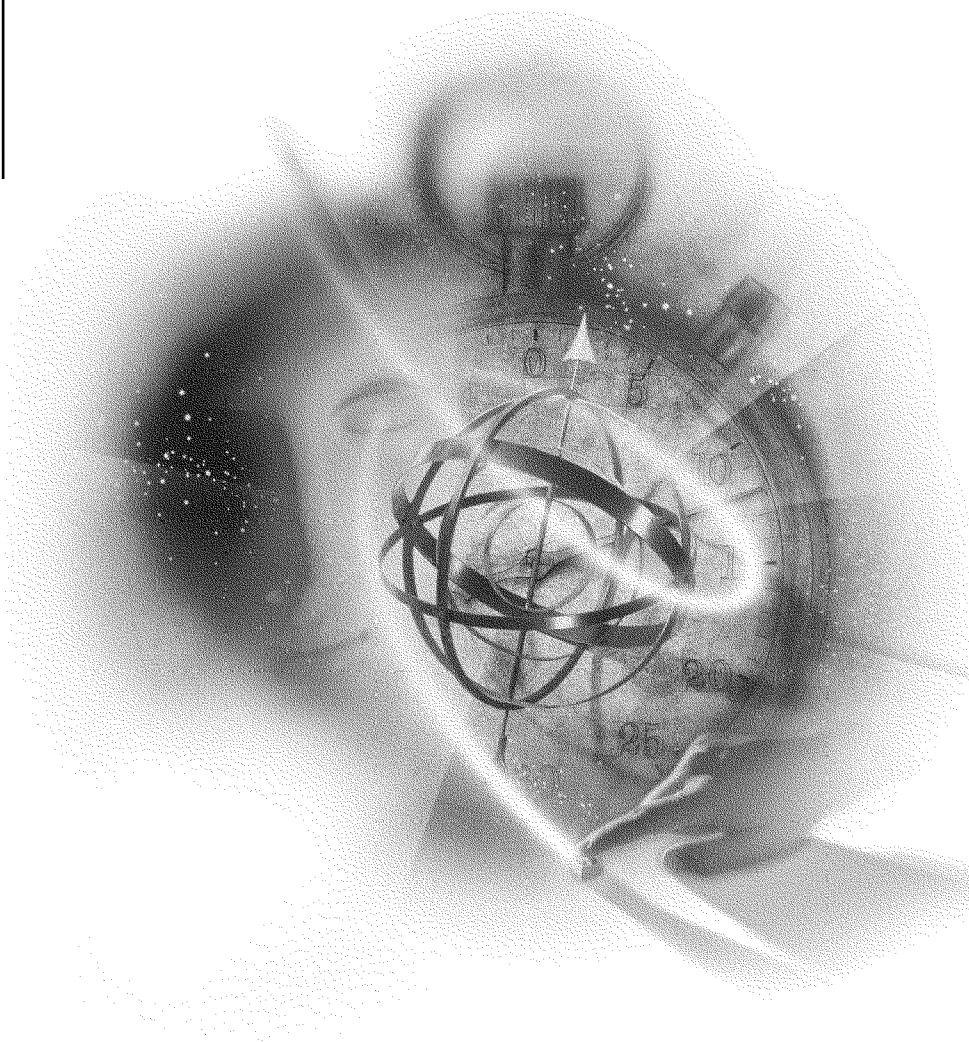


NetWare MultiMedia Server Guide



NetWare® MultiMedia Server

Novell®

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Preface

The NetWare[®] MultiMedia Server provides entertainment and information such as music, music videos, and presentation videos in the form of multimedia files. You can even have computer-based tutorials for education or entertainment purposes on your NetWare server, enabling users to access these tutorials from a workstation.

1

Understanding

This chapter gives the following conceptual information about the NetWare[®] MultiMedia Server.

What is the NetWare MultiMedia Server?

Using the MultiMedia Server

Supported Protocols

Supported Multimedia File Formats

Quality of Service

What is the NetWare MultiMedia Server?

The NetWare MultiMedia Server, which is a component of NetWare 5.1, introduces multimedia streaming capabilities on a NetWare server.

The MultiMedia Server suits any organization with a small, medium, or large network. It can be used for a variety of purposes, for example

- ♦ As a jukebox with audio files
- ♦ To serve multimedia tutorial files
- ♦ To store and display audio-visual presentations

Using the MultiMedia Server

To use the NetWare MultiMedia Server

- ♦ Install the MultiMedia Server component on the NetWare server.

- ♦ Copy the multimedia files to a pre-defined location on the server. For more information about the supported multimedia file formats, see [Supported Multimedia File Formats](#).
- ♦ On the workstation, install the multimedia player RealPlayer G2*. RealPlayer G2 is a free, downloadable software from [RealNetworks Inc. \(http://www.real.com\)](http://www.real.com)
- ♦ Launch RealPlayer G2 to play multimedia files from the server.

Supported Protocols

The NetWare MultiMedia Server supports Real Time Streaming Protocol (RTSP) for streaming audio and video on the network. RTSP (RFC 2326) is a client-server multimedia presentation control protocol, designed to address the needs for efficient delivery of streamed multimedia over IP networks. It works well both for large audiences as well as single-viewer media-on-demand. For more information on RTSP and RFC 2326, see the [Internet FAQ Archives \(http://www.faqs.org/rfcs/rfc2326.html\)](http://www.faqs.org/rfcs/rfc2326.html).

Supported Multimedia File Formats

Currently, the NetWare MultiMedia Server supports the following file formats:

- ♦ WAV - File format for storing digital audio (waveform) data.
- ♦ MP3 - MPEG-1 layer III. One of the best data-reduced (compressed) audio formats available.
- ♦ RM - RealVideo* file extension. RealVideo is a common Internet audio and video format, which supports streaming and live Web casts.

Quality of Service

For optimum performance, the NetWare MultiMedia Server provides a feature called Adaptive Quality of Service (Adaptive QoS). The primary function of Adaptive QoS is to adjust the required bandwidth depending on the network traffic. If the bandwidth available to a workstation is less than the required bandwidth, QoS regulates the multimedia data being transferred to the workstation. This way, the congestion in the network minimally affects the performance of the multimedia files being played from the MultiMedia Server.

2

Installing

Before you install the NetWare[®] MultiMedia Server, ensure that the minimum hardware and software requirements on the workstation and the server are met.

Requirements

Server Requirements

- ♦ NetWare 5.1
- ♦ You should have enabled the TCP/IP protocol for network communication (installed by default with NetWare 5.1).

Client Requirements

- ♦ RealPlayer G2 to play multimedia files. RealPlayer uses the Real Time Streaming Protocol (RTSP) on the network to interface between the workstation and the MultiMedia Server. For more information, see [Installing RealPlayer G2](#).
- ♦ DirectShow* for RealPlayer G2 to play MP3 files over the network. For more information, see [Installing DirectShow](#).
- ♦ WAV and MP3 plug-ins for RealPlayer G2. These will automatically be downloaded from the Internet and installed the first time you launch RealPlayer G2 and try to play WAV or MP3 files.
- ♦ An installed and configured sound card.
- ♦ TCP/IP for network communication on the workstation.

Installation

On the Server

Installing NetWare MultiMedia Server During Server Installation

1 During server installation, select Custom installation.

2 Select NetWare MultiMedia Server.

IMPORTANT: While installing NetWare MultiMedia Server, an additional component, NetWare Web Manager, will also be selected for installation. NetWare Web Manager is a Web-based administration utility for several NetWare 5.1 components.

Installing NetWare MultiMedia Server After Server Installation

When you want to install the NetWare MultiMedia Server component after installation of NetWare 5.1, complete the following tasks:

1 Load the nwconfig utility from the server console > select Product Options.

2 Select Install a Product Not Listed.

3 Select NetWare MultiMedia Server.

IMPORTANT: While installing NetWare MultiMedia Server, an additional component, NetWare Web Manager, will also be selected for installation. NetWare Web Manager is a Web-based administration utility for several NetWare 5.1 components.

Loading and Unloading the MultiMedia Component

After the installation, the MultiMedia Server component is not loaded automatically when the server comes up. You have to load the component on the server by entering the following command at the server console:

```
media
```

You can also load the component in protected memory space by entering the following command at the server console:

```
protect media
```

A protected memory space has limited and carefully controlled access to the server operating system, so that modules running within the protected space cannot abend the server.

To unload the MultiMedia Server component, enter the following command at the server console:

```
umedia
```

On the Workstation

Installing RealPlayer G2

Download the latest [RealPlayer G2 \(http://www.real.com\)](http://www.real.com). Run the setup program of the downloaded file and follow the installation instructions to setup RealPlayer G2 on the workstation. After you have installed RealPlayer G2, you have to install DirectShow 6.x, which enables you to play MP3 files from the server, using RealPlayer.

Installing DirectShow

To play MP3 files using RealPlayer G2, you need to install [DirectShow \(http://www.bitcasting.com/products/demo/samples.shtml\)](http://www.bitcasting.com/products/demo/samples.shtml), version 6.0 or above, over RealPlayer. Run the setup program of the downloaded file to install DirectShow on your workstation.

IMPORTANT: After installing RealPlayer G2, when you try to play WAV or MP3 files for the first time, you will be prompted to download missing plug-ins. Click Yes to connect to the Internet to download and auto-install the plug-ins.

Configuration

Configuring the MultiMedia Server

To configure the MultiMedia Server, you must log in to the server as an administrator, or as a user with administrative rights.

Modifying the Location of Multimedia Files

You can specify the location where you will store your multimedia files. It is from this location that the MultiMedia Server will serve files to the clients.

To modify the location of these files:

- 1 Use a text editor to open the MEDIA.CFG file in the SYS:\ETC directory.
- 2 Specify the new location against the MMFilePath parameter (for example, MMFilePath SYS:\MULTIMEDIAFILES).
- 3 Save the file.

4 Unload and reload the MultiMedia Server.

For details on loading and unloading the component, see [Loading and Unloading the MultiMedia Component](#).

IMPORTANT: The default path for the multimedia files is SYS:\PUBLIC\MEDIACONTENT. For clients to access the multimedia files on the server, the directory should have Public access rights.

Configuring Adaptive QoS

To configure Adaptive QoS:

- 1** Use a text editor to open the MEDIA.CFG file in the SYS:\ETC directory.
- 2** Set the value of the AdaptiveQoSMode parameter to a value between 0 and 100 (for example, AdaptiveQoSMode 15).
- 3** Save the file.
- 4** Unload and reload the MultiMedia Server.

For details on loading and unloading the component, see [Loading and Unloading the MultiMedia Component](#).

The Adaptive QoS value indicates the percentage of data packets to be dropped while sending the files to the clients, depending on the network traffic. A zero value disables Adaptive QoS. A value of 100 indicates that the streaming is optimized to maintain the quality of service at the workstation when there is high network traffic.

By default, Adaptive QoS is disabled on the MultiMedia Server.

Limiting the Number of Concurrent Client Connections

The maximum number of concurrent client connections allowed by NetWare MultiMedia Server is 50.

To limit the number of concurrent client connections to the MultiMedia Server:

- 1** Use a text editor to open the MEDIA.CFG file in the SYS:\ETC directory.
- 2** Set the value of the MaxClients parameter to a value between 1 and 50 (for example, MaxClients 15).
- 3** Save the file.
- 4** Unload and reload the MultiMedia Server.

For details on loading and unloading the component, see [Loading and Unloading the MultiMedia Component](#).

The default value is 50. In the above example, the MultiMedia Server is set to allow a maximum of 15 concurrent client connections. Any value set below 1 will be taken as 1 and a value above 50 will be taken as 50.

IMPORTANT: When the CPU utilization on the server is very high at around 98%, the server refuses further client connections.

When there are more concurrent client connections, the available resources on the NetWare server are reduced. To increase resources, you can change the Maximum Packet Receive Buffers value on the server, to a higher value.

To change the value:

- 1** Load the monitor utility at the server console.
- 2** Select Server Parameters > Communications.
- 3** Change the value of Maximum Packet Receive Buffers to a higher value.

HINT: The default value on the server will be 500. You can set the value to approximately 100 per client connection. For example, if you plan to allow 50 concurrent connections, you can set the value to 5000.

You can also change the Maximum Packet Receive Buffers value by typing **set maximum packet receive buffers=5000** at the server console to set the value to 5000.

3

Using

You can launch RealPlayer G2 on the workstation to play the multimedia files that are on the server.

Playing Multimedia Files

To play multimedia files from the server:

- 1 Launch RealPlayer G2 on the workstation.
- 2 Click File > Open Location.
- 3 Type the location of the multimedia file, as shown in the following example:

```
rtsp://server_name/CATHAY.RM
```

where *server_name* is the network name of the MultiMedia Server.

- 4 Click OK.

HINT: If your NetWare® MultiMedia Server does not have a DNS entry on the network, you can access the server by typing the server's IP address instead of its computer name.

The files should exist in the location you specified earlier. For configuring the location for multimedia files, see [Modifying the Location of Multimedia Files](#).

Similarly, you can also play WAV and MP3 files by specifying their path as shown in [Step 3](#).

If you have files in a sub-directory in the multimedia files root directory, then you enter the full path in the Open Location dialog box. For example **rtsp://server_name/MP3FILES/SONG1.MP3** where MP3FILES is a sub-directory under the directory configured for storing files.

IMPORTANT: While playing an RM file from the server on a TCP/IP network, the file plays till the end but does not return to Start after finishing, nor does it skip to the next file when playing from a playlist.

If you have paused an MP3 file during play, it will sometimes not resume play when Play is clicked again. You will have to stop and start playing the file again.

Using Novell Directory Services to Play Multimedia Files

Using Novell Directory Services® (NDS®), which is installed by default with NetWare 5.1, you can also play multimedia files stored in a user's home directory on any server in the same NDS tree. For example:

- 1** Launch RealPlayer G2 on the workstation.
- 2** Click File > Open Location.
- 3** Type the location of the multimedia file, as shown in the following example:

```
rtsp://server_name/~JOHN/CATHAY.RM
```

where *server_name* is the network name of the MultiMedia Server, JOHN is the NDS username of a user on the network, and CATHAY.RM is a multimedia file that exists in the home directory of the user.

In the above example, the home directory of user John can exist on any server in the NDS tree.

- 4** Click OK to play the file.

IMPORTANT: The usage of ~ before the username is mandatory.

Creating Multimedia Playlists

You can organize your multimedia files by creating playlists. Playlists help clients categorize the multimedia files available to them on the MultiMedia Server. A playlist is a single file in which you make a list of the multimedia files you want the clients to access. These playlist files can be shared on the network for all clients to access.

IMPORTANT: Playlist files can exist either on the MultiMedia Server or any computer on the network.

To create a playlist:

- 1** Open a text editor.

2 Type the file list in the following manner:

```
rtsp://server_name/FILE1.MP3  
rtsp://server_name/FILE2.WAV  
rtsp://server_name/FILE10.RM
```

3 Save the file with any extension. Preferably, name the playlist files in such a way that users know the category of files they are going to play. For example, WAVFILES.LST would indicate that the playlist file contains references to WAV files on the MultiMedia Server.

4 Launch RealPlayer G2 on the workstation.

5 Click File > Open File...

6 Select the playlist file you want to play > click Play.

For more information on playing multimedia files using RealPlayer G2, see [Playing Multimedia Files](#).

The multimedia files should exist in the location you specified earlier. For configuring the location of multimedia files, see [Modifying the Location of Multimedia Files](#).

4

Troubleshooting

This section lists the error messages you could encounter while using the NetWare[®] MultiMedia Server, and the actions to be taken.

Client Error Messages

- ♦ The RealPlayer is unable to connect to the server to play your selection.
- ♦ Requested file not found. The link you followed may be outdated or inaccurate.
- ♦ Connection to the server has been lost. You may be experiencing network problems.
- ♦ Connection to the server has timed out. You may be experiencing network problems.
- ♦ General Error. An error occurred. MPEG by Bitcasting Error 3. Renderer failed to open rendering device.

The RealPlayer is unable to connect to the server to play your selection.

Possible cause: The MultiMedia Server may be down or not responding. The network connection to the MultiMedia Server may also be lost.

Action: Check the status of the server. If the server is down, start the server, then play files from the server. Also, check your network connection.

Requested file not found. The link you followed may be outdated or inaccurate.

Possible cause: The file you requested for playing does not exist on the server. The file may also not be within the directory configured to store multimedia files for playing.

Action: Check the exact name of the file you wish to play. Ensure that the file exists in the specified directory.

Possible cause: The file is corrupt.

Action: Contact your system administrator to replace the corrupt file.

Possible cause: You do not have the required access rights to the file you want to play.

Action: Contact your system administrator to grant you access rights to the multimedia files on the server.

Possible cause: The file you are trying to play is not supported by the MultiMedia Server.

Action: For details on the supported audio file formats, see [Supported Multimedia File Formats](#).

Possible cause: NetWare MultiMedia Server has not been loaded properly on the server.

Action: Contact your system administrator. Also see [Loading and Unloading the MultiMedia Component](#).

Connection to the server has been lost. You may be experiencing network problems.

Possible cause: The MultiMedia Server might have gone down, or might have stopped responding.

Action: Check the status of the server. If the server is up and you are still not able to access it, check the network connection and try again.

Connection to the server has timed out. You may be experiencing network problems.

Possible cause: The MultiMedia Server might be down or not responding.

Action: Check the status of the server. If the server is up and you are still not able to access it, check the network connection and try again.

Possible cause: RealPlayer G2 on your workstation is configured for a speed slower than the available network bandwidth.

Action: Configure RealPlayer G2 to the correct network bandwidth speed. You can do this by changing the bandwidth in the Options > Preferences > Connection screen of RealPlayer G2.

General Error. An error occurred. MPEG by Bitcasting Error 3. Renderer failed to open rendering device.

Possible cause: The player failed to recognize the MP3 file format.

Action: Play the file again. If you still experience a problem, check whether the file is corrupt.

Errors

When I am playing multimedia files using RealPlayer G2, it buffers the file for a long time.

Possible cause: RealPlayer G2 on your workstation is configured for a speed slower than the available network bandwidth.

Action: Configure RealPlayer G2 to the correct network bandwidth. You can do this by changing the bandwidth in the Options > Preferences > Connection screen of RealPlayer G2.



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