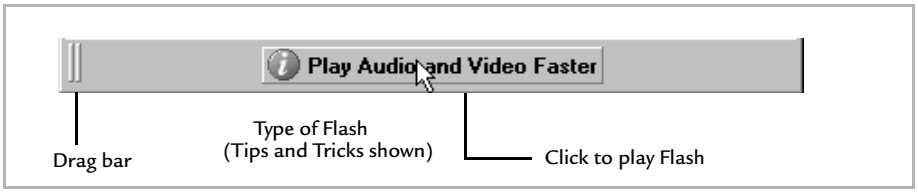
Message bar

Figure 3-12: Message bar



The **Message bar** appears if you receive a priority message (such as a Product Flash) from the Real.com Message Service. To play this message, click the message text on the message bar.

Note

You can select in advance which Product Flashes you receive by setting your RealPlayer Preferences. See Content Preferences on page 61 and Upgrade Preferences on page 63.

On Windows systems, Flashes are also indicated as an icon in your Windows Tool Tray (where the time is displayed, shown to left). Click the icon to launch the message. If you have *StartCenter* running (see page 59), your RealPlayer icon will flash or have a gleam on it.

Learn more about the Real.com Message Service on page 29.

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REALPLAYER - THE BASICS

Chapter 4

With every new version of RealPlayer, RealNetworks tries to improve your experience, not only in what you hear and see, but also in how you use the program. This chapter describes the basic functions, common to both RealPlayer and RealPlayer Plus.

Additional Information

Check your Help file for additional information about RealPlayer features. (Be sure to download the latest Help file update. Just go to **Help/Check for Update**.)

So now that I have this software, what do I do with it?

RealPlayer gives you access to multimedia files, both on the Internet and those stored locally on your computer and your LAN. With RealPlayer you can find and play Channels, Live Stations, and other clips directly without having to launch your web browser first. *My Favorites* and *Scanning* (features of RealPlayer Plus, detailed in Chapter 5) let you organize and search for *clips* with just a few clicks of your cursor.

Note

Clip is a catch-all phrase to describe anything RealPlayer plays. A clip can be video, audio, video with audio, RealText®, RealPix™, Real System G2 with Flash, any combination of these, or any other form of audio-visual media that a *plug-in* is available for.

Some clips contain more than one song or video; these are called *multi-clips*. A *multi-clip* strings together several individual clips of content, but you only have to click on it a single time to hear or see all of the media associated with that clip.

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The Many Ways to Play a Clip

There are two very different ways to play media (clips) on your computer. The first is *local playback*. Local playback is when you use the **Open File...** option from your RealPlayer **File** menu.

The second way clips are played, is as *streamed content*. This is any clip that is played in real-time over the Internet. But before you can play a clip on the Internet you have to connect to it. You can connect to streamed content by clicking on links in a web page, using the **Open Location...** option from your RealPlayer **File** menu or by using any of the new options RealPlayer has to offer: My Channels, My Favorites (Plus only), and the Real.com Media bar.

Note

For a complete discussion of streaming media and the Internet, please see Chapter 6: What is Streaming Media and How does it Work? on page 39.

Navigating through a clip

When you start playing a clip, you have *loaded* it. A clip remains loaded until you select a new clip. *Loading a clip* means either that you are connected to it or that it was the last clip you were listening to during the current *session* of RealPlayer. A session starts when you launch RealPlayer and ends when you close it. Stopping a clip does not unload it. Stopping a clip just resets it to play from the beginning. However, just because a clip is loaded does not mean you are necessarily connected to the Internet. Loading a clip only means that RealPlayer knows where to look for it and what clip it should work with when you click any of the control buttons (see table on next page).

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Navigation

Button	Action
	Play starts a clip from the beginning or from where you paused it. *Live* streaming media (example: live radio) starts at the current point in the program.
	Pause freezes playback of the clip. If you pause a clip for several minutes, you may be disconnected from the clip. When you resume playback there may be a delay while RealPlayer reconnects to the site. Real-time streaming media is not buffered while puased and will reconnect at the current point in the program.
	Stop halts playback and resets the clip to the beginning.
	The **Position Slider** indicates where you are in the clip. Dragging the slider to a new position will let you jump around a large clip—watch the time indicator on your Status bar for your location. (Not available during *Live* media play.)
	The longer you hold down **Fast Forward**, the further ahead in the clip you will jump. (Not available during *Live* media play.)
	The longer you hold down **Rewind**, the further back in the clip you will jump. (Not available during *Live* media play.)
	Mute turns the volume all the way down (affects all System Sound Cues on PC).

What if I am disconnected from my Internet Service Provider (ISP)?

If you are not connected to the Internet and attempt to play a loaded clip, RealPlayer will try to establish a connection for you. In most cases on, a Windows PC, this means you will see the Dial-up Connection dialog that you see when you launch your browser or get your e-mail. For a Macintosh, most often, you will be reconnected automatically. In both cases, if you do not automatically reconnect to the Internet, connect manually and try to play the clip again.

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Channels

Channels give you one-click access to content that is updated on a frequent basis. All take advantage of the SMIL format which provides a richer experience by using multiple types of streams at once (see SMIL on page 52 for details).

Figure 4-1: My Channels

My Channels provides you with up-to-date headlines from all of your selected Channels while you're connected to the Internet.

Headlines for each Channel appear to the right of the Channel's icon as you move your cursor over the Channels. You can also set the Headlines to display and scroll automatically; see Content Preferences on page 61.

Headlines update automatically while you are connected to the Internet. When the content for a Channel has changed since your last visit, you'll see a gleam appear on the Channel icon; you won't have to play the Channel to find out if there's something new (see Channels gleam on page 22).

Tip

You can force a Headline update to occur ahead of its next scheduled time by selecting **Update headline now...** from the **Options** menu. If you are not connected to the Internet, your RealPlayer will attempt to connect to your ISP when you click **Update headlines now...** To turn off automatic updating see Content Preferences on page 61.

Your RealPlayer comes loaded with a starter set of Channels but you can change these at any time by clicking **Add New Channels**. In fact, RealNetworks is always working to supply you with new Channels, so check regularly to see what new Channels are available.

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To Change or Add to Your Channels

1. Click the Channel titled: **Add New Channels**.
2. A page will open in your browser or, if you use a PC and have Internet Explorer V 4.0 or later, it will open in your RealPlayer.
3. Follow the instructions on the Channels page to change your lineup. Channels are available for a variety of interests: News, Entertainment, Sports, and others.
4. Click **Finish** on the Channels page to have your selections take effect.

Real.com Take 5

Figure 4-2: Channels tab

Real.com Take 5 is a special service created by RealNetworks to bring you the best of the web: a daily showcase of the top streaming entertainment, music, news and specialty programming on the Internet. Real.com Take 5 is available only through RealPlayer

A single click on the Real.com Take 5 icon starts the program. You'll hear an excerpt of the showcase content as well as a list of other categories you can access.

Additional Information

Real.com Take 5 is a SMIL presentation (see SMIL on page 52) that combines RealSystem G2 with Flash, RealText, RealPix and RealAudio, all synchronized in the same presentation within RealPlayer. Real.com Take 5 is designed to give you a good experience even over slower dial-up connections (such as when using a 28.8 modem).

Real.com Take 5 takes advantage of other new RealPlayer features such as *multi-instance* (multiple RealPlayer windows) and file caching. Multi-instance

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allows you to view a video clip in a new window and not lose your place in the main Real.com Take 5 window—substantially reducing the need to reload pages. In fact, when pages are reloaded, some of the components on the page are retrieved from Clip Cache (see Performance Preferences on page 72), speeding performance.

Real.com Take 5 has a dedicated team at RealNetworks working every day with content providers to find the best and most informative content from around the Web; just for you. All this makes Real.com Take 5 one of the best places to be on the Web every day.

Channels gleam

Figure 4-3: Channels tab with gleam

Channels also let you know when there's something new to watch. A gleam will appear on the channel (shown to the left).

To see when your Channels were last updated, see the date or time next to **Options**. To update manually, click **Options** and select **Update Headlines Now**.

Radio Tuner

RealPlayer provides access to Live Stations; continuous real-time streaming media from a variety of radio stations throughout the world (usually a combination of live and pre-recorded programs). Station are selected with the Real.com *Radio Tuner*.

Note

When playing a continuous feed (such as a radio station) the status bar will show the word "Live" instead of the length of the clip. See Status bar on page 15.

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You can go to the Radio Tuner from the **Radio** menu, which offers a variety of quick selections, or by clicking **Radio Tuner** on the Media bar (see Figure 4-9: Real.com Media bar on page 28).

Opening the Radio Tuner takes you to a site at Real.com. By following the links, you can select and play radio broadcasts right from your RealPlayer. You can search for Live Stations by their name/call letters, or browse through available Live Stations sorted by category.

Once selected, radio station locations can be added to your favorites list, like any other media clip. (See Favorites below.)

Favorites

Just like bookmarks on a web browsers, RealPlayer lets you save and organize the locations to your favorite clips and links.

- To organize your favorites, select Favorites/Organize... from the pull-down menu at the top of RealPlayer. An *Organize Favorites* dialog box will be displayed. Create folders to save your favorite clip information in.
- To add a favorite to your list, select **Favorites/Add to Favorites...** from the menu bar. An *Add to Favorites* dialog box will be displayed. Select a folder to add the clip to and click the **OK** button. The clip you are playing, or the last clip loaded if you are not playing a clip, will be added to the selected folder in your list of favorites.

Figure 4-4: Playing Favorites

To play a favorite clip:

1. Select the **My Favorites** tab from the Content Panel. A list of Favorites folders will be displayed. (See Figure to the left.)

2. Select a folder to display saved clips.

3. Select the clip you want played. RealPlayer will either play the clip, or go to the designated location.

See My Favorites on page 31 for more information about playing and saving Favorites.

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Sharing Favorites

RealPlayer allows you to share Favorites with other users of RealPlayer. Sharing is accomplished through the use of *Exporting* and *Importing* Favorites.

To Export a Favorite

1. Select **Organize...** from your **Favorites** menu.
2. Click **Export** *Favorite* or **Export** *Folder* (depending on what you have selected in the Organize Favorites dialog).

   The **Export Favorites** dialog will open.
3. Select a place on your hard disk to save the Favorite or folder of Favorites (also called a Favorites Pack) and give it a name.
4. Click **Save**. The file will be created with an.RNX *extension*.
5. E-mail the file to your friends. (The file should be mailed as a simple text file if you need to designate "file-type" in your mail program.)

Tip

If you want to quickly Export an entire Folder of Favorites, just select **Export** *foldername* from the **Options** menu on your My Favorites tab (RealPlayer Plus only).

To Import a single Favorite or folder of Favorites (also called a Favorites Pack)

1. Select **Import...** from your Favorites menu.
2. An **Import Favorite** dialog will open.
3. Browse as you would with your Windows Explorer to where your mail program downloads files and select the Favorite to be imported (it will have an .RNX extension).
4. Click **Open**.
5. The Favorite will appear in your RealPlayer.

Additional Information

When individual Favorites are imported, folder information is included. If an identical folder already exists, the Favorite is placed there, otherwise the Favorite is placed in a new folder, created with the name of the source folder. Imported Favorites will not overwrite your existing Favorites, even if they have the

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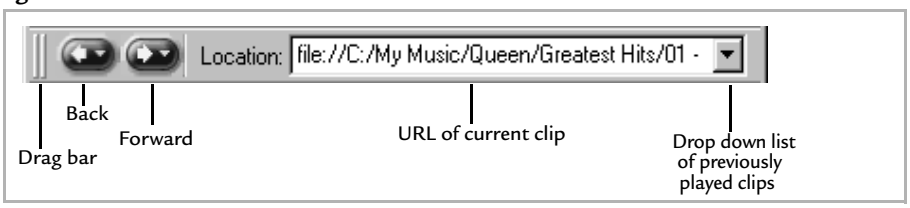
same names or folder names. Instead, Favorites will appear in your RealPlayer with identical names, but may connect to different clips.

Location bar

The **Location bar on RealPlayer** displays the *URL* or address of the currently loaded clip, similar to the address bar in your Web browser, and gives you browser-like control of your RealPlayer.

Figure 4-5: Location bar

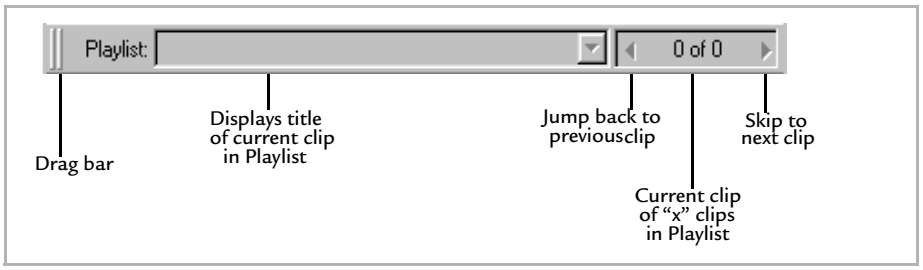


The drop down **Location list** keeps track of the last 20 addresses you enter (type or paste) into your RealPlayer.

The **Back** and **Forward** buttons let you to jump back and forth between the clips you were playing, also similar to your Web browser.

Playlist bar

Figure 4-6: Playlist bar



The **Playlist bar** will open automatically when you are playing a *multi-clip* (a clip that contains other clips in sequence). To open the Playlist bar manually, use the View menu (**View/Playlist**). When the playlist is displayed, the title of the clip currently being played is displayed in the left text box; the number of clips in the playlist and the number of the current clip is indicated in the right text box. A list of the clips is displayed as a pull down menu in the clip title box.

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Individual clips can be selected from the list, or with the Jump back and Skip next buttons.

Additional Information

You can create a multi-clip by selecting (drag & drop) any playable files (clips) from a local directory, then dragging and dropping them onto RealPlayer. The clips are then listed in the playlist bar and start to play, one after the other.

Visualizations and Audio Analyzer

Visualizations (PC only)

Figure 4-7: Display Panel with Visualization

Visualizations display audio information in fun visual formats. Click to toggle the Visualizations on. The Visualization is shown in the Display Panel. You can from several different Visualizations displays. Flip through the available Visualizations by clicking to go backward or forward through the possibilities.

To change how Visualizations react or look, click to display the *Visualization Options* display window. This will give you access to **Fade**, **Rotate**, **Zoom**, **Slide**, and **Blur Type** controls. These options affect how some of the Visualizations behave. An On/Off control On/Off in the Options window will turn on or off all optional effects.

Note

When Visualizations is turned on and a clip is playing, it appears in the Display area. This will override any visual component of the clip you are playing. You can restore the video display by turning the Visualization off.

When Visualizations is turned on and a clip is not playing, the Display area is blank.

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Why would you want to see what you're hearing? Aside from a visual good time, the Audio Analyzer can help visualize what you are hearing and help you adjust the sound with your Equalizer (RealPlayer Plus only). When you adjust the Equalizer, you will see a corresponding change in the *peaks* and *troughs* on your analyzer.

In addition to the Visualizations that come with RealPlayer, You can download new Visualizations from Real.com. To download these files, go to the **RealPlayer Home Page,** available on the **Favorites/Web Sits** menu. Follow the directions on the web site to install the Visualization files. Once installed, the new Visualization(s) will be immediately available on RealPlayer.

Audio Analyzer (Mac)

Figure 4-8: Audio Analyzer in two different modes

The Audio Analyzer includes the Wave mode and Spectrograph mode (similar to the Spectrograph Visualization in the PC version). To cycle through the different modes, click the **rollbar** on the Analyzer display.

Why would you want to see what you're hearing? Aside from a visual good time, the Audio Analyzer can help visualize what you are hearing and help you adjust the sound with your Equalizer (Plus only). When you adjust the Equalizer, you will see a corresponding change in the *peaks* and *troughs* on your analyzer.

Using the Equalizer and the Analyzer together can be very powerful. The Bar Graph and Spectrograph modes are the best to work with for accurately seeing how your changes in the Equalizer are affecting your sound quality.

The **Spectrograph** *mode* indicates the level of each frequency (each narrow band of sound) by showing you a column of light. The Spectrograph displays over 100 frequency bands. The range of frequencies on the equalizer are in the same order as on the Spectrograph, going from Bass to Treble, left to right. Because of this direct relationship, adjustments on the Equalizer will be more obvious in the Spectrograph mode than they will be in Wave mode.

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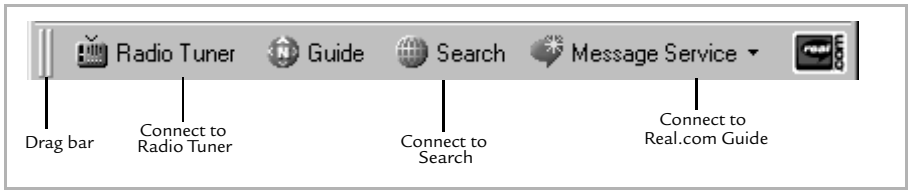
Wave mode does show your frequency range, but in a vertical format to show the frequency change from a zero mark that runs horizontally across the center. Essentially, it shows how high the levels are for each frequency. Reading it does require a little more practice, but if you notice most of the peaks are very high (hitting the top and bottom of the Analyzer), you are probably going to experience clipping and distortion in your sound. Adjusting the frequencies that seem overpowering can correct this problem.

Real.com Media bar

The Real.com Media bar provides links to web sites that organize and access media, information, and services for the RealPlayer.

Figure 4-9: Real.com Media bar



Use these buttons to quickly find media content on the Web:

Radio Tunergives you an up-to-date listing of available radio and video content by opening a Real.com web page in your browser or, if you have a PC and Internet Explorer V 4.0 or later, in RealPlayer itself.

Search will open a Real.com web page in your browser or, if you have a PC and Internet Explorer V 4.0 or later, in RealPlayer. Follow the instructions on the page to look for clips that interest you. Search will automatically look for audio, video and other media clips that meet your search criteria. Just click on any of the resulting titles to listen to a clip.

Guide will take you directly to the *Real.com Guide*, a comprehensive media hub for free Internet audio and video media and related software. Find media featured on the Internet and play it with one click. Choose from a comprehensive listing of downloadable music, live event calendars, and access to premiere programming. More than 2,000 radio and television stations, 8,000 Web sites and 500 daily live events are offered.

Message Service lets you select, check for, and view messages you received from the Real.com Message Service. (Message Service commands are displayed as a pull down menu.) This is an optional service that you can personalize to send news and information updates to your RealPlayer. Messages are downloaded

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automatically, or when the **Check for Real.com Messages** command is selected from the Message Service (see Figure 3-12: Message bar). Messages are displayed when you select the **View Real.com Messages** command. (See "Real.com Message Service" below for more information.)

Real.com takes you directly to the Real.com home page where you can find out about all the latest from RealNetworks.

Real.com Message Service

RealPlayer can keep you informed about events and information in several categories with the Real.com Message Service.

The Real.com Message Service is actually two services delivering different types of information: **Real.com News and Entertainment Flashes** and **Real.com Product Flashes**. You can choose to subscribe to either or both services when you install RealPlayer or change your subscriptions later from the Message Service pull-down menu.

Real.com News and Entertainment Flashes

News and Entertainment Flashes alert you to breaking news and live concert events. You can change your subscription options in your Preferences (see Content Preferences on page 61).

Real.com Product Flashes

Product Flashes deliver **RealPlayer Tips and Trick**s and **Special Offers** from RealNetworks. You can change your subscription options in your Preferences (see Upgrade Preferences on page 63).

How do you know when you have received a Flash?

When you've received a Flash, RealPlayer will let you know in one of two ways:

1. The RealPlayer icon in your Windows System Tray will glimmer (Windows Operating System only). You change how this looks on the appropriate Preferences tab depending on the services you've selected. Click the icon in your Tool Tray to see the new Flash.

The Windows Tool Tray is where you see the time displayed (shown to the left).

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2. A Message bar will appear in your RealPlayer (see Figure 3-12: Message bar on page 16). The bar will let you know what sort of Flash you've received. For instance, if you see a light bulb with words such as **RealPlayer Tips and Tricks** after it, you've received a Flash with information about how to use one of the many features of RealPlayer. Just click the Message bar to see the new Flash.

Flashes will not interfere with your listening or viewing experience. You choose when to watch the Flash after it has arrived.

Resizing

RealPlayer is manually resizable. Just hover your mouse over any corner or edge of RealPlayer, click, hold and drag to the size you would like to use.

To return to a specific size, use the **Zoom** control (see Figure 3-9: Display Panel (Mac) on page 14) or the **View/Zoom** menu command to select **Original** or **Double** size.

Note

Macintosh users will be able to resize from the bottom, right corner of their RealPlayer using the familiar single-arrowed cursor.

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THE *PLUS* IN REALPLAYER PLUS

Chapter 5

RealPlayer Plus has many features not available in the Basic version of RealPlayer; each designed to improve your entertainment experience. This chapter will describe the features that make your RealPlayer Plus special.

My Favorites

My Favorites are available by clicking the My Favorites tab on the left of your Content Panel. (See also Figure 3-7: My Favorites on page 14). My Favorites is the quickest and most convenient way to access your Favorites.

Displaying My Favorites

Figure 5-1: My Favorites

My Favorites is a list of clips (Channels, Live Stations, websites, media files, etc.) organized by categories. You can create, edit, and delete categories, as well as add or remove clips from categories using the **Organize Favorites** dialog box (see Organizing Favorites below).

The **Options Menu** displays commands that let you quickly access and modify categories, as well as *Scan* and play clips from a selected category. (More about **Scanning** on page 34.)

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To view and play clips in My Favorites

1. Double-click on the title of the desired category (for example "Tutorials" in Figure 5-1: My Favorites).
2. The folder will open and display all the Favorites filed in it.
3. To listen to a Favorite clip, double-click its name.

To find your Favorite clips

The clips organized and displayed on the My Favorites tab are the same that are listed and accessed from the **Favorites** menu. You can also save and load Favorites and Categories with the **Export/Import** commands (see Sharing Favorites on page 24) or **Scan** your Favorites (see Scanning on page 34) to select what you want to play.

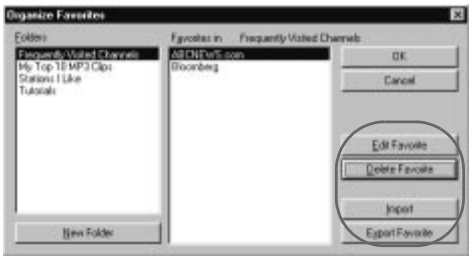
Add To Favorites

To add the currently loaded clip to your Favorites click **Add to Favorites** on your **My Favorites** tab or in the **Favorites** menu. The Favorite will be added to both your My Favorites list and your Favorites menu.

Organizing Favorites

Favorites can be organized to fit your own needs and sensibilities. To open the **Organize Favorites** dialog, select **Organize Favorites** from the **Options** menu of **My Favorites.**

Figure 5-2: Organize Favorites dialog



To change the name of a Favorite or Favorite's Folder or to change which Folder a Favorite resides in, you need to edit that Favorite or Folder.

Depending on what you have selected, a Folder or a Favorite, the buttons on the right of the dialog will change to indicate Folder or Favorite.

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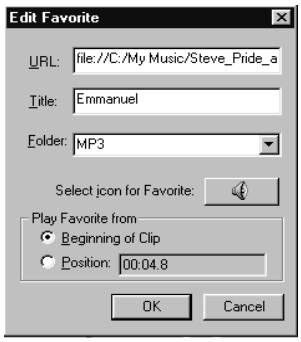
To Edit a Favorite or Folder

1. Select the Favorite or Folder.
2. Click **Edit Favorite** or **Edit Folder** (the buttons will change depending on which you have selected).

Figure 5-3: Edit Favorite dialog



.If you edit a Folder, you will only be able to change its name. If you edit a Favorite, you have a few more options (see Figure 5-3)

1. Select a new Folder or change the Title, URL, or beginning position of the clip.

2. Click **OK.**

Save Current Place

Save Current Place is a special form of Favorite that allows you to quickly save where you are in a clip so you can access the clip at a later time from the same place.

1. While listening to a clip, select **File**/**Save Current Place** from your menu bar.
2. An **Add To Favorites** dialog will open with the **Begin at Position** information selected for the moment that you chose to save.
3. Select a Folder in which to save the placeholder.
4. Click **OK**.
5. When you select the Favorite, the clip will start from the position it was at when you selected **Save Current Place**.

Additional Information

Save Current Place will not be available if a clip is not capable of being searched (using fast-forward or rewind). For example, you cannot use **Save Current Place** during a live broadcast or with a Wave (.wav) file.

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Scanning

You may not always know exactly what you're in the mood to listen to, or you may not be sure exactly what type of programming a station carries. To help, RealPlayer Plus has the ability to Scan your favorite clips in any of the categories listed in *My Favorites*.

Once you have scanned a category, the results are placed in the Playlist (See Playlist bar on page 25.) The selected clips are then played in sequence, each clip being played for jut a few seconds. (See General Preferences on page 58 to set scan time.) When the last clip is played, the sequence is repeated. To stop at a selection, click the **Scan** button on the Playlist bar. The scan is stopped, the playlist will be deleted and the current Favorite clip will continue to play in its entirety.

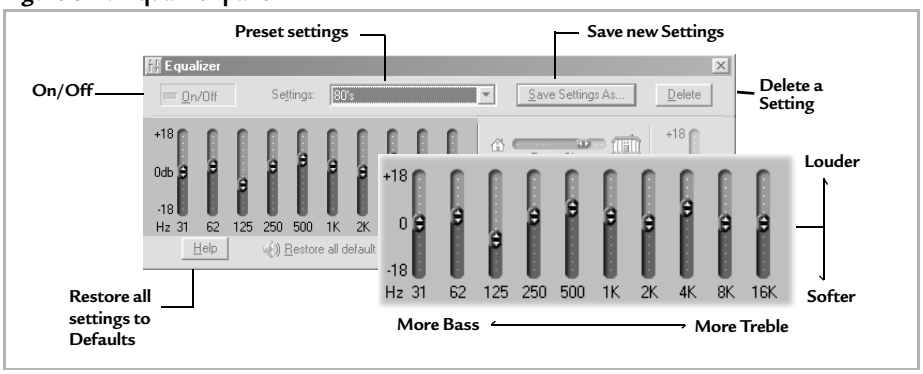
If you already have a playlist loaded, click the **Scan** button to start scanning the clips. Click **Scan** again as necessary to stop and start the scan again.

You can also scan your My Favorites folders from the **Favorites** menu.

Equalizer

The Equalizer is your central control for customized audio. It allows you to adjust small ranges of tones in order to improve and customize the quality of the sound. With most stereos you only have control over two broad spectrums of sound: Bass and Treble. The RealPlayer Plus **Equalizer** breaks this into 10 distinct bandwidths for finer control.

Figure 5-4: Equalizer panel



Click the **Equalizer** accessory button on the Control bar to open the Equalizer (seeFigure 3-2: Title, Menus, and Control bar on page 10). You can also open your Equalizer by selecting **View/Equalizer** from your menus.

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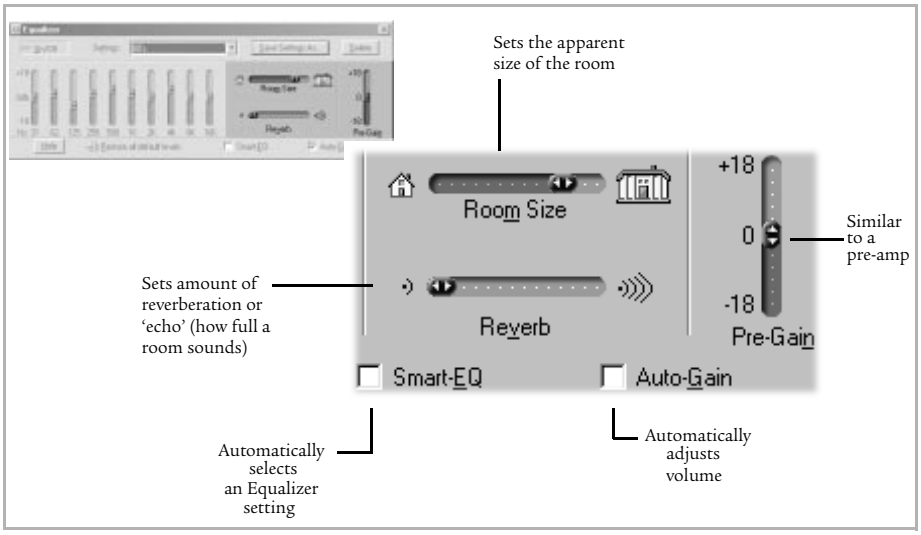
Your Equalizer will not affect your sound quality until you click **On/Off**. A green light beneath the button on the Control bar indicates that the Equalizer is on, a red light indicates that it is off. Once you have turned the Equalizer on, you can adjust each frequency band of sound individually or choose from pre-configured settings in the **Settings** drop down list.

Frequency Gain

Click and drag the sliders to adjust the gain for each frequency. When you find the right positions, you can save them by clicking **Save Settings As...** and giving the setting a name. Keep in mind that different types of audio (music or voice) may require different Equalizer settings. This is why RealPlayer Plus already has a number of preconfigured *Settings* installed as a part of the Equalizer.

Figure 5-5: Equalizer F/X



Room Size and Reverb

Room Size and Reverb together adjust sound so it takes on the qualities of a live concert. You can adjust the virtual size of the room using **Room Size** and then fill it with an audience using **Reverb**. More Reverb translates to an emptier room, less reverb to a more full room.

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Pre-Gain

Pre-Gain is similar to a pre-amp on a stereo. Each clip you listen to is prepared for streaming, or encoded, by different people. This is similar to the effect you get from different CDs or tapes where recording volumes are different; you have to adjust the volume to hear the sound more clearly. In some cases this means turning down the gain or in others, turning it up. Pre-Gain pumps up or diminishes all the sound levels before they play over your sound system. You can then fine tune the volume with your RealPlayer Volume control or your speaker controls (see also **Auto-Gain** below).

Tip

Don't substitute Pre-Gain for volume control. Too much Pre-Gain can quickly cause clipping and distortion.

Smart-EQ and Auto-Gain

Smart-EQ selects the settings most likely to enhance the audio you are listening to (based on the encoded signal levels). This option is unavailable if your Equalizer is turned off.

Auto-Gain normalizes the dynamic range of a clip so that all parts of a clip will have roughly the same volume. Auto-Gain is most useful for items like news, where anchors and interviewers speak at a variety of volume levels, and with less dynamic music.

Tip

Auto-Gain should be used carefully. The feature will tend to flatten out very dynamic music, such as Classical, by increasing the volume of quiet moments and lowering the volume of loud moments, essentially altering the experience.

Video Controls

Click the Video Controls button on the Display Panel to open the Video Controls panel. (This feature is only available when a video image is being played.) These controls adjust the Contrast, Brightness, Color Level, Tint, and Sharpness in your Display panel *without* having to affect the rest of your screen. (See also Display panel on page 14.)

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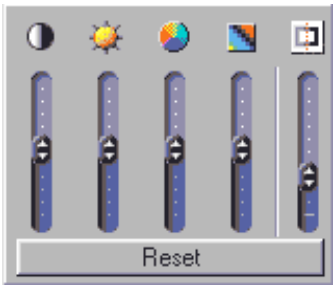
No two computer systems are exactly the same, nor are any two computer users. While content providers (the people who put the clips out there on the Internet for you to watch) can adapt their clips to be viewed at different bandwidths (see SureStream on page 51) they can't adjust specifics of the picture, such as brightness, for each individual computer that might watch their clip.

Figure 5-6: Video Controls panel



1. Click, hold, and drag any of the sliders to a new setting. Watch the Display area to see the changes.

2. Click anywhere else on your screen or RealPlayer. The Video Controls panel will close.

Any settings you pick will remain until you change them.

Contrast : The visual difference between dark and light colors.
Brightness : The overall amount of light in a picture.
Color Level : The intensity of the colors on your screen.
Tint: The balance of Red, Blue, or Green in the picture.
Sharpness : How defined the edges are in the picture.

Video Controls will not be available if the loaded clip cannot be adjusted with the Video Controls.

PerfectPlay

PerfectPlay is the only way to guarantee that you will receive the highest quality stream (the highest bit rate) possible.

What is PerfectPlay?

PerfectPlay doesn't just buffer more of the clip before playing it for you, it actually adjusts the communication between your RealPlayer Plus and the RealServer™ that is sending you the clip. These adjustments allow for little or no loss of data. The result is a more complete media experience.

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When should you use PerfectPlay?

Use PerfectPlay when you have a particularly bad connection or if you are finding that your video or audio is breaking up even with RealPlayer Plus working hard to adjust to your connection. When PerfectPlay is turned on, it may take considerably longer to buffer before playing the clip you've selected, but your experience will be greatly improved.

Note

PerfectPlay is not available for live feeds.

How do you start PerfectPlay?

1. Before playing the clip, select **Play/PerfectPlay** from your menus (a checkmark will appear next to **PerfectPlay**).
2. Play a clip.

Tip

PerfectPlay must be turned on before you begin playback or it will have no effect. PerfectPlay will remain on until you select it again.

Customer Support

RealPlayer Plus customers enjoy the added advantage of premium Customer and Technical support.

Service and Support:

Service and Support is available to answer your otherwise unanswered technical support questions. Service and Support can be reached via the Internet at **http://service.real.com.**

Customer Service:

Customer Service is available to help you with questions about your order, delivery, or payment.

Customer Service is available from 8am - 5pm (Pacific Time), Monday through Friday, toll-free in the United States and Canada at **888-768-3248.** Outside the United States and Canada, please dial **206-674-2650.**

You can also contact Customer Service via the Service and Support Web pages by going to **http://service.real.com.**

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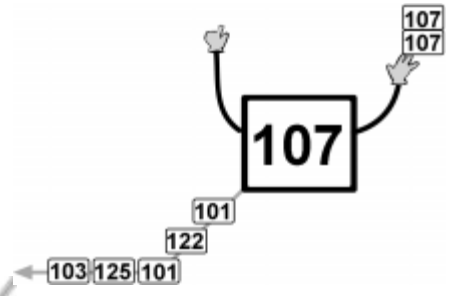
Chapter 6

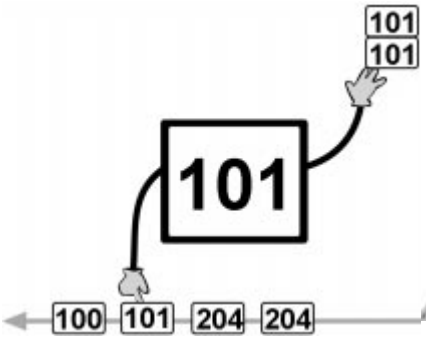
WHAT IS STREAMING MEDIA AND HOW DOES IT WORK?

RealPlayer 8 Plus and RealSystem® G2 with Flash are a huge leap ahead for streaming technology on the Internet. RealSystem G2 is the collective name for the newest generation of RealNetworks' collection of servers and tools that create and serve content to your RealPlayer. Of course, most of the bits and pieces of RealSystem G2 are hidden from you when you watch or listen to clips. What follows is an explanation of how streaming media works and how RealSystem G2 and RealPlayer fit into the scheme of it all (a little techy but in an easy-to-understand way; we want you to be as excited by what's going on as we are).

Networking

To understand how RealPlayer works, you first need to understand *networking*. In its most simple form, networking is one computer exchanging information with another machine. This isn't much different from mailing a letter.





The first computer addresses a piece of information to another computer and then sends it across the *wire* (the cable that connects computers to one another). The second computer checks the addresses of all of the messages coming by and reads only the messages addressed to it.

Of course, when you have many computers and a great deal of information this process gets more complex. The essentials described above, however, are the same no matter the size of the network. Every computer has a

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unique address and all the *bits* (pieces of information) have an address to which they will eventually be delivered. (For those that know about multicast, that is discussed in Multicast on page 53. For those that don't, be patient, we'll get there.)

A piece of information can be very small, such as a simple 'yes' answer, or very large, such as your favorite song. If everyone on a network were given exclusive use of the wire until the whole message was sent or received, it wouldn't work very well. Can you imagine trying to get your e-mail and having to wait while someone else listened to Beethoven's Fifth symphony? To avoid this problem, messages are broken into lots of little pieces of information that are called *packets*. On most common networks each packet is the same size and is addressed as described above.

This process may sound like extra work, but it keeps the flow of information smooth and constant with fewer bottlenecks. It is easier for a number of same-sized cars to merge onto the freeway from the same ramp than it is for a bunch of cars and an 18-wheel trailer to merge on from the same ramp. In the latter scenario, a large number of cars will have to wait as the trailer passes and then wait again while the trailer waits for room on the highway so it can finish its merge.

Handling the flow of information are a number of specialized traffic cops: routers, brouters, bridges, servers, gateways, etc. However, there are only two that you need concern yourself with: servers and routers.

Servers are computers that store information (e.g., videos, e-mail) and, in a company setting, programs (e.g., word processors). These computers *serve* the information and programs to other computers on the network to which they're connected. Every network has at least one server and sometimes several servers.

Routers scan the flow of information, read the address on each packet of information and sends each packet along the appropriate **route** (thus their name) to get to its final destination.

Internet

The Internet is not a single specific entity. You can't point to one thing and say, "That's the Internet." The Internet is an interconnected collection of networks that speak to each other just as a network is an interconnected collection of servers and computers. Sometimes this connection is physical,

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such as a wire or fiber-optic connection, but sometimes the connection is via satellite or microwave. This might sound familiar. When you pick up your phone to call someone, the signal sometimes travels by wire to the person you are speaking to, but it is often sent via microwave tower or satellites, depending on how far away and where you are calling.

Some (very) quick history

[Yes. You can skip this, but didn't you always wonder?]

Unlike the phone system, no one set out to create the Internet as we know it today. In fact, it didn't even begin life as "the Internet", but rather as *ARPANET* (Advanced Research Projects Agency Network) in 1969.

Note

To be wholly honest, no one set out to create the American phone system as it is today either. It was a number of smaller, private companies that eventually merged into one giant company... before it became several smaller companies again.

That was then

ARPANET's original purpose was to help universities, the American military and the U.S. Defense Department contractors maintain internal communication (even during natural disasters and wars) and exchange information easily. ARPANET began life with four servers, a far cry from the eight million or more servers that comprise the Internet today.

In 1973 ARPANET became DARPANET (**Defense** Advanced Research Projects Agency Network). DARPA pioneered the research of how to best exchange information across this "internetwork." Their research led to the development of *TCP/IP (Transmission Control Protocol/Internet Protocol)* that, for the purpose of this discussion, is currently the standard way all those packets of information your computer sends out are addressed so they get to the right place all together and in the correct order.

Universities were quick to exploit this amazing infrastructure of communication. Around the core of the secure DARPA sub-system, Universities began adding additional servers and connections; the *Internet* was born. For many years the Internet was not much more than a massive e-mail exchange and bulletin-board system (posted messages people could respond to in kind).

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This is now

In 1990 CERN—European Laboratory for Particle Physics, with the help of Tim Berners-Lee and the ideas of Ted Nelson, began prototyping a standardization for information sharing that became known as the World Wide Web.

Additional Information

You may recognize that the "www." in most common Internet addresses is in fact World Wide Web. To this day Berners-Lee still shapes and directs how the Web develops through the W3C (World Wide Web Consortium, **http://www.w3c.org/**).

While the Internet is made up of physical entities, the WWW is more an agreed upon collection of *standards* (or *rules*) about how to address packets and how to create Web pages with *Hypertext Mark-up Language (HTML)*. Before these standards, everyone had different formatting codes, much as different word processors create files that other processors may or may not be able to read. HTML gave everyone a way to share information easily. Information began to flow at an increased rate.

Additional Information

You may have noticed that every Internet address begins with http://. HTTP (Hyper Text Transfer Protocol) is another kind of standard, or *protocol*. HTTP tells your browser and computer that HTML has been sent to it so it can read the incoming information. HTTP gives the server and your computer a common dictionary so that the information coming in makes sense.

In the case of your RealPlayer you may notice that the addresses start `PNM://` (Progressive Networks Media) or `RTSP://` (Real-Time Streaming Protocol) which your RealPlayer recognizes and speaks. PNM is an older protocol but many clips are still around in that form. Any newer, RealSystem G2, content will have `RTSP://` before the address of the clip. Edit a Favorite to see its address (URL). These protocols become important if you are using your RealPlayer at work because of firewalls (see Firewalls and Security on page 54).

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Equally as important, cheaper, faster hardware became available in the mid-80's and early-90's to the public at large. The Internet exploded from a text-based system to one that contained pictures, sounds, videos and animations. Why? Simple text (words and letters) requires very little information to reproduce. It is easy to send around whole pages of information in relatively few packets quickly, even at slower connection speeds. Sound files can be small, but it depends on their quality and length. The same is true for pictures and small animations. Large animations and video have a unique problem. Both large animations and video are essentially a whole bunch of still pictures that need to be seen at a very quick rate to give the illusion of movement.

Until recently the best way to ensure that video and large animations worked well over the Internet was to download the whole file and run it from your machine at home. If you downloaded the file yourself, the download time was obvious; you had to wait a long time till the file had finished saving. Sometimes, though, you would just be waiting a **very** long time for the movie or large animation to begin. During that time it was being downloaded to a temporary file on your hardrive before it started to play.

Streaming

Enter *Streaming*. Streaming takes files—whether they are sound, video, animation, or other media types—breaks them up into smaller pieces and sends them to their destination. This is very similar to how computers send information across a network or the Internet in general.

You may be scratching your head now asking, "But you just told me that information is sent to my computer in little pieces anyway. What's the difference?" A good question.

Figure 6-1: Sending a book page by page

Figure 6-2: Receiving a book page by page

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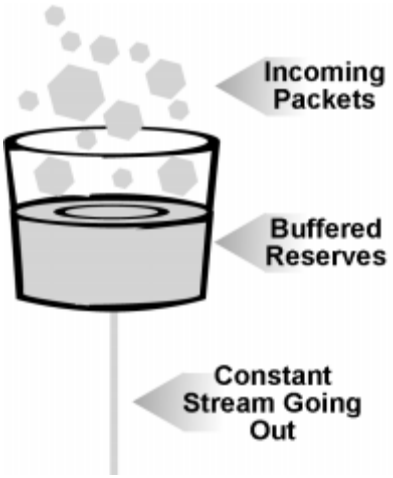
The answer is what makes your RealPlayer so exciting. RealPlayer is able to read the file stream **as it is coming in** and begin playing it long before the rest of the file arrives. Imagine reading a novel as someone hands you page after page, rather than waiting for them to finish the whole book and handing you the entire novel at once.

Of course, if the file was simply read and played for you as it came in, you would have a good number of interruptions; think about how often you have to wait for a Web page to display on your screen. Now, consider that Web pages are much smaller than most media files (audio, video, animation, etc.). RealPlayer combines another technology with streaming to make playback smooth: *buffering*.

During buffering a whole bunch of packets are collected before being played.

Figure 6-3: Buffering



Imagine a cup being filled from above in fits and starts. A small hole in the bottom of the cup allows a constant stream of water to drain from the cup. As long as there is enough water backed-up in the cup, the stream will continue to flow out at a steady rate (see Figure 6-3: Buffering).

As RealPlayer begins to play the file, it continues to collect packets in reserve. This means that even if there are minor delays in getting the information packets to your computer, your experience of the music will be continuous rather than having it stutter along erratically.

So what is a stream?

Above we explain what streaming **does**, but not exactly what it **is**. At least, not what it is for RealPlayer. Each *stream* carries specific types of information. When you watch a video the visual part, what you watch, comes to you in one stream while the sound comes in another. RealPlayer synchronizes these two separate streams so that the right words come out of a newscaster's mouth when they should or so that music crescendos appropriately when the action requires it.

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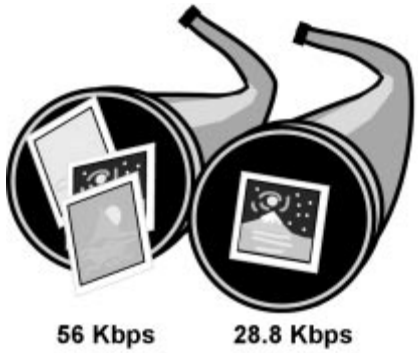
Figure 6-4: Bandwidth



Additionally, streams can be optimized for different *bandwidths*. Bandwidth is, essentially, the amount of information that can pass through a particular point of the wire in a specific amount of time. The higher the bandwidth, the greater the amount of information that can come through (see Figure 6-4: Bandwidth). The speed of your modem, if that is what you use to connect to the Internet, determines the bandwidth of the stream that you can receive.

A 28.8kbps modem can receive, approximately, 28.8 thousand bits per second. A 56K modem is capable of receiving, approximately, 56 thousand bits per second—almost double the capability of a 28.8 modem (remember, a *bit* is a single binary number). Of course these capabilities assume that your phone connections are perfect, which few are. In other words, your actual mileage may vary.

You may, incorrectly, hear people refer to these speeds as the *BAUD-rate*. However, BAUD is actually how frequently the base sound (usually called a *carrier wave*) changes per second. Information is interpreted by how that sound changes. Originally, a single change, say from a high tone to a low tone, was a single bit of information. Because of improvements in compression, many more than just a single bit of information can be transmitted per change in the carrier frequency. The important point is that the higher the bandwidth you can receive, the higher the quality the sound or video will be.

Additional Information

BAUD is named for French inventor Jean-Maurice Emille Baudot (1845-1903). Among his other accomplishments, Baudot patented in 1874 the telegraph code that eventually supplanted Morse code (Morse code fell out of general use by 1920). Baudot's new code was a 5-unit combination of on/off signals of equal duration as opposed to Morse's long/short, dash/dot. The code consisted of 32 five-unit characters

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covering each letter of the alphabet, punctuation and additional machine controls. The modern version uses 7 or 8 on/off signals or "bits" that have 128 characters and is otherwise known as ASCII code now. Not content with simply improving transmission speed and accuracy, in 1894 Baudot invented a distribution system for simultaneous (multiplex) transmission of several telegraph messages on the same circuit, which is now common practice for all internetwork communication.

Where do streams come from?

Streams have to be created by someone for you to watch them with your RealPlayer. This means that an original performance or broadcast was recorded and then turned into a *stream*. But how exactly does this happen? Looking at Figure 6-5: Creating an audio stream, you can see the four steps necessary for creating any kind of content.

Figure 6-5: Creating an audio stream

Step 1

The performance is *captured*. Captured simply means *recorded* or *created* in some way so that it can be changed later into a stream. With some content (e.g. animation) there is no performance, only the artist's drawings which are created. The idea, however, is the same. The originals are captured on the computer so they can be changed at a later time into a stream.

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Step 2

The captured performance is edited so that the presentation you receive is what the content provider wanted to show you.

Step 3

The edited performance is *encoded* (see Encoding below) into a stream. Essentially this means that the file is prepared to be streamed.

Step 4

The encoded file is placed on a RealServer (see How does streaming occur? on page 49) so your RealPlayer can play it for you.

Additional Information

This holds true for live broadcasts as well. As with live television, the performance or event is viewed by the cameras and/or microphones and is converted as it happens to a form that can be sent to you a few seconds later.

Encoding

The process of getting a file ready to be streamed is called *encoding*. Encoding takes a file and breaks it up into readable packets so it can be sent and read "on the fly" (remember Figure 6-1: Sending a book page by page on page 43?). Every clip, or every stream in a clip, is encoded for a specific bitrate (see also SureStream on page 51). The higher the resolution (the more information) a stream has, the higher the bandwidth (the larger the hose) it needs to get the information through to you at a useable speed.

Additional Information

Encoding is performed by special tools such as **RealProducer®** by RealNetworks available at **http://www.realnetworks.com**. RealPlayer is able to read these files and encode new files when it is recording.

When you are playing a clip, you can see at what bandwidth a stream has been encoded by looking at your Status bar (see Figure 3-11: Status bar on page 15). The number shown is the stream bandwidth you are receiving at that moment. For a single audio stream this is straight-forward: if you are receiving a 20Kbps (kilobits per second) audio stream, that's what will show up on your

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Status bar. What if you are receiving multiple streams? The answer is: Stream bandwidth is additive. For example, if you are watching a Macromedia Flash animation encoded at 12Kbps that also has an audio stream encoded at 10Kbps, the bandwidth will appear on the Status bar as 22Kbps (see Figure 6-7: Multiple Streams on page 51).

The *pipeline*, or bandwidth available, from your modem has a set limit, you can't make your modem work faster than it is capable of working. Content providers usually encode their streams to handle a variety of bandwidths. The higher the bandwidth, the more information, the better your experience. RealPlayer uses buffering (RealPlayer Plus can also use PerfectPlay, see PerfectPlay on page 37) to overcome minor slowdowns on the Internet. But to watch a stream encoded as a 56K stream using a 28.8K modem you would have to buffer a large amount of information. Buffering means waiting and using a good deal of memory.

Codecs

If something is *encoded*, you must *decode* it in order to read it. To decode information on your computer you use a *codec*. Codec, like 'modem', is a word created by combining two actions of a process.

- **Modem**: modulator/demodulator
- **Codec**: coder/decoder

Modems convert digital information from your computer into analog information (sound waves) that can be sent over traditional phone lines. Codecs read digital information and process it into analog information for your player so you can listen to it. CD players use codecs that convert the digital information on a CD into sound waves that you hear on your speakers or headphones.

Your RealPlayer decodes each specific type of file (video, text, etc.) with a specific codec, or *plug-in*.

Additional Information

You can see what plug-ins and add-ins you have by looking on the **Upgrade** tab of your **Preferences...** (see Upgrade Preferences on page 63).

When you first install RealPlayer you will have several plug-ins: RealAudio, RealVideo, RealPix, RealText, and RealG2 with Flash. Each of these different

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types of media is encoded separately and sent in separate streams that your RealPlayer can decode, synchronize, and play.

From time to time we will update one or more of these plug-ins or even add new plug-ins to enhance your RealPlayer.

Tip

The latest plug-ins are always available via **AutoUpdate**. Just select **Check for Update...** from your **Help** menu. Also, if you attempt to play a clip that requires an updated plug-in, you will be notified and offered the opportunity to upgrade.

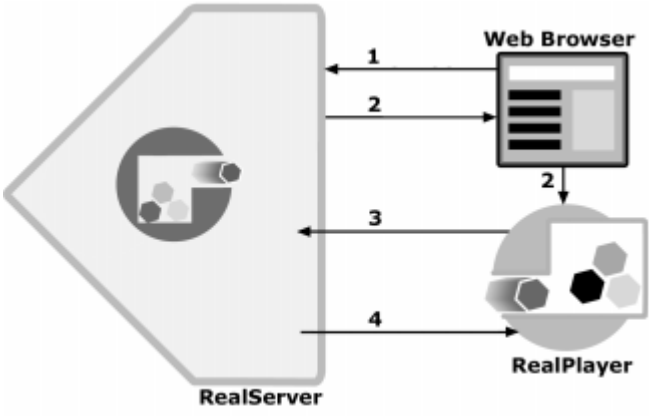
How does streaming occur?

Ok, we now have streams of data being encoded and decoded by the plug-ins and RealPlayer turning all of that information into rich presentations— but where do these streams come from and how does your RealPlayer find them?

Remember, the Internet is a simply a bunch of connected *servers*. Servers *serve* information to other computers (this is a loose definition but accurate for the moment). A *clip* is any number of streams that make up a presentation. As we discussed earlier, a clip can be made up of more than one stream, such as a video stream and a sound stream. Clips themselves can be a single entity or several clips in a row. This is why we say, *clip* or in the case of multiple presentations, *multi-clip*.

So what happens when you click on a link in a web page to hear a clip or multi-clip?

Figure 6-6: How RealPlayer connects to a RealServer



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Step 1

All Web pages are stored on special servers called web servers. When you click on a link in a Web page to listen to a clip (whether live or pre-recorded) the web server sends your browser a small pointer file that is associated with that link.

Step 2

Your browser recognizes that the file isn't just another page so it checks to see what program can read it. When it recognizes that it is a RealPlayer file, it starts up RealPlayer and passes the file off to the your program.

Steps 3 and 4

The file is very small and contains only the name and location of the clip on a *RealServer*. Your RealPlayer contacts the RealServer which sends the actual stream and stays in contact with RealServer so you can fast forward or rewind or otherwise navigate through the clip. In the case of Channels and Live Stations, RealPlayer speaks directly to the RealServer without the need for the earlier pointer file.

RealServers are similar to Web servers but rather than serving pages to browsers, they serve streams to RealPlayers. RealServers work in concert with Web servers to bring multi-media to networked environments, such as the Internet.

Note

Why "networked environments" rather than Web or Internet? Because RealServers™ are also being used on company networks to make company-wide addresses, training, and other information easily available to employees. RealServers are available for download at **http://www.realnetworks.com**.

RealPlayer and RealServers can communicate with each other so that RealServers can pick the appropriate streams to send you. If a RealServer attempted to send a stream that was encoded at a high bitrate (for example T1 [a really fast connection]) and you only had a 28.8K modem, you would not have a very good experience.

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SureStream

So how do you get the appropriate stream for your RealPlayer when you try to play a clip? RealPlayer, as mentioned above, can talk to the RealServer that is sending the stream. In a more exact view of the process:

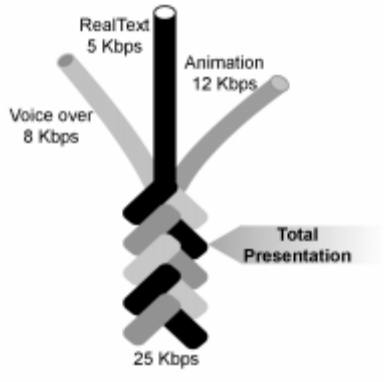
1. RealPlayer sends the **Normal** and **Maximum** bandwidth settings from the **Connections** tab of your **Preferences...** to the RealServer serving the clip.
2. The RealServer automatically selects the streams encoded at a bitrate closest to your **Normal** setting without exceeding it. If your actual connection is faster than **Normal**, the server will upshift to a higher bitrate if it is available.

This ability to upshift is a RealSystem G2 feature called *SureStream*.

Prior to RealSystem G2, whatever bitrate you connected to initially was what you were stuck with for the entire clip, even if your connection got faster or slower. Because streams in the new RealSystem G2 can be encoded for several different bitrates within the same file, RealServer is able to intelligently pick the best possible stream for your current connection.

SureStream also monitors your connection for you. If it senses too much congestion, it will downshift certain streams. Content providers can choose which streams they feel are more important to your experience (for example voice quality over animation). If SureStream senses that your connection is better than expected, it will upshift to a higher bandwidth on all or some of the streams to bring you a higher quality presentation. Upshifts and downshifts will happen automatically.

Figure 6-7: Multiple Streams



SureStream becomes especially important when you are viewing some of the newer presentations that RealPlayer is capable of playing. When playing a SMIL presentation (see SMIL below) each of the different streams for each of the components of the presentation has a bitrate associated with it. The total of all of those bitrates is the lowest connection speed you need to have to play the clip without excessive buffering. For instance, a presentation that had an 8Kbps voice-over, a 12Kbps Macromedia

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Flash animation component, and a 5Kbps RealText component would need at least a 25Kbps connection (8+12+5=25) to play without buffering constantly. Each stream flows into the same "river" and adds to the whole presentation that your RealPlayer plays (see Figure 6-7: Multiple Streams).

Of course, RealPlayer buffers for you automatically to help you play higher bitrate streams. So even over slower connections you can experience superior quality media. The price you pay to watch higher bitrates over slower connections is the time it takes to buffer, which is still much shorter than it would be to wait for the whole file to download.

SMIL

Now the fun begins. RealPlayer can play multiple clips presented simultaneously as a single presentation. This is done using SMIL (pronounced "smile," Synchronized Multimedia Integration Language—you see why we stick with acronyms?). SMIL is one of the newest language sets on the Web. While HTML (Hyper Text Mark-up Language) controls how Web pages present text and pictures on your computer screen, SMIL controls how *complex* media presentations should be streamed to and laid out within your RealPlayer.

Figure 6-8: SMIL presentation

By "complex" we mean a presentation that includes more than one clip being received by RealPlayer which is then synchronized with each clip being presented in a separate space. For instance, you could watch a music video (RealVideo), see the lyrics (RealText), hear the music (RealAudio), and browse stills from the concert (RealPix) all presented to you at the same time (see Figure 6-8: SMIL presentation).

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In fact, the Tutorials that introduce the new RealPlayer to you are SMIL presentations that include RealAudio, RealPix, and RealText. Each element of the presentation is created and *encoded* (see Encoding on page 47) separately and then the lay-out is described to your RealPlayer using SMIL so it can present them together.

Additional Information

To learn more about SMIL go to:
http://www.w3c.org/AudioVideo/

Multicast

Multicast is the organic chemistry of streaming. If you had the joy of taking organic chemistry, or almost any higher level science class, the first thing you are told is: Forget everything you've been taught before; because it's wrong.

Well, we won't be quite that cruel here, but *multicasting* is a unique process in the network environment. In networking, every packet of information is uniquely addressed to a specific computer. Usually this makes a great deal of sense as each computer is more often doing something different than any other computer connected to the Internet at any one time. But what about when 25,000 people all tune in to see the same concert or sports event? Suddenly, these people are watching exactly the same thing, but each person has to have their own individual stream. This can really slow down the Internet and diminish your experience.

Multicast takes an innovative approach to this problem. What if you created one stream, or a limited number of streams, and told every player connected to the event to read the same stream by "dipping into" it? Rather than 25,000 replications of each stream, there are only a few replications which keeps congestion low and your connection more reliable and responsive.

Multicast is automatically selected by RealPlayer if it is available for a broadcast.

Additional Information

Multicast requires special hardware on the Internet that must be provided by Internet Service Providers (ISPs) and other hosting services and isn't always available. Also, Multicast may not be selected if your **Transport Preferences** are set to use only one specific transport (see Transport Preferences on page 66).

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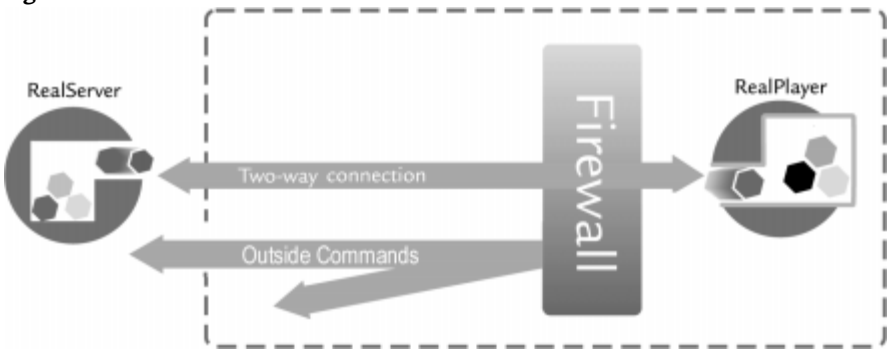
Firewalls and Security

Security is one of the biggest concerns for people connected to the Internet, whether at a business or at home. Businesses, however, have specific concerns and specific ways of dealing with those concerns. For this reason, certain precautions have become common on networks.

When you log on to a computer at work, you almost always have to type in a username and password to gain access to the full network. This is one type of security. Password security is mainly designed to control access to your machine at its present location. *Firewalls*, a different type of security, are designed to protect your computer and network from outside influences.

Figure 6-9: Firewall



Firewalls are a complex topic, but there is one specific aspect that is of interest to RealPlayer customers. In general, a firewall is a gatekeeper on the network. All outside traffic passes through the firewall when communicating with the Internet and other off-site computers. Most of this traffic is one way: the firewall will allow you to send commands out, such as requesting a Web page, but it won't allow two way communication that would give outside machines and programs control over internal machines and programs. Damage to the network and theft of information is curtailed by using this method.

However, RealPlayer requires a two-way connection to function properly. Without two-way communication you cannot fast-forward through a clip or let a RealServer know that your system can accept a higher bandwidth stream. RealPlayer can work through a firewall without exposing your network to any security risk, but you may need to change your **Proxy Preferences...** (see Proxy Preferences on page 69).

Proxy services, in concert with your Transport Preferences, allow RealPlayer to contact the Internet through a two-way connection while still providing

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protection to the rest of the system. Proxy services act as an intermediary, making requests on behalf of people on the inside of the firewall. For example, a web proxy knows how to get requests on behalf of a web browser. Many proxy servers/firewalls require that every program running inside a firewall have special configuration options. RealPlayer can work using proxy, but it must be configured to do so (see Proxy Preferences on page 69).

Additional Information

For a much more in-depth discussion about firewalls or to solve problems when trying to use RealPlayer from work, see our web page:
http://service.real.com/firewall/

Content: How to find it

With over eight million servers, each hosting thousands of web pages, the Internet is overwhelmingly huge. Finding content can seem daunting, but RealPlayer has several built-in features to help you, as well as access to web pages that do some of the sifting for you.

Channels and Live Stations

Your best tools are part of RealPlayer: **Radio Tuner** and **My Channels** and **Real.com Take 5**. Each have a number of pre-loaded links to clips, both live and recorded. Additionally, the Radio Tuner has the ability to search for Live Stations by content type (see Radio Tuner on page 22).

Media Access bar

Radio Tuner connects you to the latest up-to-date list of radio and TV content on the Web.

Search offers you the opportunity to type in words or phrases of interest and looks for streaming media related to those subjects (see Figure 3-10: Real.com Media bar on page 15). **Search** will return a *results page* similar to those you see when you search for Web pages. You must be connected to the Internet for **Search** to function.

Guide will take you directly to the *Real.com Guide*, the most comprehensive media hub for free Internet audio and video software and programming. Find programming featured on the Internet and play it with one click. Choose from

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a comprehensive listing of downloadable music, personal calendars and access to premiere programming. More than 2,500 radio and television stations, 8,000 Web sites and 500 daily live events are offered.

Web Sites Sub-Menu

The **Web Sites sub-menu** (under **Favorites**) on your RealPlayer offers everything from music to entertainment to sports to news. And because the menu talks to RealNetworks, we make sure that the connections are always the right ones. If the site moves, we keep track of it so you don't have to do it yourself.

Of special interest should be your Real.com Guide selections. The Real.com Guide is a collection of RealNetworks web pages with links to programming all over the Internet; covering live and pre-recorded streaming media of specific topics.

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PREFERENCES

One of the most important tools you have in your RealPlayer is your **Preferences**. Preferences are settings that allow you to finely adjust the way RealPlayer works and looks to better match your own system and desires.

You can customize RealPlayer by changing the settings in the **Preferences** dialog box (opened from the **View/Options** menu). These settings control various aspects of RealPlayer's functions. RealPlayer Preference settings apply to all applications using RealPlayer technology, including RealPlayer Web page plug-ins (music and video that appears as part of a Web page rather than playing in your RealPlayer).

How to open your Preferences

Preferences are just a click (or two) away.

1. Select the **View/Preferences** menu to open Preferences.
2. Click **OK** or **Cancel** at the bottom of the Preferences window to exit.

Windows Control Panel [Windows only]

On Windows based machines, several of your **Preferences** are also available from your **Windows Control Panel**. Most of these **Preferences** deal with network and Internet connectivity and support issues. All of these **Preferences** will appear on the same tabs as they do within your RealPlayer and are described in the following pages. Due to differences in the operating systems, this function is not available on the Macintosh.

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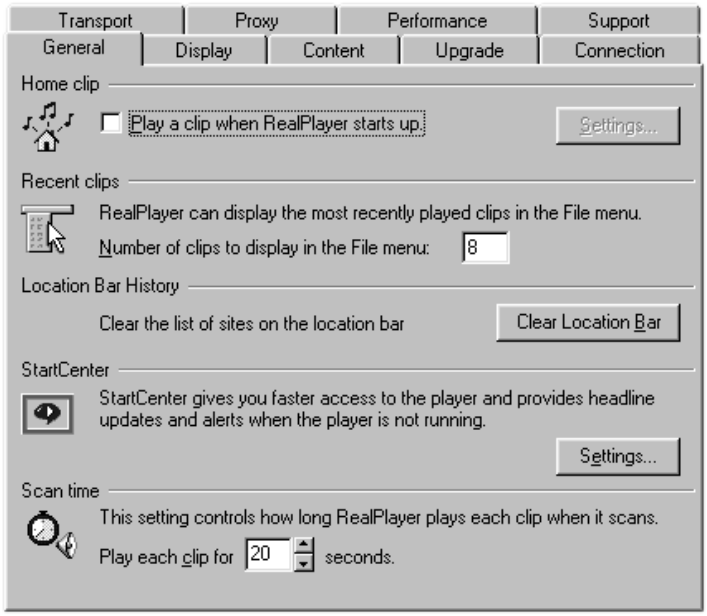
General Preferences

General Preferences is the first tab shown. It contains the most common options.

Figure 7-1: General tab



Home Clip: (Default is Off)

When selected, RealPlayer will automatically begin playing the clip you select whenever you launch the program similar to the Home page for your browser. You can choose to use a Channel or a specific clip in the Settings dialog. If the clip or channel you are currently playing is the one you would like to use, simply select Use Current Clip.

Recent Clips: (Default is 8)

You can quickly replay clips by selecting your most recently played clips at the bottom of the **File** menu. This setting controls how many clips are displayed.

Location Bar history

Click **Clear Location Bar** to clear the list of previously played clips; similar to clearing the history in your browser.

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StartCenter [Windows only]: (Default is On)

RealPlayer can be launched when you start Windows and stay active in your *System Tray* so that it responds more quickly when you want to play a clip. The System Tray is opposite your Window's Start button in the same area that you see the Time and Date. The StartCenter icon also gives you quick access to RealPlayer functions and content. While you are connected to the Internet, StartCenter will also keep your Channel Headlines and Live Stations updated as well as check for Real.com Message Flashes and RealPlayer updates while you are connected to the Internet even when you don't have RealPlayer open.

To change your StartCenter behavior, click **Settings...** Check or uncheck **Enable StartCenter** and then select the behavior that is most convenient, whether to always display the StartCenter icon or to only display it when you receive a Flash (see Real.com Message Service on page 29).

Scan time: (Default is 20 seconds)

This setting affects all Scan options (Favorites, Playlist, and Stations). Each clip in the selection will be played from its beginning for the specified amount of time.

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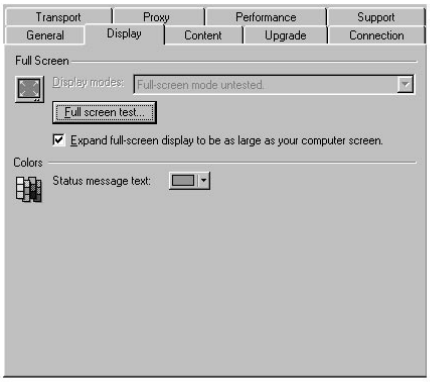
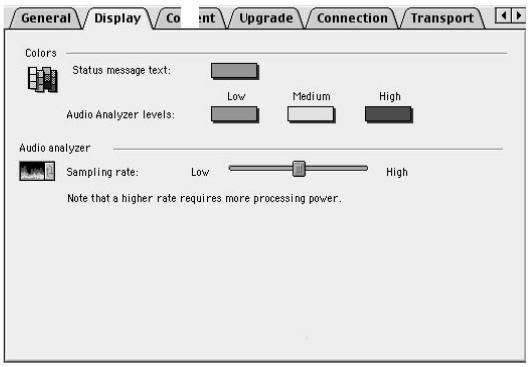
Display Preferences

Display Preferences change the look of RealPlayer.

Figure 7-2: Display tab



(PC version)



(Mac version)

Colors:

Audio Analyzer levels (Mac only): These choices allow you to color code the sound levels (low, medium, high) in your Audio Analyzer. The **"High" Audio Analyzer level** setting will also be the color for **Wave** mode.

Status message text: Choose the color of the text that appears in the Status bar.

Audio Analyzer (Mac only):

Sampling rate: Default is midway between "Low" and "High." Higher sampling rates provide more accurate visual information about the sound you are receiving.

Full Screen test (PC only):

To run in Full Screen mode, RealPlayer must first test your monitor's and computer's capabilities. The best display mode will be listed or the message: **Full screen mode untested**. The test will be run automatically if you attempt to get into Full screen mode by using the Zoom control. If you wish to run the test again for any reason or to run it manually, click **Full screen test...** Follow the prompting on your screen to test your computer.

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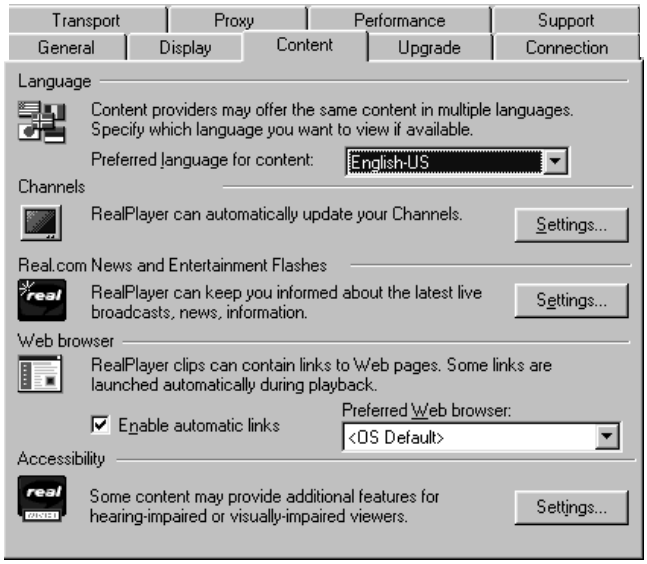
Content Preferences

Content Preferences affect how content is displayed, when it is updated and whether or not you subscribe to Real.com News and Entertainment Flashes.

Figure 7-3: Content tab



Language: (Default is Language initially installed)

By default, RealPlayer will display any text components in the language of the version you installed. If you prefer another language be displayed or played by content that provides more than one language, specify your preference here from the drop down list.

Channels: (Default is On)

Click **Settings...** to enable or disable the automatic updating of your Channel Headlines, as well as enable or disable the automatic scrolling of Headlines in your Channels tab.

Channel Headlines will only be updated while you are connected to the Internet. RealPlayer will not attempt to establish a dial-up connection solely for the purpose of updating your headlines even if you have automatic updating enabled.

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Real.com News and Entertainment Flashes: (Default for all is Off)

Click **Settings** to subscribe or change your subscription to either Real.com Take 5 and Real.com New Flashes (see Real.com Message Service on page 29).

You can also set the **Alert level** for Flashes. By choosing a level, you control how frequently the StartCenter icon blinks when it indicates that you have received a Flash.

Web browser: (Default is On)

Some clips contain synchronized multimedia events that display Web pages or images in your browser while you are playing a clip. This setting controls whether RealPlayer applications enable these events.

Preferred Web browser: If you have more than one browser installed, you can select which will be used by default when there is a synchronized event.

Accessibility

Content providers can use RealPlayer's abilities to offer accessibility features (such as Closed Captioning). Click **Settings...** to turn on specific options.

Select **Use accessibility features when available** to activate either the **Show captions** or **Display descriptive audio track** options. When selected, RealPlayer will either display closed captioning or use a descriptive audio track. If the clip has been authored without captioning or a descriptive track, this setting will have no effect.

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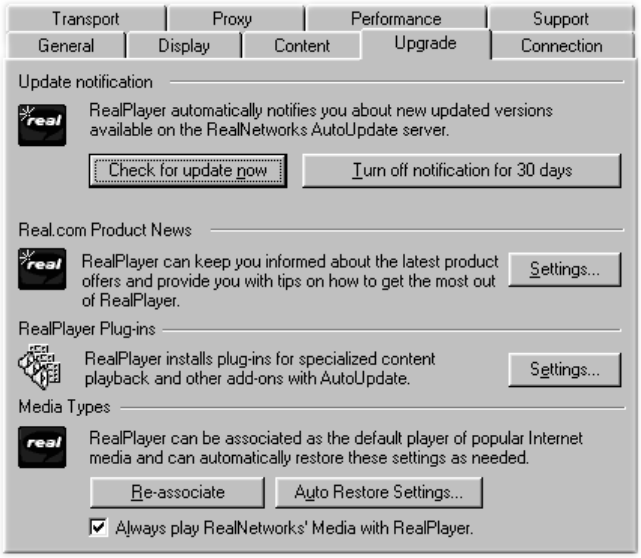
Upgrade Preferences

Using the Upgrade tab of the Preferences window, you can customize how often the application talks to RealNetworks to check for available upgrades, change your installed components, correct file-type issues, and whether or not you subscribe to Real.com Product News flashes.

Figure 7-4: Upgrade tab



Update notification: (Default is On)

While on, RealPlayer periodically contacts RealNetworks *in the background* to determine if a newer version or necessary new components are available for your RealPlayer. If an upgrade is available, RealPlayer offers to download the new files. If you choose to accept any or all of the offered downloads, they will be authenticated and installed automatically.

Real.com Product Flashes: (Default for all is Off)

Click **Settings...** to subscribe or change your subscription to either RealPlayer Tips and Tricks and Real.com Product News and Special Offers (see Real.com Message Service on page 29).

You can also set the **Alert level** for Flashes. By choosing a level, you control how frequently the StartCenter icon blinks when it indicates that you have received a Flash.

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RealPlayer Plug-ins

Click **Settings...** to see a listing of the different components and the files you can use with your RealPlayer (e.g. AVI, WAV, etc.). To remove a component highlight it and click **Remove**. You will not be allowed to remove *core* components of RealPlayer. Core components are those components that are considered essential for the operation of RealPlayer.

Warn before installing new components: (Default is On) While checked, RealPlayer will alert you before continuing with the installation of any new components or updates. If unchecked, RealPlayer will automatically begin installation of any new components that it downloads.

Media Types

When programs are installed, certain *file-types* are *associated* with that program. A file's "type" is described at the front of every file and alerts your computer to what programs can use the file (see What types of files can RealPlayer play? on page 85). Some programs can use other program's file-types (for example, word processors can often read other word processor documents). When you click on a link or a file, Windows checks to see what program is associated with that file-type and automatically launches that program (for example, double-clicking on a .ram file should launch RealPlayer and begin to play a clip).

Re-associate: Occasionally the installation of a new program causes these file-types to no longer be associated with RealPlayer. Clicking **Re-associate** will allows RealPlayer to automatically use RealNetworks file-types again.

Auto-Restore Settings...: If there are file-types you always want RealPlayer to use, you can select those types by clicking **Auto-Restore Settings...** and selecting the file-types you wish manually.

Always play RealNetworks' Media with RealPlayer: (Default is On) By selecting this option RealPlayer automatically selects RealNetworks' media in the **Auto-Restore Settings** list. You can alter what is selected.

Additional Information

Often, the terms *file-type* and *file extension* (such as. ram or .doc) can be used interchangeably. In actuality, extensions are not always an indication of file-type. File-type is determined by code in the file *header*, that portion of the file that is read first when the file is opened or accessed.

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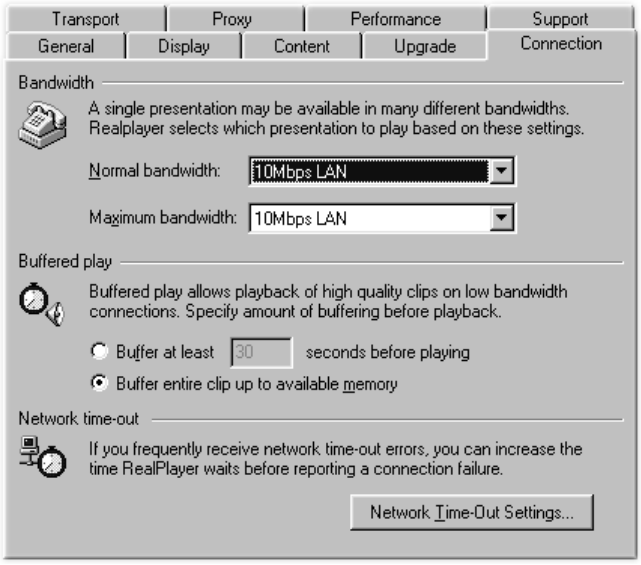
Connection Preferences

The Connection tab in the Preferences window contains information about the speed of your connection and how long RealPlayer will continue to try to connect before telling you it can't.

Figure 7-5: Connection tab



Bandwidth: (Default is set during installation)

RealPlayer automatically selects which content can be delivered in real-time over your connection. (See Figure 6-4: Bandwidth on page 45.)

Normal bandwidth: This is set during installation. If this setting is too high you will experience extended buffering as RealPlayer attempts to play clips intended for higher (faster) bandwidths.

Maximum bandwidth: Gives RealPlayer the upper limit for streams it should "upshift" to through SureStream (see SureStream on page 51).

Buffered Play: (Default is Entire Clip)

Set how much RealPlayer should buffer before playing a clip. Increase for a better quality experience on slower connections.

Network time-out: (Default is 20 sec. for Connection and 90 sec. for Server)

These settings determine how long RealPlayer will continue to try to connect to a server. If this time is exceeded, your RealPlayer will tell you it cannot connect or that it has lost its connection.

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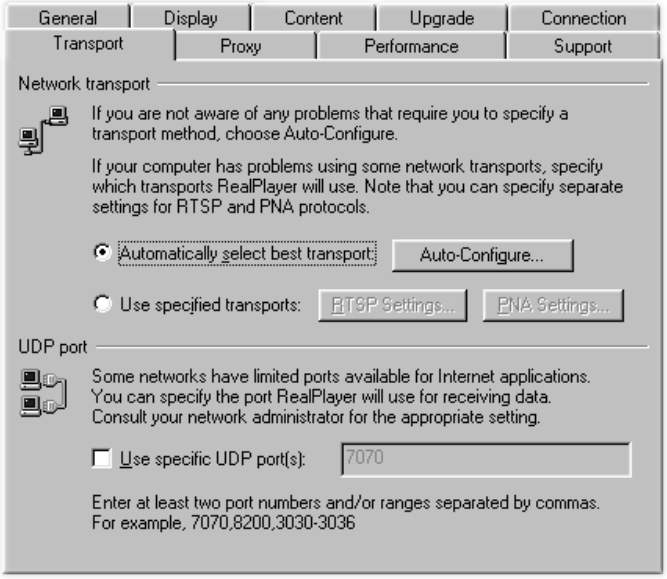
Transport Preferences

The Transport tab in the Preferences window allows you to customize your network connection for RealPlayer. Most likely, if you are connecting to the Internet through a commercial Internet Service Provider (ISP), you will not have to set any of the items on this tab.

Warning
Unless you have specific transport problems, do not change these values.

The description of these preferences assumes a basic knowledge of Internet protocols and firewalls. For more information about firewalls, refer to our Web site at: **http://service.real.com/firewall/**

Figure 7-6: Transport tab



Network transport

Auto-Configure... : (Default) Use this setting if you are not aware of any problems that require you to specify a transport method. RealPlayer will automatically configure itself to use the most efficient mode of transport for your connection. Do not change this setting unless you are aware of specific transport problems.

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Use specified Transports: RTSP, PNA. Use this setting if your computer has problems using some network transports. (Consult your network administrator for the appropriate settings.)

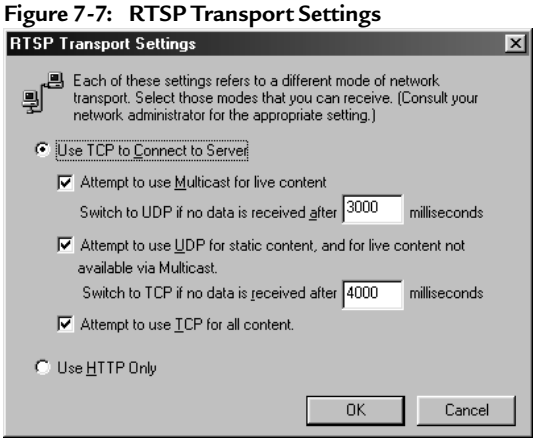
Select **Use specified transport...** and then click either **PNA** or **RTSP** to access the Specify Transports dialog (described on next page) for each protocol.

UDP port: (Default is Off)
Some networks have limited ports available for Internet applications. This setting controls which port RealPlayer applications use for receiving data. (Consult your network administrator for the appropriate settings.)

Additional Information
The **UDP port** setting does not affect TCP packets, which can only be received through Port 7070.

Specify Transports dialog

Figure 7-7: RTSP Transport Settings



The Transport Settings dialog allows you to select the different modes of network transport that you can receive. You can have different settings for PNA and RTSP. (Since these settings are network specific there are no meaningful defaults. Consult your network administrator for the appropriate settings.)

Use TCP to Connect to Server
Select this option if you want RealPlayer to use TCP for the initial connection to RealServer.

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Attempt to use Multicast for live content: Select this option if you want RealPlayer to attempt to receive live content through Multicast.

If you select this option, indicate how many milliseconds RealPlayer should attempt to use this type of transport before switching to UDP.

Attempt to use UDP for static content: Select this option if you want RealPlayer to attempt to use UDP for static content and live content not available via Multicast.

If you select this option, indicate how many milliseconds RealPlayer should attempt to use this type of transport before switching to TCP.

Attempt to use TCP for all content: Select this option if you want RealPlayer to use TCP for all content.

Use HTTP Only

Select this option if you are behind a firewall and cannot receive data through TCP. All data will be streamed through HTTP.

Note

You may not be able to receive some content if you select the **HTTP Only** option.

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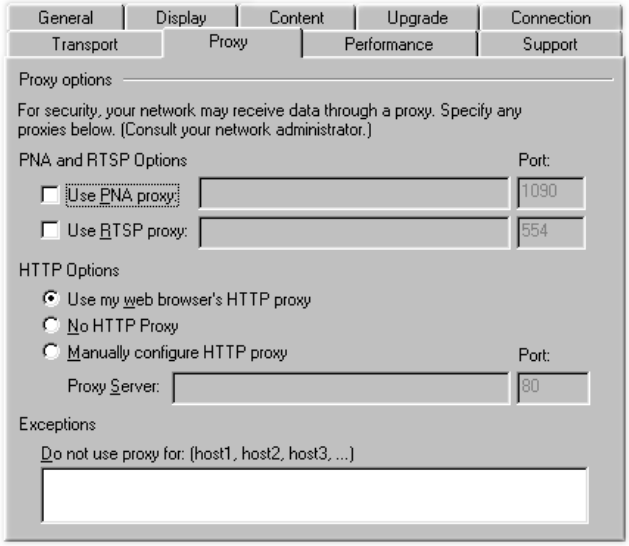
Proxy Preferences

A proxy is a server that acts as an intermediary between a company's protected LAN (local area network) and the Internet (see Firewalls and Security on page 54). RealPlayer can be configured to work with different proxy servers. (Because these settings are network specific, there are no meaningful defaults. Consult your network administrator for the appropriate settings.)

Warning
Unless you have specific proxy problems, do not change these values.

For more about proxies and firewalls see: **http://service.real.com/firewall/**

Figure 7-8: Proxy tab



PNA and RTSP Options
Click to select either or both of these proxies if RealPlayer should use them to connect to the server. For each applicable proxy enter the appropriate domain name or IP address of the server and the port number that RealPlayer should use to communicate with the proxy server.

HTTP Options: (Default is "Use my web browser's HTTP proxy")
Select appropriate HTTP proxy. You can have different proxy information for HTTP than you have for PNA or RTSP.

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Exceptions:

Do Not Use Proxy for: (host1, host2, host3...) You can exclude certain local hosts (domain names or IP addresses) with which you do not need to communicate using the proxy server. Enter these hosts in this field. This field is only available if you have enabled one of the **Use proxy** options.

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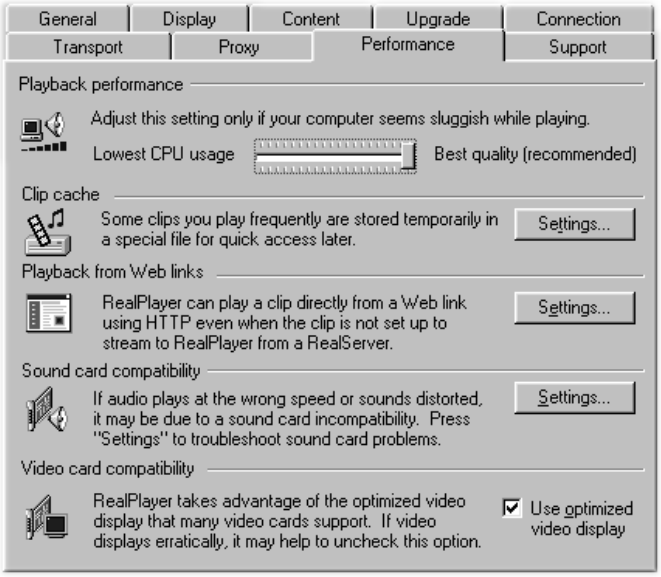
Performance Preferences

Settings on the Performance tab tailor system compatibility. In most cases you should not change them. However, you may find them helpful if you have an older system or if you are experiencing specific video problems (see Video/Display Problems on page 75).

Figure 7-9: Performance tab



Playback performance

RealPlayer uses this setting to optimize the performance of clip playback. Change this performance setting only if your computer seems sluggish or has problems while playing content.

Clip Cache: (Default is On)

Some content is created so that frequently used media can be cached, or temporarily saved, so you don't have to stream the information again only a short time later. The next time you play the clip or other clips that use the cached information they will begin playing sooner than if you had to stream that information again.

Settings... From this dialog you can Enable cache, select the cache file size (by using the slider) and clear the cache, by clicking **Empty clip cache...**

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Additional Information

Emptying the clip cache will not free up additional disk space. **Empty clip cache...** simply purges the saved images and sound from the file much like emptying a drawer of old papers.

Playback from Web links [Internet Explorer only]: (Default is Enabled, Play)

Sometimes links are authored to download a clip rather than streaming.

Settings...

Enable instant playback allows you to select a specific default behavior. Clicking on a link can either Play and save, Play, or simply Save the clip.

By selecting **Always Ask**, RealPlayer will ask how to handle a link when you click on it. The default action will be automatically selected, but you will have the opportunity to change the selection before RealPlayer acts.

Default folder for save lists where files will be saved. To choose a new directory for saving, click **Change Location...**, navigate to a new place, and click **OK**.

Sound card compatibility [Windows only]

Modify sound card settings to overcome audio problems.

Settings...

Disable 16-bit sound (use 8-bit only): Use this setting if you have an older sound card and clips sound scratchy or distorted.

Disable custom sampling rates: Use this setting if clips play at the wrong speed or sound scratchy or distorted.

Video card compatibility

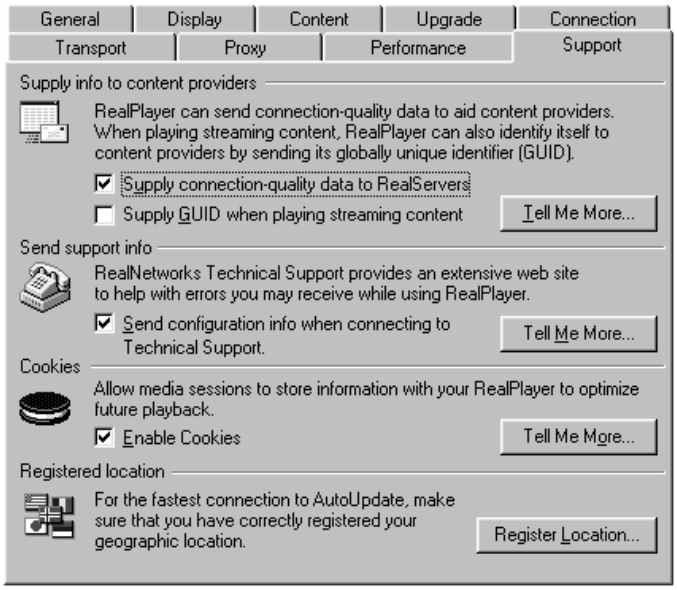
Some video cards are not compatible with RealPlayer's optimized video. (See also Why is my video playback ugly? on page 76 for a list of symptoms and solutions or come to **http://service.real.com/** for the latest information.)

Use optimized video display: When selected, RealPlayer uses Windows DirectX capabilities on the PC and similar enhancements on the Macintosh to deliver the best video possible. In some cases, older cards or versions of DirectX can cause distorted or bad video. Uncheck this option and attempt to play the video again to determine if this Preference is the issue.

Support Preferences

Support Preferences determine how much information you share with content providers. To learn more about any of these options click **Tell Me More...** RealPlayer will open your Browser and take you to the appropriate Web page (the **Registration location** section has a link in its dialog box).

Figure 7-10: Support tab



Supply info to content providers

This data helps content providers refine their methods and improve their quality and service.

Supply connection-quality data to RealServers (Default is On) If you do not wish to share your information with content providers, do not check this box. Information about your connection quality is used to improve data encoding and transmission methods.

Supply GUID when playing streaming content (Default is Off) sends your RealPlayer's unique identifier (*GUID, see below*) to RealServers. Your GUID is sometimes your *ticket* to view secure or otherwise 'members only' content (see additional information on next page). You must select this option to view this type of secure content, but you can uncheck this box for other viewing.

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Additional Information

A Globally Unique Identifier (GUID) is an alphanumeric identifier in RealPlayer that is disabled by default and is only enabled if you turn on the feature in Preferences. A GUID is randomly generated by RealPlayer during installation. RealNetworks uses publicly documented standards to create a GUID. A GUID is used to indicate a unique installation of a product, and is found in many popular software applications.

RealPlayer has GUIDs disabled by default (set to all zeroes so that it is not unique). Some content providers require that you enable your GUID in order to play their content. (You will receive an error from the RealServer if a GUID is required to access the content.) This is typically because their content is limited-access, such as pay-per-view, or for registered members only. If you enable the GUID, it will be sent to all streaming media servers when you play a clip or broadcast.

Send support info

If selected, RealPlayer will send information about your computer to our support database when you have a connection or program error in order to provide better information and possible solutions to any problems that may arise. If you do not check the box, you may only receive general error messages.

Cookies: (Default is Enabled)

By storing information about previous media sessions, content providers can better customize your experience and provide better connectivity.

Registered location

Use this setting to change your physical location in our registration database. By having accurate information, RealNetworks can connect you to the nearest possible server for updates (see Figure 7-4: Upgrade tab on page 63) and other connections.

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TROUBLESHOOTING

Everyone has problems on occasion. Fortunately, most problems have occurred before and we have answers for them. Below are some of the most common confusions and issues you may run into when running RealPlayer. If you still have unanswered questions, please visit **http://service.real.com** for the most up-to-date information. (See also Help with Using RealPlayer on page 7.)

Video/Display Problems

How do I get Full Screen to work?

For Windows

If you are having problems with Full Screen (e.g., only a black screen appears), make sure that you have the following installed on your machine:

Microsoft DirectX with DirectDraw (v5.0 or later)

You can access the most recent version and installation instructions from RealNetworks' DirectDraw Support page:

http://service.real.com/fullscreen/

When you install DirectX, you must choose to upgrade your video drivers.

Updated video drivers

You can usually find the latest drivers on the website of the company that manufactured your video card. By upgrading your video drivers you may lose some functionality provided by your old drivers. Your video card manufacturer is solely responsible for the scope of these functions.

As a convenience we offer links to some of the most common video card manufacturers on the RealNetworks' video driver support page:

http://service.real.com/fullscreen/driverlink.html

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For Macintosh

If Full Screen does not seem to be working, try selecting **Full Screen** from the **Zoom** control *after* you have connected to the clip you wish to view.

How do I exit Full Screen mode?

Use the ESC key (Escape key) on your keyboard to exit Full Screen mode in Windows or press any key to exit Full Screen on a Macintosh.

Why is my video playback ugly?

RealPlayer attempts to show video at whatever color depth your system is set to display. If the color settings in your Control Panel are set less than 16-bit, (see System Requirements on page 3) you will get poor or no results when viewing video clips. You should increase your screen resolution to 16-bit (thousands) or 24-bit (millions) color.

To change your color depth in Windows

1. Choose **Settings/Control Panel** from your **Start** button.
2. Double-click **Display**.
3. Click the **Settings** tab.
4. Change the **Color palette** setting to **High Color (16-bit)** or **True Color (24-bit)**.

Warning

You may not be able to go to a higher color setting depending on the desktop area you have selected and your video card. Windows will only allow you to select choices that are appropriate for the installed video driver.

5. Click **Apply**. You may have to reboot your computer to have the changes take effect; Windows will inform you if you do.

Additional Information

Avoid using Zoom (see Display panel on page 14) if you do not have a high bandwidth connection or very good connection.

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To change your color depth on Macintosh

1. From the Apple Menu, select **Control Panels**.
2. Open the **Monitors & Sound** control panel.
3. Change Color Depth to **Thousands** or **Millions**.
4. Change Resolution to **800x600** or better.

Why is my video distorted or not displaying at all [Windows]?

To deliver the best video in the fastest way possible, RealPlayer uses the latest optimized video protocols. Not all video cards or their drivers will function properly with this optimized approach. If a video card or its drivers are incompatible you may see unexpected results (see The Symptoms immediately below).

The Symptoms

Incompatibility with optimized video usually manifests itself in one of the following ways:

1. You do not see any video in your RealPlayer Display panel. All you see is an empty, magenta square.
2. You do not see any video in your RealPlayer, only a snowy picture that moves. (Go to Turn off Optimized Video on page 78.)
3. You see video in your RealPlayer but it has a green tint to it and may be distorted so that you only see stripes of the video or only part of an enlarged picture. The overall effect is as if you were looking through a hole at a larger screen.
4. You see video in your RealPlayer but it is stretched vertically or horizontally in only one direction. The picture distorts into a wide, flat picture or a tall, thin one.
5. You see video, but it is more like a slide show than moving pictures and/or the edges are ragged and pixelated (looks like it is made up of a bunch of blocks rather than a clear picture).

If you are experiencing one, or more, of these symptoms, confirm the problem by using the test below to be sure that optimized video is the issue and not some other conflict.

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Confirming the Problem

If you are seeing any or all of the above symptoms, do the following to make sure it is an optimized video issue:

1. Connect to a video clip or click **Play** to start playing a loaded video clip.
2. Wait until the video is exhibiting one of the above symptoms.
3. Click and hold on the title bar of your RealPlayer (the blue bar on the top of the Player).
4. Drag your RealPlayer to a new location on your desktop.

If you saw the video playing properly while you were dragging your RealPlayer but the problems reappeared when you stopped dragging your RealPlayer (or shortly after you stopped dragging it):

Turn off Optimized Video

1. Select **View/Preferences...** from your menus.
2. Go to the **Performance** tab (see Performance Preferences on page 71).
3. Find **Video card compatibility** at the bottom of the tab.
4. Deselect (uncheck) **Use optimized video display**.
5. Click **OK**.
6. Close RealPlayer and restart it. (If you have *StartCenter* running, you will need to close this as well to fully restart RealPlayer. To close *StartCenter*, right-click on the *StartCenter* icon and select **Close StartCenter**. *StartCenter* will restart when you launch your Player again).
7. Attempt to play the video again.

If you still do not see the video playing properly, then other issues may be affecting your RealPlayer. Contact Technical Support at **http://service.real.com** for access to the RealPlayer Frequently Asked Questions (FAQ) and other up-to-date and technical information.

If you update or change your video driver or video card, you should reselect **Use optimized video display** to see if it works properly. If it does not, follow the instructions above again to solve the conflict.

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Why is my video showing in my menus [Macintosh]?

If video appears in your menus while you are using RealPlayer, for instance when you open a module or drop-down menu over RealPlayer and rather than seeing the menu, you see video in the square, there are two solutions.

1. Move RealPlayer more toward the center of your screen or away from any menus.
2. Turn off Optimized video (described below). Turning off optimized video will slow the performance of RealPlayer.
   a. Select **View/Preferences...** from your menus.
   b. Go to the **Performance** tab (see Performance Preferences on page 71).
   c. Find **Video card compatibility** at the bottom of the tab.
   d. Uncheck **Use optimized video display**.
   e. Click **OK**.
   f. Close any current clips.
   g. Attempt to play the video again.

Audio Problems

Why is my audio playback poor?

Playback quality varies depending on available bandwidth and how the file you are playing was encoded. If the quality is garbled, choppy, or skipping, use the following guidelines to isolate and correct the problem.

If the quality was poor when **firstrun_plus.smi** or **Welcome.smi** file played at the end of the RealPlayer installation, you could have a sound card conflict. Try changing the settings on the **Performance** tab (see Performance Preferences on page 71).

If the quality was good when the **firstrun_plus.smi** or **Welcome.smi** file played at the end of the RealPlayer installation, but is bad when you try to play a clip from a web, use the **View/Statistics** to check for lost packets (see your RealPlayer Help file for more information on the **Statistics** pane). If the packet loss is high, it may be due to a busy network. If this is the case you should also see the **net health** indicator blinking yellow or red on your Status bar. RealPlayer users can select **PerfectPlay Mode** from the **Play** menu and try to play the clip again or connect to the site at a later time.

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If the quality was good when the **firstrun_plus.smi** or **Welcome.smi** file played at the end of the RealPlayer installation, but sounds bad for every clip that you try to play on the Internet, complete the following steps.

If the playback quality is poor on every site:

1. Check the actual modem connection speed. This speed may be shown in the lighted display for external modems or through an information window if you have an internal modem (check the user manual for your modem). Sometimes service providers use a lower rate connection speed such as 28.8Kbps, so, even though you are dialing in to your ISP on a 56Kbps modem, you are only receiving data at 28.8Kbps.
2. If your computer seems sluggish during playback, try adjusting your playback performance. On the **Performance** tab of your Preferences, adjust the **Playback Performance** slider closer to **Lowest CPU usage**.
3. If audio on every site is scratchy, popping, or distorted, click **Settings...** in the **Sound card compatibility** section of the **Performance** tab and choose **Disable 16-bit audio**. (Windows only)
4. If you are getting no audio or audio is playing back quickly (everything sounds like a chipmunk), click **Settings...** in the **Sound card compatibility** section of the **Performance** tab and choose **Disable custom sampling rate**.
5. If you are using an external modem with a Windows PC and the **Statistics** window shows minimal packet loss (10% or less), your system may have a problem with the speed at which packets are transferred between the modem and your computer. Try setting the port speed higher (at least twice the modem speed).
6. Contact RealNetworks' Technical Support at **http://service.real.com**

Why doesn't my RealPlayer have a Volume Control?

In Compact Mode the Volume Slider changes to a pop-up control.

Click to pop-up the volume slider. When you click off of the slider, it will disappear again, but your setting will remain active.

The Mute button is available next to the volume control once you open it as described above.

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Why can't I hear anything?

RealPlayer uses the *Wave interface* for Windows to get the sound out to your speaker. In some cases this may have been accidentally turned off by other programs or users.

The Wave interface Volume Control

In the Windows system tray (the area that shows you the date and time opposite the **Start** button) you may see a **Volume Control** (a small icon that looks like a speaker). Double-click on the icon to open the control *applet*.

Make sure that the Wave slider is not muted and is set above zero *and* that the **Master Control** is turned **On**.

Connection Problems

Why can't I play clips on my computer at work?

If you're on a local area network which is attached to the Internet, and are unable to play RealMedia files from remote web sites, it's possible that your company's firewall is preventing the stream from reaching you. Users can receive live and on-demand audio and video from the Internet without exposing their company's network to security risks.

If your computer is behind a firewall, please see RealNetworks' firewall page for more information: **http://service.real.com/firewall/**

Why does RealPlayer use the wrong ISP?

When attempting to connect automatically to the Internet, RealPlayer will select your default Internet connection. If you have more than one Internet Service Provider (ISP), RealPlayer may be selecting the wrong one.

To change your default ISP in Windows95

1. Choose **Settings/Control Panel** from your **Start** button.
2. Double-click **Internet**.
3. Click the **Connection** tab. (Some browsers have this on the **Settings** tab.)
4. Change the **Dial-up Connection** setting to your preferred ISP.
5. Click **Apply**.

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Note
Windows98; re-run the Internet Connection Wizard.

To change your default ISP on Macintosh

1. Open the **Remote Access** control panel from the Apple Menu.
2. Select **Configurations.**
3. Choose the appropriate ISP.
4. Click **Make Active.**
5. Click **Done**.
6. Open the **TCP/IP** control panel from the Apple Menu.
7. Enter the appropriate information for the ISP.
8. Click **Done**.

Am I behind a Firewall? Do I need to use Proxy?

If you are behind a firewall you may consistently have one of the following problems:

You are accessing the Internet via an Internet Service Provider or a cable modem and have trouble connecting to RealAudio or RealVideo files on some or all Web sites but you can play local .RM or .RA files such as **videotest.rm**, which was copied to your RealPlayer directory when RealPlayer was installed (`c:\Program Files\Real\RealPlayer` by default, Windows only).

1. You are on a local area network which is attached to the Internet, and are unable to play RealAudio and RealVideo files from some or all remote Web sites but you can play local .RM or .RA files such as **videotest.rm**, which was copied to your RealPlayer directory when RealPlayer was installed (`c:\Program Files\Real\RealPlayer` by default).
2. You receive one of the following errors **consistently** while trying to play content:

```
Error 18: Invalid socket error
Error 22: Requested server is not valid
Error 108: Invalid Auto Transport Configuration Setup
```

If you are still unsure about whether or not you are behind a firewall, contact the Systems Administrator for your ISP or your company.

First attempt to Auto-configure your transport settings:

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1. From the File Menu, Select **View**/**Preferences**.
2. Select the Transport tab.
3. Make sure the dot in front of **Automatically Select Most Efficient Transport** is selected.
4. Click **Auto-Configure**...
5. The **Auto Transport Configuration** box should come up.
6. Click **OK**.
7. As soon as the configuration is done, the message, `Auto Transport Configuration is complete` will appear in the box.
8. Click **OK**.

Attempt to play a clip on the Internet.

If this does not help, you may try to manually configure the Player for the firewall. The RealPlayer can be configured to receive RealAudio/RealVideo through several different transport methods in order to accommodate firewalls. These transport methods include:

- UDP on a single port
- TCP-only
- HTTP-only

The UDP option may offer better sound quality than TCP, so TCP-only may not be desirable. The RealPlayer also offers the ability to limit those inside a firewall to receiving UDP on only one port, which makes router configuration easier. **Please contact your System Administrator for the Port number they have configured for UDP transmission.**

To configure the RealPlayer to receive UDP through a single port

1. In your RealPlayer, select **Preferences** on the **View** menu.
2. Click the **Transport** tab.
3. Click **Use Specific UDP Port** and enter the UDP port number through which you want to receive the UDP streams.
4. Click **OK** to save your changes.

To configure the RealPlayer to use **only** TCP to stream audio or video (no UDP)

1. In your RealPlayer, select **Preferences** on the **View** menu.

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2. Click the **Transport** tab.
3. Select **Use Specified Transports**.
4. Click **RTSP Settings...** and/or **PNA Settings...** Each transport is set separately.
5. Choose **Use TCP to Connect to Server**. Make sure that the **Attempt to Use TCP for All Content** box is the only one checked.
6. When you are finished, click **OK**.
7. Click **OK** in the Preferences window to save your changes.

To configure the RealPlayer to use receive content through HTTP-only

The HTTP-only option allows almost all Players behind a firewall to access RealAudio and RealVideo content.

1. In your RealPlayer, select **Preferences** from the **View** menu.
2. Click the **Transports** tab.
3. Select **Use Specified Transports**.
4. Click **RTSP Settings...** and/or **PNA Settings...** Each transport is set separately.
5. Click **Use HTTP Only** at the bottom of the dialog.
6. Click **OK**.
7. Click **OK** in the Preferences window to save your changes.

Additional Information

For more information on firewalls, please see the following URL: **http://www.real.com/firewall/**

In some cases you may need to set a proxy so your RealPlayer can receive information. In most cases, **Use my web browser's HTTP proxy** (see HTTP Options in Proxy Preferences on page 69) will work. However, depending on the firewall protecting your connection to the Internet this may not be enough. **Please contact the System Administrator for the correct address and Port numbers for your network. Incorrect information can cause your RealPlayer to appear to not work.**

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Other Problems

How can I stop RealPlayer from loading on start-up [Windows only]?

When RealPlayer is installed it adds a shortcut icon in your system tray (the area that shows you the date and time opposite the **Start** button). The icon keeps RealPlayer in idle mode so that it is quickly available should you click on a file that requires RealPlayer and allows your Channel Headlines to automatically update while you maintain a connection to the Internet. Additionally this icon allows you to function on clips that are currently playing even if RealPlayer is minimized. To see these functions, right-click the RealPlayer icon in your system tray.

If you wish you remove the icon from your system tray:

1. Right-click the icon.
2. Select **Close StartCenter**. Closing StartCenter will only disable the feature for the current Windows session. StartCenter will load RealPlayer the next time you reboot Windows.

To stop RealPlayer from loading when you start Windows:

1. Select **View/Preferences...** from your RealPlayer menus.
2. Click the **General** tab.
3. Click **Settings...** in the StartCenter section.
4. Uncheck **Enable StartCenter**.
5. Click **Yes** to verify that you want to disable StartCenter.
6. Click **OK** to confirm the changes.

What types of files can RealPlayer play?

RealPlayer plays a wider variety of media, both locally and over the Internet, than earlier versions. The chart below highlights most of the current file-types that can be played. Plug-ins to play many other file types, such as QT2, MOV, and ASF, are available and new plug-ins are being added all the time to expand RealPlayer's abilities for you.

If you click on a file that RealPlayer can't currently play, it will attempt to AutoUpdate and install a plug-in to match, or you can check with RealNetworks to see if a plug-in exists. If a plug-in exists, RealPlayer can

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download and install it so you will be able to play the file (see Upgrade Preferences on page 63 and AutoUpdate in your RealPlayer Help).

Additional Information

In order to make video feasible on the computer, video compression algorithms are used to remove redundant audio and video data. The codec (COmpressor / DECompressor) is the algorithm that does the compression and decompression. Operating Systems come with standard codecs (example, Apple QuickTime or Microsoft Video for Windows) installed. If a file is created with a non-standard codec, the matching codec must be installed on the computer before the file can be played. The codec may be installed as a RealPlayer plug-in, or it may be installed directly to the operating system.

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To see which components you currently have installed

1. Select **View/Preferences...**
2. Click the **Upgrade** tab.
3. To see the currently installed plug-ins, click **Settings...** in the **RealPlayer Plug-ins** section of the tab. You can remove a plug-in by highlighting it and clicking **Remove**.

When first setup, RealPlayer can play the following file types:

File Extension:	File-type:
RM, RA, RAM	RealAudio/RealVideo streamed content
RT	RealText streamed text formats
RP	RealPix streamed PNG, GIF and JPG ("j-peg") images
PNG, GIF, JPG	Stand alone PNG, JPG and GIF images and animated GIFs
MP3	MPEG Layer 3 (audio format)
SWF	RealSystem G2 with Flash
SMIL, SMI	SMIL files (see SMIL on page 52)
WAV, AIFF*	'Legacy' sound files—older but prevalent filetypes. (Not fully supported.)
MPG, MPEG	Standard MPEG Layer 1 video and Layer 2 audio formats
AVI*	Audio/Video Interleave—Microsoft video format
ASF*	NetShow files (newer NetShow files may not play correctly)
MID, MIDI, RMI	'MIDI' sound files

*When you play this file type with RealPlayer, you may receive an error such as, "Unable to render" or "xxxx decompressor not found" or "Missing codec xxxx." These errors occure because the file was created with a codec that is not installed on your computer. You need to download and install the necessary codec to play these files.

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KEYBOARD SHORTCUTS

Appendix A

Windows

Hot Key	Action	Hot Key	Action
CTRL+Left Arrow	Rewind (.5sec/keystroke)	CTRL+E	View Message Service Messages
CTRL+SHIFT+ Left Arrow	Super Rewind (10sec/keystroke)	F5	Refresh HTML Screen
CTRL+Right Arrow	Fast Forward (.5sec/keystroke)	CTRL+L	Open Location
CTRL+SHIFT+ Right Arrow	Super Rewind (10sec/keystroke)	CTRL+O	Open Local File
CTRL+Up Arrow	Volume Up		
CTRL+Down Arrow	Volume Down	CTRL+N	Normal View
		CTRL+M	Compact View
CTRL+P	Play/Pause	CTRL+A	Add to Favorites
CTRL+S	Stop	CTRL+SHIFT+A	Save Current Place
CTRL+R	Record		
PgUp	Previous Clip	F1	Help Contents
PgDown	Next Clip	ALT+F4	Exit Program

CTRL= Control key

ALT = Alt Key

SHIFT = Left or Right Shift Key

"+" = use the listed keys at the same time. Example: "CTRL+A" means hold down the Control key and the letter "A" at the same time.

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Additional Information

The Equalizer is also keyboard accessible. The Tab and Shift+Tab keys changes fields while Up/Down Arrows adjust settings.

Macintosh

Hot Key	Action	Hot Key	Action
CMD+“**+**”	Volume Up	CMD+L	Open Location
CMD+“**-**”	Volume Down	CMD+O	Open Local File
		CMD+E	View Message Service Messages
CMD+P	Play/Pause	CMD+N	Normal View
CMD+S	Stop	CMD+M	Compact View
CMD+R	Record	CMD+D	Add to Favorites
CMD+[	Previous Clip	CMD+Q	Exit Program

CMD= Command or “Apple” key

SHIFT = Left or Right Shift Key

+ = use the listed keys at the same time. For instance “CMD+D” directs you to hold down the Command key and press the letter “D” on you keyboard at the same time.

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REALNETWORKS PRIVACY STATEMENTS

RealNetworks Consumer Software Privacy Statement

Please refer to the statement published on our web site:

http://www.realnetworks.com/company/privacy/software.html

GLOSSARY

The following pages contain a list of terms defined specifically for RealPlayer. While some of these concepts may have broader meanings and implications, the definitions in this Glossary relate directly to your use of RealPlayer, rather than the world or Internet at large.

A

Accessory
A part of the RealPlayer that is not necessary to its main function, but that enhances your experience during playback (such as the Equalizer).

Applet
A small application or program with limited ability. Usually this is a helper program or tool such as the Windows Control Panel.

Add-in
Additions to RealPlayer that may or may not be a part of RealPlayer, but that can be launched from or work with RealPlayer (for example, RealJukebox.

Audio Analyzer
A tool that analyzes the audio coming into RealPlayer and displays it visually on the Display Panel.

B

background
When a process is set to run "in the background" there is often no visual cue to alert you that something is happening. During a background process, you can continue to work normally.

Bandwidth
The amount of data that can be sent to your computer over a short time; usually expressed as kilobits per second (Kbps). The higher the bandwidth, the faster you receive data—very much like using a larger garden hose to get more water faster.

Sometimes this refers to a range of sound frequencies and is shortened to "band" as in the "16-band bar-graph Equalizer". In this case, the range of sound that is measurable is broken into equal portions, or bands, of sound to be displayed.

Bar
A portion of the RealPlayer interface that can be rearranged vertically and is only a single line tall (such as the Clip Info bar).

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Bitrate
The speed of a connection, how fast information can be passed to your computer over an Internet or network connection. Sometimes known as bandwidth.

Bit
The single smallest piece of binary information.

Byte
A unit of digital data usually made up of 8 bits. Often used synonymously for *packet* when talking about the Internet even though it is not actually the same thing. Packets are usually made up of bytes. (See also *packets*.)

Browser
A short term for Internet browser (for example, Netscape, Opera, or Internet Explorer).

Buffered
Data that is collected but held back rather than made immediately available. Similar to a translator on the news listening to a whole statement before telling you what the speaker has said, rather than trying to give you a less accurate, halting, word-by-word translation.

C

Cache
A temporary storage of frequently used files, kept on your computer. It allows RealPlayer to load a presentation more quickly since those don't not have to be streamed from the Internet each time you play a clip.

Channel
Represented by an icon in the My Channels tab, it is a quick link to a service (news, sports, etc.). Channels also update headlines from their associated services on a regular basis when connected to the Internet.

Channels tab (My Channels)
The portion of the Content Panel that displays Channels.

Clip
Any media that can play within RealPlayer.

Clip Info bar
Displays Title, Author, Copyright information about the active clip if any is available.

Codec
Short for COmpressor / DECompressor. An algorithm used to compress and uncompress data files.

Compiled
Term describing a file when the raw information, or source-code, has been organized into a usable format for your desktop (for example, RA, DLL, EXE, and COM file-types).

Content Panel
Opposite the Display Panel. My Channels, Live Stations and My Favorites tabs are displayed on this panel.

Control bar
The portion of the RealPlayer that contains the controls that act on the active clip (such as Play, Pause, Stop,

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etc.) as well as the position slider, the Equalizer, and any plug-ins or RealPlayer Add-ins (RPA's).

D

Datatype
Determined by the program that creates the media you are viewing and usually distinguished by the extension on the end of the file (for example, AVI, WAV, RM, RMA, etc.). See also Extension.

DirectX
A collection of interpreters created by Microsoft that allow sound and video to work faster in Windows95/98 or later and Windows NT 4.0 or later.

Display Panel
Panel opposite the Content Panel. Used to display visual elements of a clip as well as the Audio Analyzer / Visualizations, and controls for Zoom, Video, Mute, and Volume.

Drag and Drop
A technique for moving files in a windows environment. Click and hold on a file, then drag it over an application. Release the mouse button to drop the file into the application.

E

Electronic certificates
Electronic certificates are digital fingerprints. Each file carries a special code identifying it as officially sanctioned and approved by RealNetworks to work with your RealPlayer.

Encode
The process of converting media (sound, video, etc.) so it can be streamed to and played by RealPlayer.

Equalizer
See graphic equalizer.

Extension
The letters after the period in a filename. For example, `.ram` would be the extension of *thankyou.ram*. While often this is related to the data type of the file, this is not always the case. See also Datatype.

F

Favorites
Quick links to reach content on the Internet, similar to the station buttons on a car or home stereo.

Filetype
A file's "type" is described at the front of every file and alerts your computer to what programs can use the file. Some programs can use other programs' file-types (for example, word processors can often read other word processor documents). When programs are installed, certain file-types are associated with that program. When you click on a link or a file, Windows checks to see what program is associated with that file-type and automatically launches that program (for example, double-clicking on a .ram file should launch RealPlayer and begin to play a clip).

File-type is designated by a code in the file header; that portion of the

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file that is read first and tells your computer what programs can read it. Often file-type and file extension (for example, .ram) can be used interchangeably, but in actuality, extensions are not always an indication of file-type.

Firewall
Security devices used to protect companies from unauthorized access to their servers. A firewall ensures that all communication between an organization's network and the Internet conform to the organization's security policies, using either proxy services or packet filtering.

G

Graphic equalizer
Divides the sound input into smaller frequency ranges of sound. This lets you adjust each range of sound to fit your preferences rather than just the high or low frequencies, as typical treble and bass buttons do.

Grab bar
The double line on the side of any bar that allows you to drag it, changing the top-to-bottom order you see in RealPlayer.

H

HTTP
Hyper Text Transport Protocol. A standard language for pushing information across the Internet and a good fall-back to use, though with reduced quality, when your company employs a firewall that blocks other protocols.

I

IP
Internet Protocol. Part of the TCP/IP group of information languages (see also TCP/IP).

IP address
Internet address of another computer in numeric format (for example, 127.0.0.1).

ISP
Internet Service Provider. The service you use to connect to the Internet. Usually this is who you dial up to connect the Internet if you do not have a permanent network connection.

L

Live Stations
Sites that stream RealMedia in real-time, including live and pre-recorded media (ex. a radio station with a live announcer playing CDs and Records).

Location bar
Portion of RealPlayer that shows the URL, or Internet address, of the currently playing clip and allows navigation between recently played clips.

M

Media
A general term that includes any visual, audio, or text broadcast.

Media Access bar
Portion of RealPlayer that offers several ways to quickly find content:

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Radio Tuner, Search and real.com Guide.

Message bar
Portion of RealPlayer that alerts you that you have received a Flash from the Real.com Message Service. Appears at the bottom of your RealPlayer.

Mode
A specific instance or view of a single tool. For instance, the Bar Graph mode of the Audio Analyzer versus Spectrograph mode.

Multicast
Used for broadcasting large events over the Internet. Allows many computers to play the same single stream simultaneously.

Multi-clip
Any sequential string of clips RealPlayer plays from a single file.

Multi-instance
Multiple RealPlayers running at the same time as when viewing Real.com Take 5 shows.

My Channels tab (Channels tab)
The portion of the Content Panel that displays Channels.

My Favorites
The portion of the Content Panel that displays Favorites.

P

Packet
A single package of data sent to a computer. Similar to a single brick in a building. (See also *byte*.)

Panel
Any one of the separate areas of RealPlayer. Each is separated by lines on the top and bottom. Bars may be dragged above and below panels to create a different visual order by using the grab bar.

Peak
The highest level for a particular sound at a given point in time. Used when viewing the Audio Analyzer.

Playlist bar
Portion of RealPlayer that displays the name of the current clip within a multi-clip (see multi-clip). Also has the ability to Scan the Playlist.

Plug-in
A component of the RealPlayer that extends its ability. Synonymous with Add-in.

PNM or PNA
Progressive Networks Metafile (Audio). The previous standard protocol for streaming media to your RealPlayer.

Protocol
Language used by computers to talk to each other or to their own components. Components and computers must speak the same language to understand each other. The standard Internet protocol for sending packets of information is TCP/IP (see TCP/IP) while HTTP is the standard for displaying text. In the case of media, the protocol is identifiable at the head of the URL

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(for example: HTTP//, RTSP //, PNM//, etc.). Synonymous with *transport*.

Proxy
Used in conjunction with a firewall, a proxy or proxy service is a server that initially determines if a requested connection between a computer on the internal network and one on the outside is permitted. If the connection is authorized, the firewall sets up the necessary communication links between the two computers. The firewall can then monitor the communication between the two networks and suppress any unauthorized activity.

R

RPA
RealPlayer Add-in. Authorized third-party program additions that give you access to other media or functions.

Radio Tuner
Portion of Media Access bar that connects to the Web to find the most up-to-date list of radio and TV programming available.

Realcom Guide

Real.com Take 5
Real.com Take 5 is a special service created by RealNetworks to provide an all-media intenet experience.

RealMedia
Any media that is specifically created to be streamed from RealServers to your computer.

RTSP
Real Time Streaming Protocol. The newest protocol used to stream media to your RealPlayer over the Internet.

S

Sampling rate
How often a sample (measurement) of a audio signal is taken over a specific period of time.

Scanning
RealPlayer Plus can **Scan Favorites** so you can find the clips that interest you. The process is similar to using the scan feature of a car radio or stereo.

Search
Portion of RealPlayer Media Access bar that is used to search for content on the Web similar to a search engine on the Web.

Session
Each time you start RealPlayer you begin a new session, or round, of using the product. While some information, such as Preferences, are retained from session to session, others, such as which clips have been played, are not.

Server
Any machine or program that is “serving” information to another machine or program.

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Status bar
Portion of RealPlayer that displays connection and other information about the current clip.

Streaming Media
A media file (audio, video, etc.) that is broken into smaller pieces and sent to RealPlayer so it can be viewed or heard immediately rather than forcing the audience to have to wait for the whole file to be downloaded first.

T

Take 5
see Real.com Take 5

TCP
Transmission Control Protocol. Part of the TCP/IP group of information languages. More reliable than UDP, but often slower.

TCP/IP
Transmission Control Protocol/Internet Protocol. Standard protocol used on the Internet to send information back and forth.

Transport
How data is broken up and sent to your computer over the Internet or your company's intranet or network.

Usually used in conjunction with or instead of *protocol*. Most machines will only recognize a single type of transport, though this is not always the case.

Each type of transport is handled differently. Most machines will only recognize a single type of transport, though this is not always the case. Synonymous with protocol.

Trough
The lowest level for a particular sound at a given point in time. Used when viewing the Audio Analyzer.

Tuner
see Radio Tuner

U

UDP
User Datagram Protocol. Part of the TCP/IP group of information languages. Similar to, but less reliable than, TCP, though often faster.

URL
Uniform Resource Locator. This is the complete address that tells your browser and your RealPlayer where to get the information to show or play (for example: www.real.com/thankyou.rm) and how to interpret that information.

V

Video controls
Controls for Contrast, Brightness, Color Level, Tint, and Sharpness for visual presentations. Located next to the Zoom control on the Display Panel. Not all visual presentations support Video controls. They will only be available if the clip supports the controls.

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W **Web Server**

A server that makes HTML pages and other content available to your Web Browser.

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