

# Cosmo<sup>TM</sup> MediaBase Administrator's Guide

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## About This Guide

The *Cosmo™ MediaBase Administrator's Guide* describes how to install, operate, and use the WebFORCE™ Media Server with Cosmo MediaBase.

### What This Guide Contains

The following material is covered in this guide:

- Chapter 1, “Overview of Cosmo MediaBase,” provides a brief overview of the product and the procedures needed to install and use it.
- Chapter 2, “About MediaBase Video Assets,” provides descriptive information about MediaBase video assets. Included is information about how filesystem bandwidth is allocated to, and used to play, video assets.
- Chapter 3, “Installing and Operating the WebFORCE Media Server,” describes the procedures for installing and operating the WebForce Media Server, and installing the MediaBase client.
- Chapter 4, “Using the MediaBase Administration Tools,” explains how to access the administration Web site to use the tools to configure and monitor MediaBase, troubleshoot problems, add and manage videos, and schedule videos for multicast.
- Chapter 5, “Configuring MediaBase,” describes the procedures for configuring the resources used by MediaBase.
- Chapter 6, “Monitoring MediaBase Resources,” explains how to monitor MediaBase resource usage and service status.
- Chapter 7, “Troubleshooting Problems,” explains how to troubleshoot MediaBase problems.
- Chapter 8, “Managing MediaBase Videos,” explains how to use the Video Management Tool and the *mbinst* batch utility to add and manage videos. Included is information about the steps that need to be performed before a video can be installed.

- Chapter 9, “Managing LANCast Showings,” explains how to use the LANCast Management Tool and command-line batch utilities to schedule videos for multicast.
- Chapter 10, “Using the MediaBase User Web Site,” explains how to use the Web pages that give users access to videos and showings guides.
- Chapter 11, “Customizing the MediaBase User Web Site,” describes the files that are used to generate the user Web site explains how to modify them to customize the site for a particular installation.
- Appendix A, “Authoring With MediaBase Videos,” describes how to use MediaBase videos in Web documents.
- Appendix B, “Building XLV Logical Disk Volumes for MediaBase,” describes how to build XLV disk volumes.

## Who Should Read This Guide

This guide is written for the following people:

- network administrators who are responsible for installing, operating, monitoring, and troubleshooting problems with the WebFORCE Media Server
- media administrators who are responsible for installing and maintaining videos
- LANCast administrators who schedule videos for directed broadcast at specified dates and times
- managers and other individuals who want a high-level understanding of the product
- Web administrators who maintain the user Web site
- Web authors who use MediaBase videos in Web documents

## What You Should Know Before Reading This Guide

This book assumes that you are already familiar with the following:

- concepts related to the Internet and the World Wide Web
- how to use Netscape Navigator™

In addition, Web administrators who maintain the user Web site, and Web authors who use MediaBase videos in Web documents, should know how to create HTML files, CGI scripts, and Perl scripts.

## Related Documentation

Refer to the following documents for supplementary information:

- *IRIX™ Admin: Software Installation and Licensing* for information about installing software that runs under IRIX, the Silicon Graphics® implementation of the UNIX® operating system
- *IRIX Admin: System Configuration and Operation* for information about IRIX system administration tasks
- *IRIX Admin: Disks and Filesystems* for information about general filesystem concepts and system administration procedures for SCSI disks, XFS™ and EFS filesystems, logical volumes, and guaranteed rate I/O
- *REACT™ Real-Time Programmer's Guide* for information about developing applications that use GRIO
- *WebFORCE Firewall Administrator's Guide* for information about configuring an IRIX host as a network firewall, which is a system that separates an internal network, or intranet, from the external world, such as that represented by the Internet
- *Netscape Commerce and Communications Servers Administrator's Guide* for information about configuring and maintaining Netscape Communications™ servers; includes an introduction to the HyperText Markup Language, HTML
- *Netscape Servers Programmer's Guide* for information about using the CGI and API programming interfaces of the servers to create forms and custom programs

## Conventions Used in This Guide

The following type and symbol conventions are used in this guide:

- *Italics* are used for filenames, pathnames, directory names, button names, emphasis, document titles, IRIX commands, and utilities.
- `Fixed-width` is used for code examples and command syntax.
- **Bold fixed-width** is used for user input, including nonprinting keyboard keys.
- Square brackets (“[]”) surround syntax statement arguments that are optional.
- # is the IRIX shell prompt for superuser (root).
- % is the IRIX shell prompt for users other than superuser.
- Square bullets (“■”) identify substeps within a numbered list.

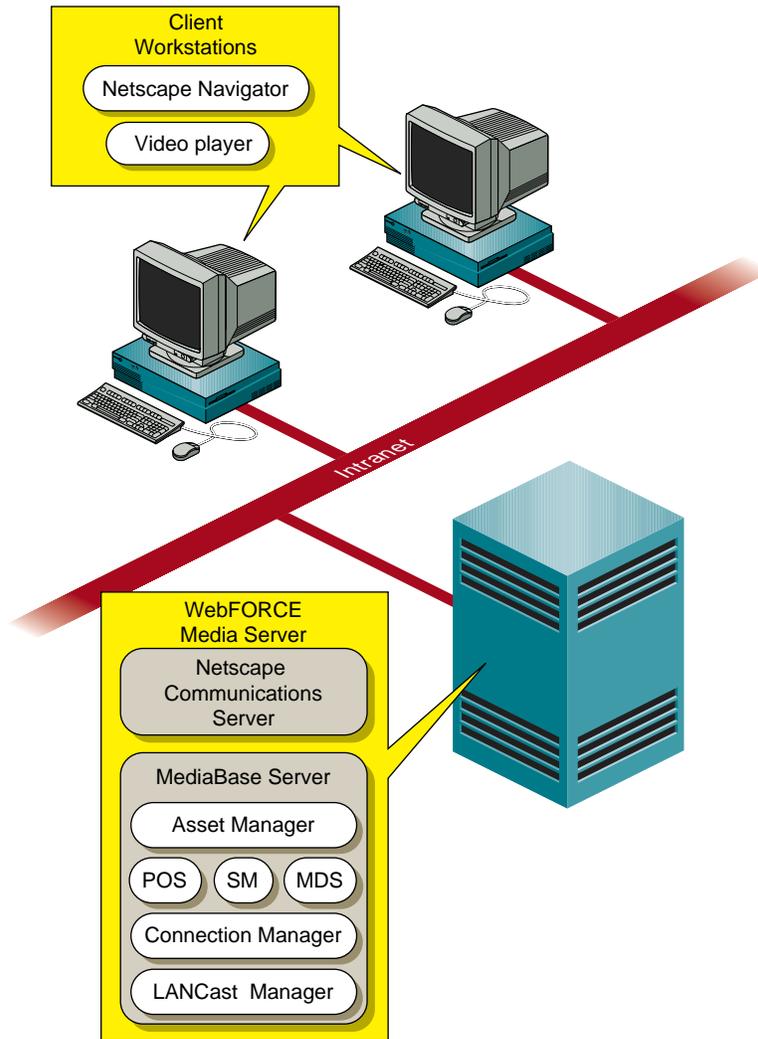
## Overview of Cosmo MediaBase

This chapter contains an overview of Cosmo MediaBase and the steps that are needed to install, configure, and use it. The following topics are discussed:

- “Cosmo MediaBase Components” on page 1 identifies the primary components in a Cosmo MediaBase system.
- “Overview of Administrative Procedures” on page 5 describes the tasks performed by the individuals who install, operate, and use MediaBase.

### **Cosmo MediaBase Components**

Figure 1-1 shows the components in a Cosmo MediaBase system.



**Figure 1-1** Cosmo MediaBase System Components

The components shown in this figure are discussed in the remainder of this section.

## **The Intranet**

As used with MediaBase, the term “intranet” describes a network used solely for internal communications within a company. It is used as an administrative tool, designed to facilitate the sharing of information among employees. By limiting the scope of its communications to internal users, it ensures adequate performance for activities such as playing videos on client workstations.

Intranets employ the same techniques and technology as the Internet. For example, the graphical user interface known as the World Wide Web, or the Web, is used extensively with intranets. Similarly, the HyperText Markup Language (HTML), developed to format Web pages on the Internet, is used to format Web pages on intranets.

Intranets can be accessed only by individuals within an organization, and by outsiders who’ve been given passwords to allow them access. A special network security device, known as a “firewall,” keeps out all others.

## **Client Workstations**

Client workstations use Netscape Navigator to display Web pages that contain links to videos stored in the MediaBase Server. Those links consist of a URL (Uniform Resource Locator), which is the addressing mechanism used to request Web pages.

The URL for a MediaBase video has a special format to identify the video. When the user clicks on a MediaBase URL, MediaBase sends the requested video to the client workstation’s video player to be played in real time. That is, the video is played on the workstation as it is being streamed by MediaBase to the client workstation.

There are two ways a video is played on the client workstation. The first is through a plug-in, which allows the video content to be viewed without leaving Netscape Navigator. When plug-ins are used, the video is integrated with the Web page and displays within it.

The second way videos are played is through a helper application, or helper app. The helper app is a separate window that opens on the client workstation; the video is played within that helper app. When helper apps are used, the display of the video is not integrated with the Web page and does not display within it.

## The WebFORCE Media Server

The WebFORCE Media Server consists of the Netscape Communications Server and the MediaBase Server. The Communications Server provides the user with access to Web pages that contain links to MediaBase videos. When a user clicks on one of those links, the Communications Server sends the request to the MediaBase Server, which retrieves the video and streams it to the user.

The MediaBase Server consists of the following components:

- The Asset Manager is used to install and maintain video assets. (“Assets” is a general term for media accessible from Web pages. “Video assets,” or “videos,” refers to Web-accessible media that consist of both a video and an audio component.)
- The Persistent Object Store (POS) is used to store metadata. These are objects that contain descriptive information about video assets. POS is also used to store objects that are used to manage the components in the distributed MediaBase system. POS provides the mappings that enable these objects to be stored in a standard relational database management system that is included with the product.
- The Storage Manager (SM) stores the actual video data (that is, the video and audio content) in the MediaBase filesystem. The Storage Manager determines how many copies of each video are needed, and where they should be placed, to ensure that a guaranteed number of users can play back the video at the same time.
- The Media Delivery Service (MDS) sends videos to users who click on links to MediaBase assets from Web pages. Videos have special requirements because they must be played back at a constant bitrate. The Media Delivery Service provides that capability.
- The Connection Manager manages the IP and IP over ATM network resources used by the WebFORCE Media Server and the client workstations. These resources include network bandwidth, connections, and network interfaces.
- The LANCast Manager controls the scheduling and multicasting of videos. Multicast videos are also called “directed broadcast videos” because they are sent only to users who request them. Broadcast videos, in contrast, are sent to all users, and don’t require users to request them.

Scheduled videos, called showings, are played by MediaBase at times specified by the LANCast administrator. Users wishing to view a showing can do so at the scheduled time by requesting the showing from a showings guide.

These MediaBase Server components are transparent to users. From the user's perspective, MediaBase videos are accessed through Netscape Navigator. When a user clicks on a link to a MediaBase video, the video plays on the client workstation and the user receives no indication that anything other than Netscape is providing the video capabilities.

## **Overview of Administrative Procedures**

This section contains an overview of the administrative procedures required to install, configure, and use Cosmo MediaBase. It is organized according to the individual who performs the administrative function. In some installations, a single individual may perform more than one of the functions described in this section. For example, the same person may perform the functions of the network administrator and the media administrator.

### **Network Administrator Procedures**

The network administrator is responsible for the overall installation and operation of the WebFORCE Media Server. This individual performs the following tasks:

- installs and operates the WebFORCE Media Server
- uses the MediaBase Configuration Tool to configure the resources used by MediaBase
- uses the MediaBase Configuration Tool to set the multicast time-to-live value and define the multicast IP addresses used to play scheduled LANCast videos
- uses the MediaBase Monitoring Tool to monitor the operation of the WebFORCE Media Server
- uses the MediaBase Troubleshooting Tool to troubleshoot MediaBase problems

### **Media Administrator Procedures**

The media administrator is responsible for installation and maintenance of videos. This individual performs the following tasks:

- encodes videos, as needed
- stages videos, that is, copies them from tape to a temporary holding area on disk
- uses the Video Management Tool and command-line utilities to install and maintain videos

### **LANCast Administrator Procedures**

The LANCast administrator uses the LANCast Management Tool and command-line utilities to schedule videos for directed broadcast at specified dates and times.

### **Web Administrator Procedures**

The Web administrator modifies and maintains the user Web site.

### **Web Authors**

Web authors use MediaBase video URLs in Web documents.

---

## About MediaBase Video Assets

This chapter contains information about video assets, which is a term that describes videos managed by MediaBase. The following topics are discussed:

- “Video Compression Techniques” on page 7 describes why videos are encoded.
- “A Video’s Number of Plays” on page 8 introduces the reader to the concepts of guaranteed and non-guaranteed number of plays.
- “Allocation of Filesystem Bandwidth to Videos” on page 9 describes how a video’s number of plays affects the way filesystem resources are allocated to the video.
- “Use of Filesystem Bandwidth to Play Back Videos” on page 11 describes how filesystem resources are used when videos are played.

This chapter contains information that is useful for network administrators responsible for maintaining the MediaBase filesystem, and media administrators responsible for installing and managing videos.

### Video Compression Techniques

Video compression techniques have been developed to reduce the amount of digital data required to store and transmit videos. By reducing the amount of data, not only are storage requirements reduced, but the speed with which videos are transmitted is increased. This is what enables the videos to be played on client workstations.

The standard compression technique used with videos is called MPEG, which stands for Motion Picture Expert Group. The original MPEG standard is MPEG-1 which is a standard in which the video and audio components are in separate bitstreams. MPEG-1 with system streams and MPEG-2, which is a newer standard, both define an integrated audio and video stream. That is, a video encoded by these latter standards uses a single bitstream for both the audio and the video components.

Currently, MediaBase manages videos encoded in MPEG-1 with system stream format (that is, MPEG-1 format with integrated video and audio components) and MPEG-2 format.

Encoders exist that take a raw video and convert it to the appropriate MPEG-1 or MPEG-2 format. This encoding is done before a video is installed in MediaBase. MediaBase transmits the video in MPEG format to the client workstation. The video player on the client side then decodes the MPEG format of the video before playing it on the workstation. (For this reason, the client-side video players are also called video decoders.)

## **A Video's Number of Plays**

The number of plays is a floating point number that describes the availability of a video for playback. It is part of the metadata for the asset, and is entered by the media administrator when the video is added to MediaBase.

If the number of plays contains a whole number, that whole number represents the number of simultaneous users with guaranteed performance. A video whose number of plays contains a whole number is a guaranteed asset. MediaBase guarantees this number of simultaneous plays of the video under any system load.

If the number of plays contains a fraction, that fraction represents the probability that the video can be played by an additional user, if the guaranteed number of plays has already been used. A video whose number of plays contains a fractional part is a non-guaranteed asset. MediaBase does not guarantee that the video can be played at any given time.

A video can be both a guaranteed and a non-guaranteed asset if the number of plays contains both a whole number and a fractional part. For example, if the number of plays is 2.5, there are 2 guaranteed plays and a probability of 0.5 for non-guaranteed plays.

MediaBase uses the video's number of plays, along with its bitrate, to determine how to allocate filesystem bandwidth to it. (The bitrate is the constant bitrate at which the video asset is played back in real time.)

### Allocation of Filesystem Bandwidth to Videos

The bandwidth of the MediaBase filesystem is the resource that determines how many video assets can be played back at the same time. For this discussion, “bandwidth” refers to the rate by which data can be read from the filesystem. It does not take the network into consideration.

Guaranteed assets reserve bandwidth at least equal to the number of plays times the bitrate of the asset. This ensures that the guaranteed number of plays can always be played back under any system load. Non-guaranteed assets also reserve bandwidth equal to the number of plays times the bitrate of the asset. However, this bandwidth is not sufficient to guarantee that the asset can be played back under any system load because the number of plays is less than one.

For example, assume that a filesystem has a bandwidth of 100 megabits per second (Mbps). If a 1.5 Mbps video asset with 10 guaranteed plays is installed, MediaBase reserves 15 Mbps of the filesystem bandwidth for that asset (10 plays x 1.5 Mbps per play). This is shown in Figure 2-1.

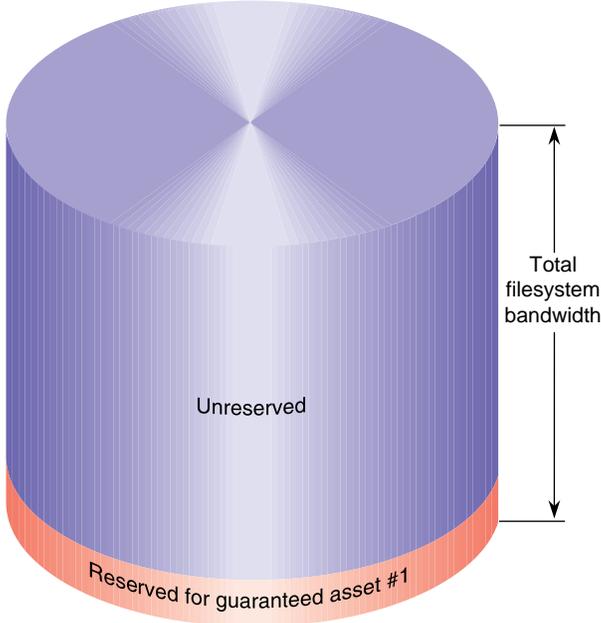
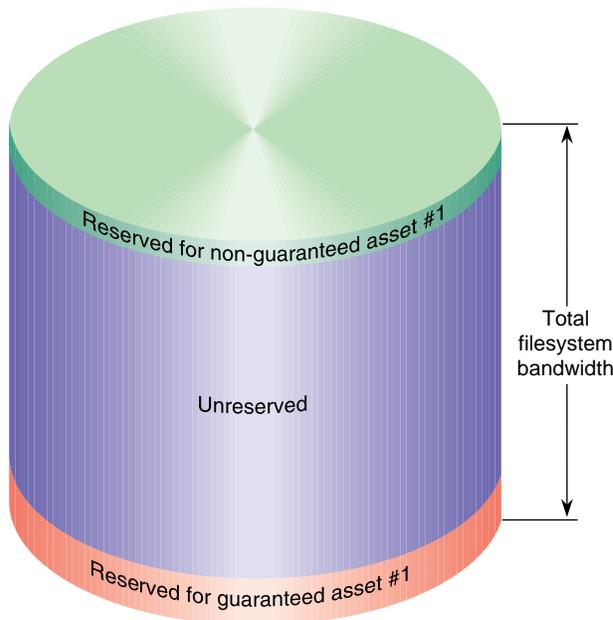


Figure 2-1 Reserving Bandwidth for a Guaranteed Asset

The bandwidth reserved for this guaranteed asset cannot be used to play back any other asset. This ensures that there's always sufficient bandwidth to satisfy ten simultaneous requests for this asset.

If a 1.5 Mbps non-guaranteed asset with 0.5 plays is installed, 0.75 Mbps of bandwidth are reserved for the asset (0.5 plays x 1.5 Mbps). This is illustrated in Figure 2-2.

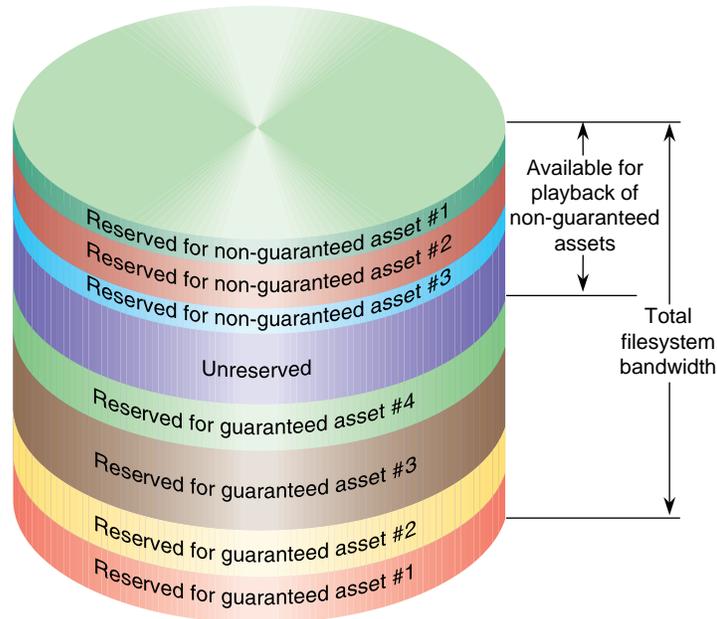


**Figure 2-2** Reserving Bandwidth for a Non-Guaranteed Asset

The bandwidth reserved for the non-guaranteed asset is not sufficient to play back the asset, because only a fraction of its bandwidth has been reserved. However, when playing back non-guaranteed assets, MediaBase uses both the bandwidth reserved for all non-guaranteed assets and the unreserved bandwidth. Unlike guaranteed assets, which are always assured of having available bandwidth for playback, non-guaranteed assets must vie with other assets for playback bandwidth.

## Use of Filesystem Bandwidth to Play Back Videos

Figure 2-3 illustrates how bandwidth is used when assets are played back.



**Figure 2-3** Playing Back Videos

This figure shows that there are four guaranteed assets and three non-guaranteed assets. The ability to play back one of the guaranteed assets depends on the number of plays and the number of simultaneous requests for that asset. As long as the number of simultaneous requests is smaller than or equal to the number of plays, requests are always satisfied. However, requests that exceed the guaranteed number of plays may be denied. For example, if the number of plays for one of the guaranteed assets is five, up to five people can play that asset at the same time. If a sixth person requests the asset while five people are playing it, that sixth request is treated like a request for a non-guaranteed asset. As such, it must compete with other non-guaranteed assets for bandwidth.

The ability to play back one of the non-guaranteed assets depends on the amount of bandwidth reserved for all non-guaranteed assets, the amount of unreserved bandwidth, and the combined bandwidth of the non-guaranteed assets that are already being played. As long as there is sufficient bandwidth available, the asset is played back. However, if there is insufficient bandwidth, the request is denied. Notice that playing back non-guaranteed assets can prevent other non-guaranteed assets from being played back.

For example, assume that the amount of bandwidth available for playback of non-guaranteed assets is 10 Mbps and that 7 Mbps are already being used to play back non-guaranteed assets. This means that 3 Mbps are available. If a request is made to play back a 5 Mbps asset, it is denied because there isn't sufficient bandwidth available. (This request is denied even though there may be bandwidth reserved for guaranteed assets that is not being used.) However, if a request is made to play back a 1.0 Mbps asset, the request can be satisfied because there is sufficient bandwidth.

An asset may be both a guaranteed and a non-guaranteed asset if the number of plays has both a whole number and a fractional part. For example, if the number of plays is 2.5, the asset has 2 guaranteed plays and 0.5 non-guaranteed plays. That is, at least two users can play back the asset at the same time. Others may be able to play back the asset, depending on whether there is sufficient bandwidth available when the requests are made.

---

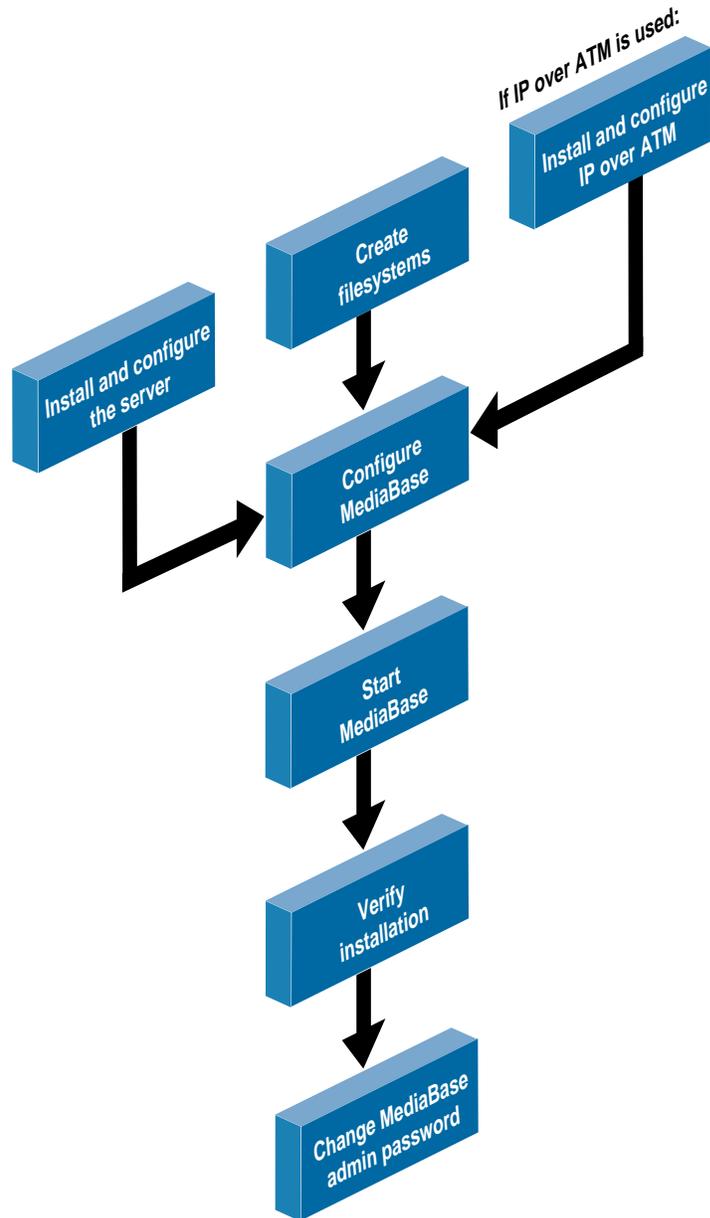
## Installing and Operating the WebFORCE Media Server

This chapter describes how to install and operate the WebFORCE Media Server. The following topics are included:

- “Installing and Configuring the WebFORCE Media Server” on page 13 describes how to install and configure the WebFORCE Media Server.
- “Changing the MediaBase Administration Password” on page 21 describes how to change the password associated with the MediaBase administration site and how to create additional users with MediaBase administration authority.
- “Starting and Stopping the WebFORCE Media Server” on page 22 describes how to operate the server from the command line.
- “Backing Up and Recovering the Database” on page 23 describes how to back up and recover the Informix database.
- “Renaming the Server” on page 25 describes how to change the name of the server or its domain.

### **Installing and Configuring the WebFORCE Media Server**

Figure 3-1 contains an overview of the installation and configuration process.



**Figure 3-1** Overview of the WebFORCE Media Server Installation and Configuration Process

The instructions that accompany the product, as well as the product's release notes, explain how to install and configure the server. The remainder of this section describes the other steps that are shown in Figure 3-1. The following topics are discussed:

- “Creating MediaBase Filesystems” on page 15 explains how to create filesystems managed by MediaBase.
- “Installing and Configuring IP Over ATM” on page 16 explains how to install and configure an IP over ATM network used with MediaBase.
- “Configuring and Starting MediaBase” on page 18 explains how to configure MediaBase resources and start MediaBase services.
- “Verifying the Installation of the Server” on page 20 explains how to verify that the server has been installed correctly.

## Creating MediaBase Filesystems

MediaBase manages one or more filesystems that it uses to store videos. The XFS filesystem with the guaranteed rate I/O (GRIO) subsystem should be used for this purpose. This enables MediaBase to guarantee the performance of videos because it can reserve filesystem bandwidth to play them. If XFS with GRIO is *not* used, videos can be stored in the filesystem, but MediaBase cannot guarantee their performance during playback.

The following apply to the way in which the XFS filesystem with GRIO should be set up:

- Striped real-time subvolumes should be used for video content. A stripe unit of 64 KB is required. The stripe size or width is then 64 KB times the number of disks in the logical volume. Each real-time subvolume must have 1, 2, or 4 disks.

When constructing the XFS filesystem on top of the XLV logical volume, the extent size of the real-time portion of the filesystem must be set to the stripe width. That is, the real-time subvolume extent size must be 64 KB, 128 KB, or 256KB. For example, if an XLV volume was created with 4 disks in the real-time subvolume, each with a stripe unit size of 64 KB, the stripe width would be 256 KB (4 x 64 KB). So the real-time filesystem extent size should be set to 256 KB.

- The MediaBase Media Delivery Service uses a specific type of GRIO rate guarantee to deliver data from an XFS real-time filesystem. It uses DEADLINE, PER\_FILE\_SYSTEM, PROC\_SHARED, NON\_ROTOR, HARD guarantees. These rate guarantee features are fully described in the GRIO portion of the *IRIX Admin: Disks and Filesystems* and the *REACT Real-Time Programmer's Guide* manuals. The most important rate guarantee feature to note when setting up a MediaBase server is the HARD\_GUARANTEE.

This means that the disks that are included in the real-time partition of an XFS file system used by MediaBase cannot share SCSI buses with disks that aren't real-time or with non-disk devices. (If MediaBase disks were to share SCSI buses with disks that aren't real-time or with non-disk devices, GRIO would deny requests for rate guarantees issued by MediaBase.)

- A license for an unlimited number of streams from XFS is needed.

See Appendix B, "Building XLV Logical Disk Volumes for MediaBase," for information about setting up the filesystem. This appendix also has detailed examples.

## Installing and Configuring IP Over ATM

This section explains how to install and configure the necessary software drivers, and configure the network interfaces, if you are using an IP over ATM network. If you aren't using an IP over ATM network, you can skip this section.

MediaBase supports IP over ATM data transport in the following two ways:

- classical IP over ATM network (RFC 1577 support)
- non-classical IP over ATM network (a FORE Systems<sup>®</sup> proprietary technology)

The classical IP over ATM interfaces (qa\* logical interfaces) support UNI3.0 signalling. The non-classical IP over ATM interfaces (fa\* logical interfaces) support FORE IP on top of FORE's proprietary SPANS signalling.

### Installing and Configuring the IP Over ATM Software Drivers

To use an IP over ATM network with MediaBase, you need to install and configure the necessary software drivers. The following procedure describes how to do this for either a classical or a non-classical IP over ATM network used with MediaBase:

1. Run the software installation and kernel configuration script provided by FORE Systems. The script is currently called *fore\_install*. This step installs and configures the drivers for the 200 family network interfaces.

During this installation step, you will be prompted by the *fore\_install* script for answers to questions about the kernel configuration. Be sure to request the following:

- use of ILMI for address registration
- configuration of classical IP
- configuration of classical IP interfaces (qa\*)
- configuration of ARP servers for the various interfaces and logical IP groups
- configuration of logical IP subnets with pre-assigned ARP servers

Refer to the FORE Systems manual for the network interface on your system for details about how to perform this step. For example, for the GIO bus, refer to the manual *ForeRunner GIA-200 ATM GIO Bus Adapter for Silicon Graphics User's Manual*.

2. Reboot the server with the new kernel.

### Configuring the IP Over ATM Network Interface

The following procedure describes the network administration tasks required to configure the IP over ATM network interface:

1. Assign IP addresses to the interface in the appropriate configuration files, so that the changes will be persistent across reboots.
2. Enable dynamic routing on the host by running the IP routing daemon(s).
3. Enable SPANS signalling and UNI3.0 signalling. This is currently performed by typing the following:

```
# $FOREDIR/etc/atm/atmconfig -s on fa0  
# $FOREDIR/etc/atm/atmconfig -u on qa0
```

**Note:** \$FOREDIR is the FORE directory.

4. Enable IP load balancing across multiple adapters. This is currently performed by typing the following:

```
# $FOREDIR/etc/atm/atmconfig -b on
```

5. Set the peak cell rate for FORE IP SVCs to 6 Mbps. This is currently performed by typing the following:

```
# $FOREDIR/etc/atm/atmconfig -q 6000 fa0
```

6. Set the MTU size to 16384 for optimal performance. This is currently performed by typing the following:

```
# $FOREDIR/etc/atm/atmconfig -m 16384 fa0
```

Refer to the FORE Systems manual for the network interface on your system for details about how to perform these steps. For example, for the GIO bus network interface, refer to the manual *ForeRunner GIA-200 ATM GIO Bus Adapter for Silicon Graphics User's Manual*.

## Configuring and Starting MediaBase

Before you configure and start MediaBase, the following must be done:

- The MediaBase software must be installed and the server machine must be configured, as detailed in the release notes for the product.
- At least one filesystem to be managed by MediaBase must be created, as explained in “Creating MediaBase Filesystems” on page 15.
- If an IP over ATM network is used, the network must be installed and configured, as described in “Installing and Configuring IP Over ATM” on page 16.

Make sure that all of these steps are completed before you configure and start MediaBase.

When you configure MediaBase, you'll use the MediaBase Server Configuration Tool which is accessed from the administration Web site. Refer to the following chapters for information about the Web site and the use of this tool:

- Chapter 4, “Using the MediaBase Administration Tools,” explains how to access the administration Web site and describes the behavior of Netscape Navigator when the administration tools are used.
- Chapter 5, “Configuring MediaBase,” explains how to configure MediaBase resources and how to start and stop MediaBase.

To configure and start MediaBase, follow these steps:

1. Use the following URL in Netscape Navigator to access the MediaBase administration site on the WebFORCE Media Server:

`http://hostname/mbase/admin`

where hostname is the name of the WebFORCE Media Server.

2. A window appears that prompts you for a MediaBase administration username and password. Enter a MediaBase administration username and password.

**Note:** The initial MediaBase administration username is “admin” and the initial password is “mbase-admin.”

The initial page for the MediaBase administration Web site appears. (See Chapter 4, “Using the MediaBase Administration Tools,” for information about using this Web site.)

3. Select *Server Administration* in the initial page for the MediaBase administration site to access the MediaBase Server Configuration Tool. Use this tool to identify and configure the resources for MediaBase to manage. These resources include the following:

- filesystems
- network interfaces
- MediaBase event log threshold
- multicast packet time-to-live value used by LANCast
- multicast IP addresses used by LANCast

At a minimum, you must identify and configure at least one filesystem and at least one network interface to be managed by MediaBase. (See Chapter 5, “Configuring MediaBase,” for information needed to complete this step.)

4. Use the MediaBase Server Configuration Tool to start MediaBase. See “Starting and Stopping MediaBase” on page 50 for information.

## Verifying the Installation of the Server

To verify the installation of the server, follow these steps:

1. Run the MediaBase consistency checker by typing the following:

```
# /usr/mbase/sbin/mbck
```

This utility checks the consistency of various objects in the MediaBase database and files on the server. It reports problems that it finds.

**Note:** There should be no errors produced by this utility.

2. Use the MediaBase Monitoring Tool to verify that the filesystem bandwidth allocated to MediaBase is greater than zero. See Chapter 6, “Monitoring MediaBase Resources,” for information about accessing the MediaBase Monitoring Tool.
3. Install a test video named “sgi\_ad” by entering the following:

```
# /usr/mbase/sbin/mbinst -a -s /usr/mbase/validation/install_sgi_ad
```
4. Install the MediaBase client on a workstation of your choice. See the following release notes for instructions about installing the MediaBase client:
  - The *mbase\_server* release notes explain how to install the MediaBase client on a non-Silicon Graphics workstation.
  - The *mbase\_client* release notes explain how to install the client on an IRIX 6.2 workstation.
5. Check that you have installed the server properly from the client’s perspective by doing the following:

- Use the following URL in Netscape Navigator on the client workstation, to access the MediaBase user Web site:

```
http://hostname/mbase
```

where hostname is the name of the WebFORCE Media Server.

- Click the link labelled “Find and Play Videos.” The Find a Video page should appear.
- Select the *Find* button to display a table with installed videos. The table should contain an entry for the “sgi\_ad” video.

- Click the *sgi\_ad* link to play the video on the workstation. The page changes to the Select Video Playback Method page. This page asks you to indicate whether the video should play in a separate window or in the Netscape Navigator window.
- Select how you want the video to be played.

If the video plays on the workstation, the WebFORCE Media Server has been installed successfully.

6. Check that you can access the Web-based version of this document by using the following URL in Netscape Navigator to access the Web-based version of this document:

`http://hostname/mbase/documentation`

where hostname is the name of the WebFORCE Media Server. The Web-based version of this document should appear in the Netscape Navigator window. You can also access the Web-based version of this document by clicking the Documentation link on the initial page of the user Web site.

7. Change the password associated with the MediaBase administration site by following the instructions in “Changing the MediaBase Administration Password” on page 21.

## Changing the MediaBase Administration Password

The MediaBase administration site provides access to the administration tools which are used for configuring and monitoring MediaBase, troubleshooting problems, and managing videos and LANCast showings. When the MediaBase administration site is accessed, a window appears that prompts the user for a MediaBase administration username and password. The initial MediaBase administration username is “admin” and the initial password is “mbase-admin.” You should change the password associated with the administration user after you verify the installation of the WebFORCE Media Server.

To change the password associated with the MediaBase administration user, follow these steps:

1. Use the following URL in Netscape Navigator to administer the Netscape Communications Server:

`http://hostname:81`

where hostname is the name of the WebFORCE Media Server. The Netscape Server Manager page should appear.

**Note:** The Netscape Server Manager comes without a password. It is highly recommended that you add a password after the server is installed. (See the Netscape documentation for information about how to do this.)

2. Click the link labelled "Netscape Communications Server." The Communications Server page should appear.
3. In the "User Databases" item, click the link labelled "Edit users in a database."
4. In the "Choose a database" item, select "mbase-admin-db" as the database name.
5. In the "Administrative password" item, enter `mbase-admin` (or whatever string you may have already set as the administrative password).
6. In the "Username and password" item, enter `admin` in the Username field.
7. In the "Username and password" item, enter the new password in the Password field.
8. Select the *Make These Changes* button in the bottom of the page for the new password to take effect.

**Note:** You can use the "Add user(s) to a database" form in a similar way to add additional users with MediaBase administration authority. These users can also use the tools in the MediaBase administration Web site.

## Starting and Stopping the WebFORCE Media Server

This section explains how to use the command line to start and stop the services that run on the WebFORCE Media Server. See Chapter 5, "Configuring MediaBase" for information about how to start and stop the services using the MediaBase ConfigurationTool.

## Starting the WebFORCE Media Server

To start the services on the WebFORCE Media Server, follow these instructions:

1. Log in to the server host as root, or become the superuser by issuing the *su* command.
2. Start the MediaBase daemons by typing the following:

```
# /etc/init.d/mediabase start
```

## Stopping the WebFORCE Media Server

To stop the services on the WebFORCE Media Server, follow these instructions:

1. Log in to the server host as root, or become the superuser by issuing the *su* command.
2. Stop the MediaBase daemons by typing the following:

```
# /etc/init.d/mediabase stop
```

## Backing Up and Recovering the Database

This section describes the procedures for backing up and recovering the Informix database. The following topics are discussed:

- “Backing Up the Database” on page 23
- “Recovering the Database” on page 24

### Backing Up the Database

The following should be noted about the procedure for backing up the database:

- The database will be backed up to a file named */usr/informix/data/root\_chunk.save*.
- The backup procedure will stop MediaBase.

To backup the database, do the following:

1. Verify that the `/usr/informix/data` directory has at least as much space as the size of the database. (The default size of the database is 200 megabytes.)
2. Log in to the server host as root, or become the superuser by issuing the `su` command.
3. Back up the database by entering the following:

```
# /usr/informix/bin/backuprootchunk
```



**Warning:** Be sure to back up this file or the containing filesystem to another media (for example, tape) to guard against loss due to catastrophic disk failure.

## Recovering the Database

The following should be noted about the procedure for recovering the database:

- The database will be recovered from a file named `/usr/informix/data/root_chunk.save`.
- All changes to the database since the backup file was created will be lost.
- The recover procedure will stop MediaBase.

To recover the database, do the following:

1. Log in to the server host as root, or become the superuser by issuing the `su` command.
2. Stop MediaBase by typing the following:

```
# /etc/init.d/mediabase stop
```

3. Stop Informix by typing the following:

```
# /etc/init.d/informix stop
```

4. The previous command may not work. If it doesn't, kill Informix by typing the following:

```
# killall oninit
```

5. Determine whether there are any shared memory segments left over by typing the following:

```
# ipcs -ma
```

If there are any shared memory segments belonging to Informix, you will see output that looks similar to the following:

```
IPC status from /dev/kmem as of Tue Jul 23 21:21:04 1996
T      ID      KEY          MODE          OWNER      GROUP  CREATOR  CGROUP
NATTCH SEGSZ  CPID  LPID   ATIME      DTIME      CTIME
Shared Memory:
m   1202 0x52564801 --rw-rw----   root informix   root
informix      12 5054464 16912 19696 21:21:00 21:21:01 20:23:00
m   1203 0x52564802 --rw-rw----   root informix   root
informix      12 8192000 16912 19696 21:21:00 21:21:01 20:23:00
m   1204 0x52564803 --rw-rw-rw-   root informix   root
informix      14 622592 16912 19696 21:21:00 21:21:01 20:23:10
m   1206 0x52564804 --rw-rw----   root informix   root
informix      12 8388608 16912 19696 21:21:00 21:21:01 20:41:38
```

6. If there are any segments that belong to Informix, as seen above, remove all the segments, one at a time, by typing the following for each segment:

```
# ipcrm -m SHARED_MEMORY_SEGMENT_ID
```

For example, the following removes the segment whose shared memory ID is 1202:

```
# ipcrm -m 1202
```

7. Recover the database by typing the following:

```
# /usr/informix/bin/restorerootchunk
```

This step automatically starts MediaBase and the Informix server.

8. Correct any errors reported by the previous step.

## Renaming the Server

MediaBase uses the fully qualified hostname of the server (for example, "lunch.wxy.com"). This section describes how to change this name if you want to change the name or domain of the server.

Table 3-1 identifies the names that are used in the examples in this section.

**Table 3-1** Names Used in Example Renaming the Server

Name Used in Examples	Description
lunch	old short name
dinner	new short name
lunch.wxy.com	old full name
dinner.xyz.org	new full name

To change the name of the server from “lunch.wxy.com” to “dinner.xyz.org”, follow these steps:

1. Log in to the server host as root, or become the superuser by issuing the *su* command.
2. Stop and disable both MediaBase and Informix by typing the following:

```
# /etc/init.d/mediabase stop
# /etc/init.d/informix stop
# chkconfig mediabase off
# chkconfig informix off
```
3. Change the name of the server or DNS domain of the server. Reboot the server, if necessary.
4. Edit the */usr/informix/etc/sqlhosts* file and change all occurrences of the old short or full name (e.g., “lunch” or “lunch.wxy.com”) to the new short or full name (e.g., “dinner” or “dinner.xyz.org”). The following example shows how to change the short name:

```
# ed /usr/informix/etc/sqlhosts
1,$s,lunch,dinner
w
q
```

The following example shows how to change the long name:

```
# ed /usr/informix/etc/sqlhosts
1,$s,lunch\.wxy\.com,dinner\.xyz\.org
w
q
```

5. Enable and restart Informix only by typing the following:

```
# chkconfig informix on
# /etc/init.d/informix start
```

6. Run the following command:

```
# /usr/mbase/sbin/renameserver -l
```

**Note:** Be sure to enter “-l” using the letter el and not the digit one.

This command should produce exactly one line of output, the old full name of the machine (e.g., “lunch.wxy.com”). If this command produces any kind of error message, make sure that Informix is running and MediaBase is not and try again. If this command produces more than one line of output, for instance both the lines

```
lunch.wxy.com
dinner.xyz.org
```

you have accidentally started MediaBase before performing these instructions properly. This is an error condition that must be rectified to allow MediaBase to function properly. Contact your Silicon Graphics support personnel for assistance.

7. If the above command produces the correct output, enter this command:

```
# /usr/mbase/sbin/renameserver ` /usr/mbase/sbin/renameserver -l `
` /usr/ocs/sbin/servername `
```

**Note:** This command must be on a single line, and backquotes must be entered. Be sure to enter “-l” using the letter el and not the digit one.

This is the same as saying run the *renameserver* utility with two arguments. The first argument is the old full name (whatever */usr/mbase/sbin/renameserver -l* printed, e.g., “lunch.wxy.com”). The second argument is the new full name (whatever */usr/ocs/sbin/servername* prints, e.g., “dinner.xyz.org”). The *renameserver* utility changes the name of the server within objects stored in the database.

8. When the previous command prints “done” (it may take a while to complete), check the result by running the following:

```
# /usr/mbase/sbin/renameserver -l
```

Verify that the output is a single line that is the new full name of the server.

9. Enable the MediaBase subsystem and restart services by typing the following:

```
# chkconfig mediabase on
# /etc/init.d/mediabase start
```



## Using the MediaBase Administration Tools

This chapter describes how to use the MediaBase administration tools which are used to configure and monitor MediaBase, troubleshoot problems, install and manage videos, and schedule LANCast videos for directed broadcast. The following topics are discussed:

- “Accessing the MediaBase Administration Web” on page 29 describes how to access the site that enables you to use the MediaBase tools.
- “Netscape Navigator Behavior” on page 32 describes the behavior of the Netscape Navigator window when the MediaBase tools are used.

### Accessing the MediaBase Administration Web

The MediaBase administration tools are accessed through the administration site.

To access the MediaBase administration site, follow these steps:

1. Use the following URL in Netscape Navigator to access the MediaBase administration site on the WebFORCE Media Server:

`http://hostname/mbase/admin`

where hostname is the name of the WebFORCE Media Server.

**Note:** You can also access the MediaBase administration site from the initial page of the user Web site.

2. A window appears that prompts you for a MediaBase administration username and password. Enter the username and the current password.

**Note:** The initial MediaBase administration username is “admin” and the initial password is “mbase-admin.” It is highly recommended that the password be changed after MediaBase has been installed. (See “Changing the MediaBase Administration Password” on page 21 for information about how to change the password.)

The initial page for the MediaBase administration site is shown in Figure 4-1.

Categories



**Figure 4-1** The MediaBase Administration Site

The categories give you access to the administration tools identified in Table 4-1.

**Table 4-1** Categories of MediaBase Tools

Category	Gives Access To
Server Administration	MediaBase Server Configuration Tool for configuring network interfaces, storage devices, event logging, and multicast communications; MediaBase Monitoring Tool for monitoring the performance of MediaBase; MediaBase Troubleshooting Tool for troubleshooting problems
Video Management	Video Management Tool for installing and managing videos; LANCast Management Tool for scheduling videos for directed broadcast

3. To use the desired administration tool, select the appropriate category. For example, to use the Video Management Tool, select the *Video Management* category. The Video Management Tool, which is shown in Figure 4-2, appears.



**Figure 4-2** The Video Management Tool

The banner displays a button that enables you to access the other category directly, without going back to the initial page for the MediaBase administration site. In addition, the banner has a *COSMO* button that gives you access to the initial page for the MediaBase administration site.

The navigation bar gives you access to the other tools in the same category. For example, to use the LANCast Management Tool, select *LANCast* in the navigation bar.

The table of contents on the tool's page gives you access to the various pages within the tool. If you click on the first entry in the table of contents, the initial page for the tool is displayed.

4. If the entire banner, including the category button and the navigation bar, isn't visible in your Netscape Navigator window, you can do the following:
  - Use the scroll bars to access the category button and navigation bar.
  - Resize the top frame until the entire banner is visible.
  - Resize the Navigator window until the entire banner is visible.
5. To go to the MediaBase user Web site, click the *COSMO* button on the initial page for the administration site.

## Netscape Navigator Behavior

This section describes the behavior of the Netscape Navigator window when MediaBase tools are used.

### Using the Reload Button

When you select *Reload* in the Netscape Navigator window, the initial window for the MediaBase tool redisplay. You may lose information you entered before you selected *Reload*.

For example, assume that you are using the Video Management Tool to install a new video. After entering a few fields on the Add Video page, you select *Reload*. The initial window for the Video Management Tool redisplay in the Netscape Navigator window. You lose the data that you entered in the Add Video page before you selected *Reload*.

### Using the Back Button

When you select *Back* in the Netscape Navigator window, the initial page of the previous MediaBase category displays. You may lose information you entered before you selected *Back*.

For example, if you used the Video Management Tool before you began using the MediaBase Server Configuration Tool, selecting *Back* puts you back into the Video Management Tool. The initial page of the Video Management Tool is displayed.

## **Resizing the Window**

Some tasks within a tool have more than one page that displays in the Netscape Navigator window. If you resize the window when a page other than the first page for the task is displayed, the resized page changes to the first page for that task.



---

## Configuring MediaBase

The procedures described in this chapter are used by a network administrator to configure MediaBase resources. The following topics are discussed:

- “Accessing the MediaBase Server Configuration Tool” on page 36 describes how to access the tool that enables the network administrator to configure MediaBase.
- “Configuring MediaBase Filesystems” on page 37 describes how to configure the filesystems managed by MediaBase.
- “Configuring MediaBase Network Interfaces” on page 41 describes how to configure the network interfaces managed by MediaBase.
- “Setting the Event Logging Threshold” on page 44 describes how to specify the detail level of the messages stored in the MediaBase event log.
- “Configuring Multicast” on page 45 describes how to define the multicast packet time-to-live value and the multicast IP addresses used for LANCast directed broadcasts.
- “Starting and Stopping MediaBase” on page 50 describes how to use the MediaBase Server Configuration Tool to start and stop MediaBase.

## Accessing the MediaBase Server Configuration Tool

The MediaBase Server Configuration Tool is used by the network administrator to identify and configure the resources managed by MediaBase. To access the MediaBase Server Configuration Tool, follow these steps:

1. Select *Server Administration* in the initial page for the MediaBase administration site to access the MediaBase Server Configuration Tool. (See “Accessing the MediaBase Administration Web” on page 29 for information about accessing the MediaBase administration site.) The MediaBase Server Configuration Tool is shown in Figure 5-1.

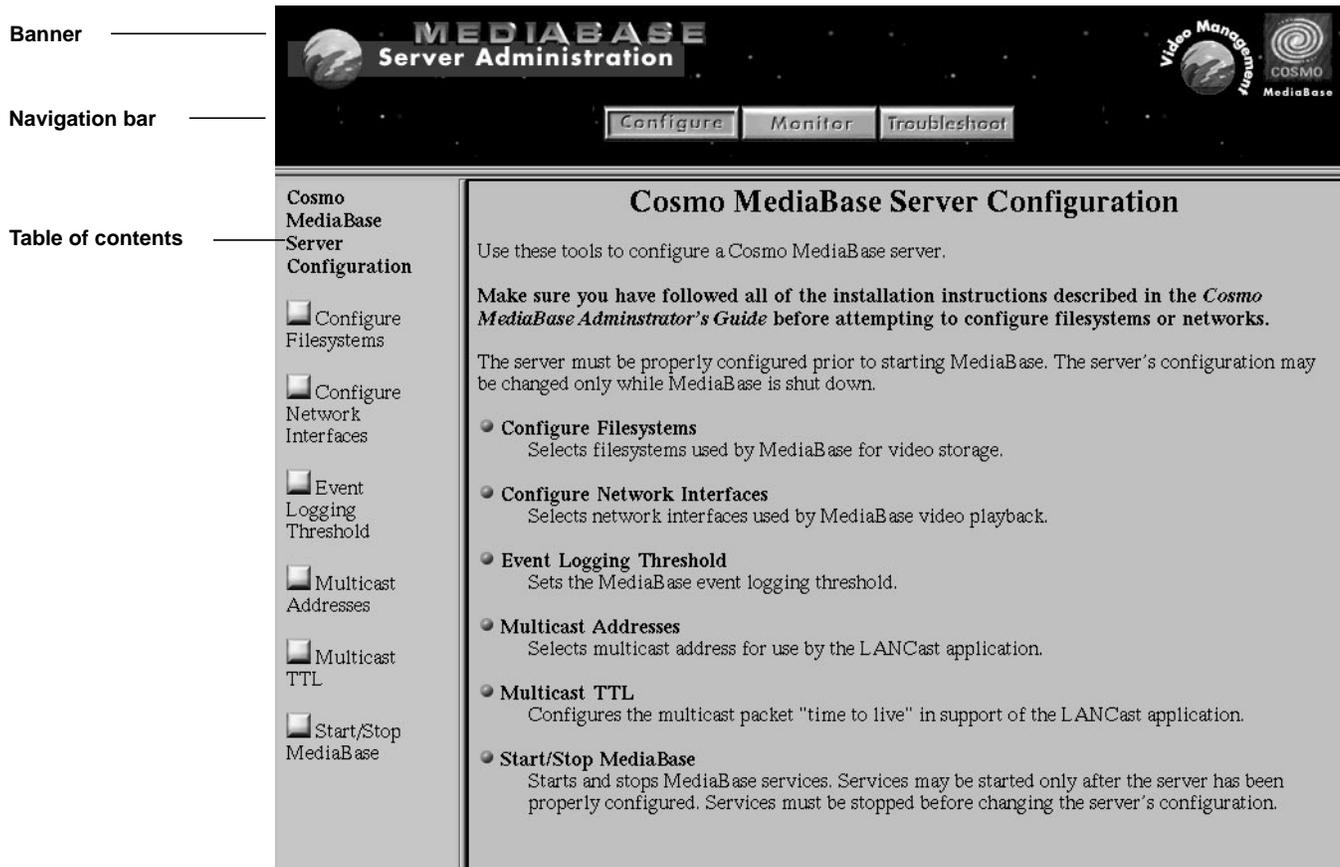


Figure 5-1 The MediaBase Server Configuration Tool

2. Select the appropriate button in the table of contents to perform the desired task.

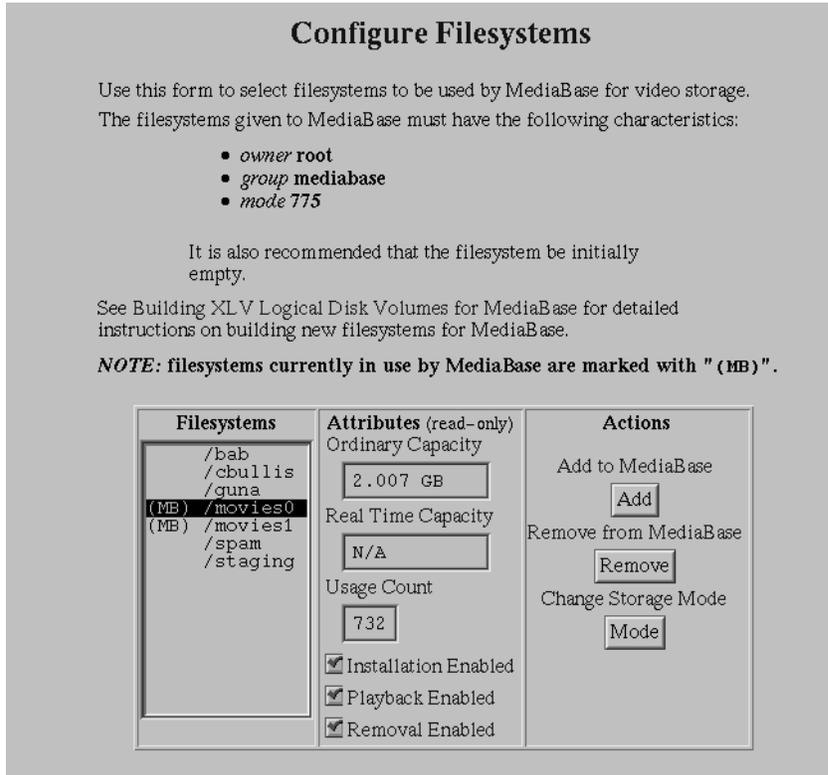
### **Using the Help Function**

The pages in the MediaBase Server Configuration Tool have online help, which appears in a separate window on the desktop. To access the online help, select a label that's rendered as a link by Netscape Navigator. The online help window appears.

## **Configuring MediaBase Filesystems**

To add, view, or change filesystems managed by MediaBase, follow these steps:

1. Select *Configure Filesystems* in the MediaBase Server Configuration Tool to access the Configure Filesystems page. The page is shown in Figure 5-2.



**Figure 5-2** The Configure Filesystems Page

The box under the label “Filesystems” lists the filesystems on the WebFORCE Media Server. If the name of the filesystem is preceded by “(MB),” the filesystem is currently managed by MediaBase.

2. Select the link labelled “Building XLV Logical Disk Volumes for MediaBase” for information about building MediaBase filesystems.

3. Select the name of the filesystem whose configuration you want to change. The following information displays:
  - total amount of ordinary storage capacity
  - total amount of real-time storage capacity; “N/A” appears if not a real-time filesystem
  - usage count, which is the number installed files
  - storage mode, which defines whether video installation, playback, and removal are enabled

This information is read-only, and cannot be changed.

4. If this filesystem is not managed by MediaBase, and you want MediaBase to manage it, select the *Add* button underneath the label “Add to MediaBase.”

**Note:** A filesystem can normally be added dynamically, while MediaBase is running. However, in some cases it may be necessary to stop MediaBase in order to add the filesystem. If that is the case, a message appears in a separate window when you select the *Add* button. The message instructs you to stop MediaBase before you add the filesystem.

5. If this filesystem is currently managed by MediaBase, and you want MediaBase to no longer manage it, select the *Remove* button underneath the label “Remove from MediaBase.”



**Warning:** Only filesystems whose usage count is zero should be removed. If the usage count is not zero, do not remove the filesystem from MediaBase.

6. To change the filesystem's storage mode, do the following:
  - Select the *Mode* button underneath the label "Change Storage Mode." The Change Filesystem Storage Mode page, which is shown in Figure 5-3, appears.

### Change Filesystem Storage Mode

*/movies0*

Use this form to change the MediaBase Storage mode of */movies0*.

**WARNING:** The storage mode should in most cases be set to *Normal Operation*.

Mode	Enables	Actions
<input checked="" type="radio"/> Normal Operation	<input checked="" type="checkbox"/> Installation Enabled	<input type="button" value="Submit"/>  <input type="button" value="Reset"/>  <input type="button" value="Cancel"/>
<input type="radio"/> Append-Only	<input checked="" type="checkbox"/> Video Playback Enabled	
<input type="radio"/> Preload	<input checked="" type="checkbox"/> Video Removal Enabled	
<input type="radio"/> Append-Only No Playback		
<input type="radio"/> Prepare for Removal		
<input type="radio"/> Playback-Only		
<input type="radio"/> Prepare for Removal No Playback		
<input type="radio"/> Disabled		

The MediaBase storage mode is indicated by the three enables shown in the center column of the above table.

Each of the 8 combinations of the enables is a storage mode appearing in the left column.

The first two columns are dynamic: changing the mode in the left column sets the enables in the center column to match; a change to the enables causes the mode to match.

Use the action buttons in the right column to commit changes made to the mode/enables (the *Submit* button), to reset the form to its initial settings (the *Reset* button), and to make no changes and return to the main form (the *Cancel* button).

**Figure 5-3** The Change Filesystem Storage Mode Page

The column headed “Mode” contains a description of the storage mode. The column headed “Enables” shows what is enabled for that mode. For example, the “Normal Operation” mode means that video installation, playback, and removal are all enabled. This is the recommended storage mode.

You can change the items either in the Mode column or in the Enables column. Whichever column you change, the appropriate items in the other column also change. For example, if the mode is currently “Normal Operation,” and you deselect “Video Playback Enabled,” the mode changes to “Preload.” (The “Preload” mode has only video installation and removal enabled. Video playback isn’t enabled in this mode.)

- Change the storage mode, as required.

**Caution:** Exercise caution when changing the storage mode. If the storage mode is improperly set, it may not be possible to install or play videos.

- To return this page to its initial setting, select the *Reset* button.
- To close this page without changing the storage mode, select the *Cancel* button.
- To commit the changes, select the *Submit* button.

## Configuring MediaBase Network Interfaces

To add, view, or change network interfaces managed by MediaBase, follow these steps:

1. If MediaBase is running, stop MediaBase. See “Starting and Stopping MediaBase” on page 50 for how to stop MediaBase.

**Note:** Network interfaces should not be configured while MediaBase is running. Doing so can lead to inconsistent behavior.

2. Select *Configure Network Interfaces* in the MediaBase Server Configuration Tool to access the Configure Network Interfaces page. The page is shown in Figure 5-4.

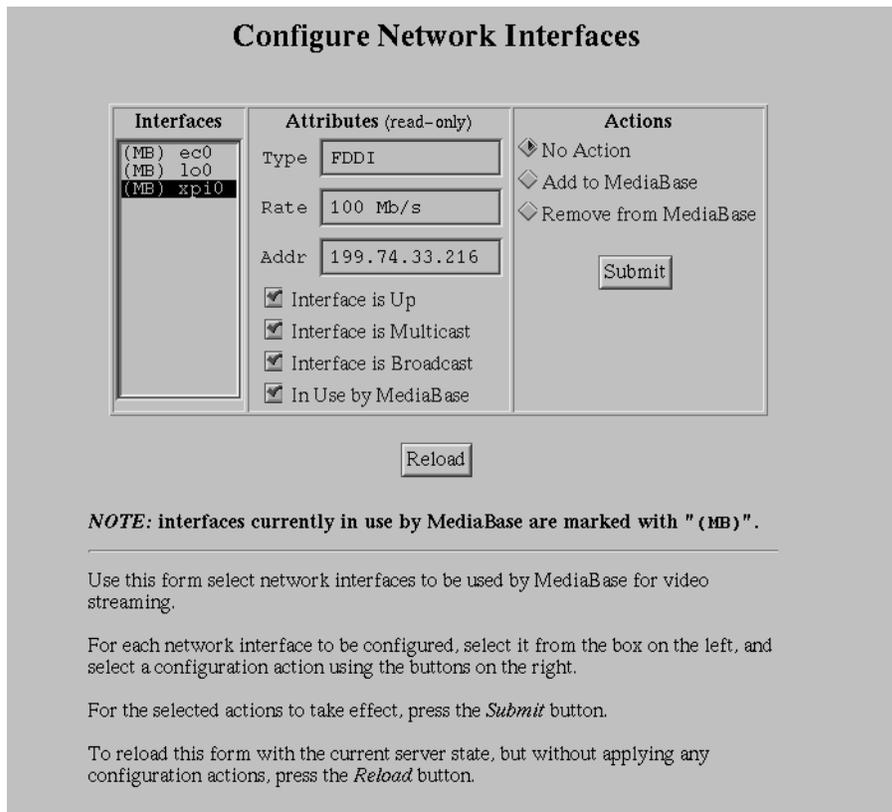


Figure 5-4 The Configure Network Interfaces Page

The box under the label “Interfaces” lists the network interfaces installed on the WebFORCE Media Server. If the name of the interface is preceded by “(MB)”, the interface is currently managed by MediaBase.

3. To display information about an interface, select the name of the interface. The following information about that interface is displayed:

- type of network interface
- bitrate in bits per second
- IP address
- status: a check in a box indicates whether the interface is up, whether it supports multicast and broadcast addressing, and whether it is currently managed by MediaBase

This information is read-only, and cannot be changed.

4. For each network interface whose configuration you want to change, do the following:

- Select the name of the network interface.
- If this interface is not managed by MediaBase, and you want MediaBase to manage it, select the box labelled “Add to MediaBase.”

**Note:** If the interface is for an IP over ATM network, be sure that the interface has been properly installed and configured before you add it to MediaBase. See “Installing and Configuring IP Over ATM” on page 16 for information.

- If this interface is currently managed by MediaBase, and you want MediaBase to no longer manage it, select the box labelled “Remove from MediaBase.”

5. After you make your changes to each network interface whose configuration you want to change, select *Submit*.

**Note:** You can select *Reload* at any time before you select *Submit* if you want to discard your changes. If you select *Reload*, the page is reset to the values it had when it was downloaded.

## Setting the Event Logging Threshold

For a description of the MediaBase event log, including information about how to view it and back it up, see “About the MediaBase Event Log” on page 60.

To change the event logging threshold, which can be changed dynamically, follow these steps:

1. Select *Event Logging Threshold* in the MediaBase Server Configuration Tool to access the Event Logging Threshold page, which is shown in Figure 5-5.



**Figure 5-5** The Event Logging Threshold Page

2. Select the box to the left of the level that describes the level of event logging you want.

**Note:** It is recommended that the threshold level be set to WARNING during normal operation. If there are problems, the threshold level should be set to DEBUG so that debugging information will be written to the log.

3. Select the *Select* button for that logging threshold level to take effect.

## Configuring Multicast

This section describes how to configure the LANCast IP addresses used for directed broadcast and the multicast time-to-live value.

### Configuring LANCast IP Addresses

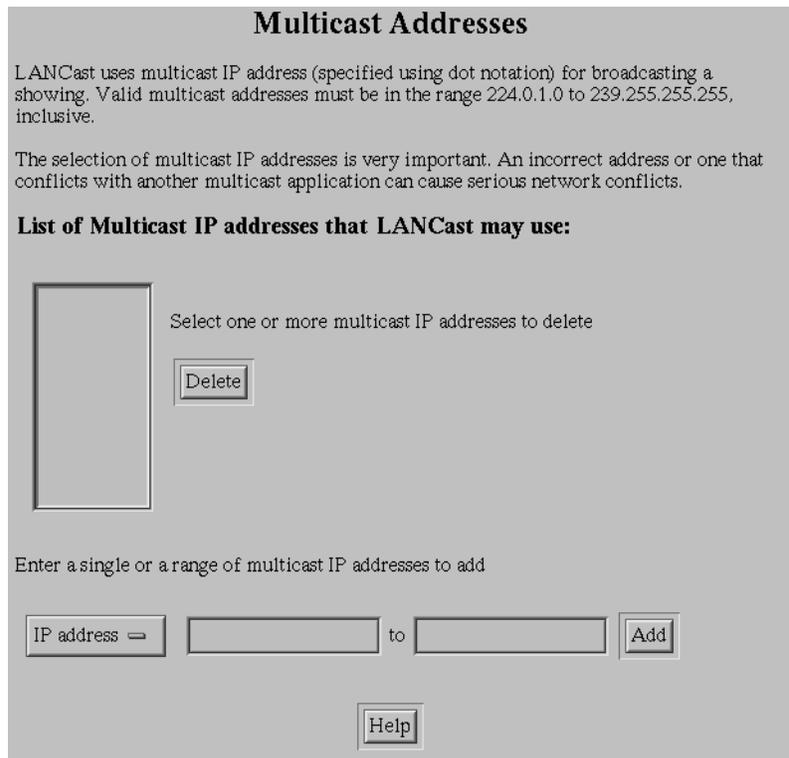
MediaBase assigns a multicast IP address to each LANCast scheduled video. Two videos can be assigned to the same multicast IP address as long as their scheduled times don't overlap.

For example, consider a video scheduled to be played between 1 p.m. and 2 p.m. on a given day. A video scheduled to be played between 11 a.m. and 12 noon on the same day can be assigned the same multicast IP address because there's no overlap in the scheduled times. However, a video scheduled to be played between 1:15 p.m. and 1:30 p.m. cannot be assigned the same address as the video scheduled between 1 p.m. and 2 p.m. because the playing times overlap.

The network administrator defines multicast addresses that are used exclusively by LANCast. Sufficient addresses should be defined to ensure that all scheduled videos can be played. If insufficient LANCast multicast addresses are defined, the LANCast administrator won't be able to schedule videos.

To add and delete LANCast IP addresses, which can be done dynamically, follow these steps:

1. Select *Multicast Addresses* in the table of contents of the MediaBase Server Configuration Tool. The Multicast Addresses page is shown in Figure 5-6.



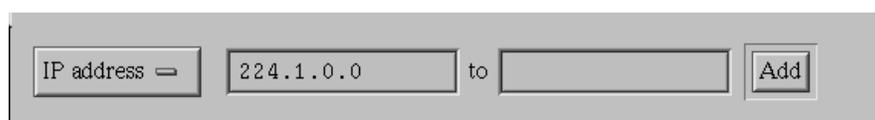
**Figure 5-6** The Multicast Addresses Page

The box on the left of the page lists the multicast IP addresses currently managed by MediaBase LANCast.

2. To add multicast IP addresses to LANCast, do the following:
  - Enter an IP address or a range of addresses to be managed by LANCast. The addresses must be within the range 224.0.1.0 through 239.255.255.255, inclusive.

**Note:** The range of addresses from 224.0.0.0 through 224.0.0.255, inclusive, is reserved for the system, regardless of the TTL value. These addresses are used by routing protocols and other low-level topology discovery or maintenance protocols, such as gateway discovery and group membership reporting. This range of addresses cannot be used for LANCast multicast addresses.

Figure 5-7 shows how to enter the single address 224.1.0.0.

A screenshot of a web-based configuration interface. It features a horizontal row of input fields and buttons. On the left is a label 'IP address' with a small arrow pointing right. Next to it is a text input field containing the IP address '224.1.0.0'. To the right of this field is the word 'to' followed by an empty text input field. At the far right of this row is a button labeled 'Add'.

**Figure 5-7** Adding a Single Multicast Address

Figure 5-8 shows how to enter a range that represents the addresses 225.1.0.0, 225.1.0.1, 225.1.0.2, 225.1.0.3, 225.1.0.4, and 225.1.0.5.

A screenshot of a web-based configuration interface, similar to Figure 5-7. It features a horizontal row of input fields and buttons. On the left is a label 'IP address' with a small arrow pointing right. Next to it is a text input field containing the IP address '225.1.0.0'. To the right of this field is the word 'to' followed by another text input field containing the IP address '225.1.0.5'. At the far right of this row is a button labeled 'Add'.

**Figure 5-8** Adding a Range of Multicast Addresses

- Select *Add* to add the multicast address. If there is no error, the addresses are added and they appear in the box on the left of the page. If there is an error, the error appears at the bottom of the page.
3. To delete IP addresses from LANCast, do the following:
    - Select one or more addresses in the box on the left of the page.
    - Select the *Delete* button.The addresses are deleted, and they are removed from the box on the left of the page.
  4. To obtain help information, select the *Help* button. The help information displays in a separate window.

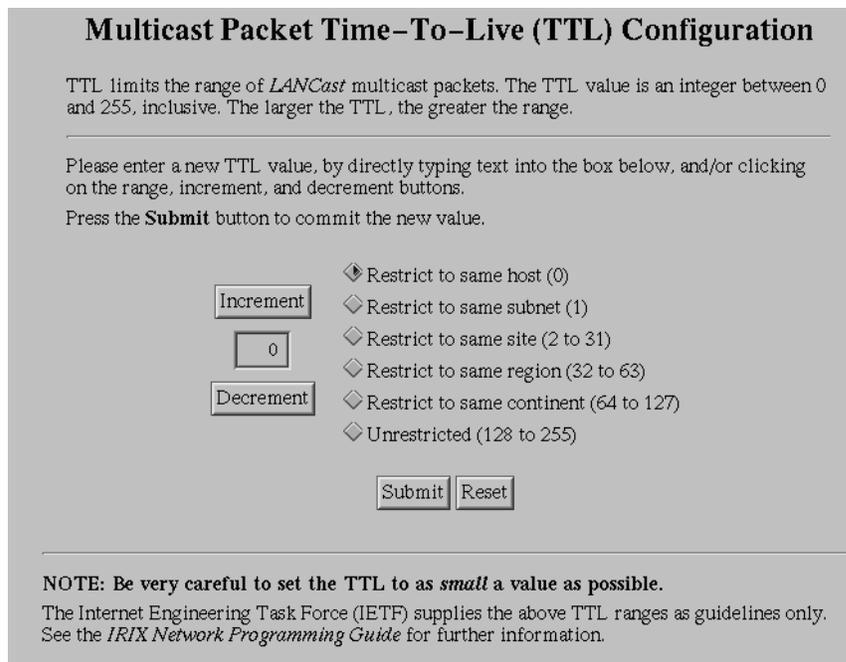
## Configuring the Multicast Packet Time-To-Live Value

The multicast time-to-live (TTL) value sets an upper limit on the number of multicast routers through which a multicast datagram can pass. The TTL value limits the lifetime of the datagram. This prevents packets from getting caught in never-ending routing loops.

There is a single TTL value, and it applies to all videos scheduled through LANCast. If the TTL value is changed (which can be done dynamically), the new value applies to all subsequent connections.

To change the multicast packet time-to-live value, follow these steps:

1. Select *Multicast* in the MediaBase Server Configuration Tool to access the Multicast Packet Time-To-Live Configuration page, which is shown in Figure 5-9.



**Multicast Packet Time-To-Live (TTL) Configuration**

TTL limits the range of *LANCast* multicast packets. The TTL value is an integer between 0 and 255, inclusive. The larger the TTL, the greater the range.

Please enter a new TTL value, by directly typing text into the box below, and/or clicking on the range, increment, and decrement buttons.

Press the **Submit** button to commit the new value.

Restrict to same host (0)  
  Restrict to same subnet (1)  
  Restrict to same site (2 to 31)  
 Restrict to same region (32 to 63)  
 Restrict to same continent (64 to 127)  
 Unrestricted (128 to 255)

**NOTE: Be very careful to set the TTL to as *small* a value as possible.**  
The Internet Engineering Task Force (IETF) supplies the above TTL ranges as guidelines only. See the *IRIX Network Programming Guide* for further information.

**Figure 5-9** The Multicast Packet Time-To-Live Configuration Page

2. Change the TTL value by doing one or more of the following:
  - Enter a value from the keyboard.
  - Select the *Increment* button to increase the TTL value by one each time you select the button.
  - Select the *Decrement* button to decrease the TTL value by one each time you select the button.
  - Select the appropriate guideline button if you wish to use a guideline as a starting point. For example, if you wish to restrict the multicasts to the same region, select the button to the left of that guideline. The value “32” (the lower end of the range) appears for the TTL value.

3. Select *Submit* to tell MediaBase to use the new value.

**Note:** After you change the TTL value, the appropriate guideline becomes selected. For example, if you change the TTL value to 45, the guideline labelled “Restrict to same region” becomes selected.

You also must assign multicast IP addresses to MediaBase to use LANCast. See “Configuring LANCast IP Addresses” on page 45 for information about how to do this.

## Starting and Stopping MediaBase

The *Start/Stop MediaBase* button in the table of contents of the MediaBase Server Configuration Tool enables you to start and stop MediaBase. These actions are taken as soon as you confirm your request, regardless of the activity on the server at the time.

To start or stop MediaBase, follow these steps:

1. Select *Start/Stop MediaBase* in the MediaBase Server Configuration Tool table of contents. An appropriate confirmation page appears in the window. For example, if MediaBase is running, the MediaBase is Running confirmation page appears. This page is shown in Figure 5-10.



**Figure 5-10** The MediaBase is Running Confirmation Page

2. If MediaBase is running and you want to stop it, select the *Stop MediaBase* button on the confirmation page. If you don't want MediaBase to be stopped, select a different entry in the table of contents of the MediaBase Server Configuration Tool.

When you select the *Stop MediaBase* button, the page changes to indicate that MediaBase has been stopped. (See “Stopping the WebFORCE Media Server” on page 23 for how to stop MediaBase from the command line.)

3. If MediaBase is not running and you want to start it, select the *Start MediaBase* button on the confirmation page. If you don't want MediaBase to be started, select a different entry in the table of contents of the MediaBase Server Configuration Tool.

When you select the *Start MediaBase* button, the page changes to indicate that MediaBase has been started. (See "Starting the WebFORCE Media Server" on page 23 for how to start MediaBase from the command line.)

4. To verify that the requested action has been performed, select the link labelled "MediaBase Services Monitor" to access the page that shows which MediaBase services are running.



## Monitoring MediaBase Resources

This chapter describes how to monitor MediaBase resources. The following topics are discussed:

- “Accessing the MediaBase Monitoring Tool” on page 53 describes how to access the tool that is used by the network administrator to monitor MediaBase resources.
- “Monitoring Network Interfaces” on page 55 describes how to monitor MediaBase network interfaces.
- “Monitoring MediaBase Services” on page 57 describes how to monitor MediaBase services and log files. Information about the location of core files and Media Delivery Service processes is included.
- “Monitoring Storage Use” on page 65 describes how to monitor storage use.

### Accessing the MediaBase Monitoring Tool

The MediaBase Monitoring Tool is used by the network administrator to monitor the resources managed by MediaBase. It is also used to determine the status of the services that are part of MediaBase.

To access the MediaBase Monitoring Tool, follow these steps:

1. Select *Server Administration* on the initial page for the MediaBase administration site. (See Chapter 4, “Using the MediaBase Administration Tools,” for information about accessing the MediaBase administration site.)

2. Select *Monitor* in the navigation bar. The MediaBase Monitoring Tool, which is shown in Figure 6-1, appears.

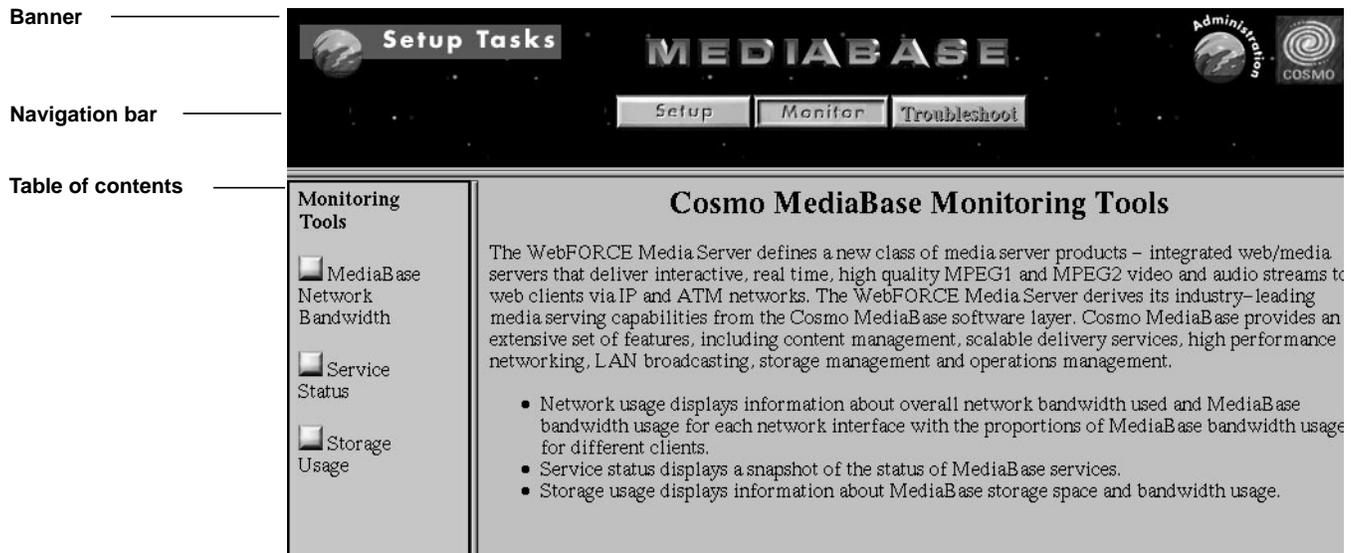


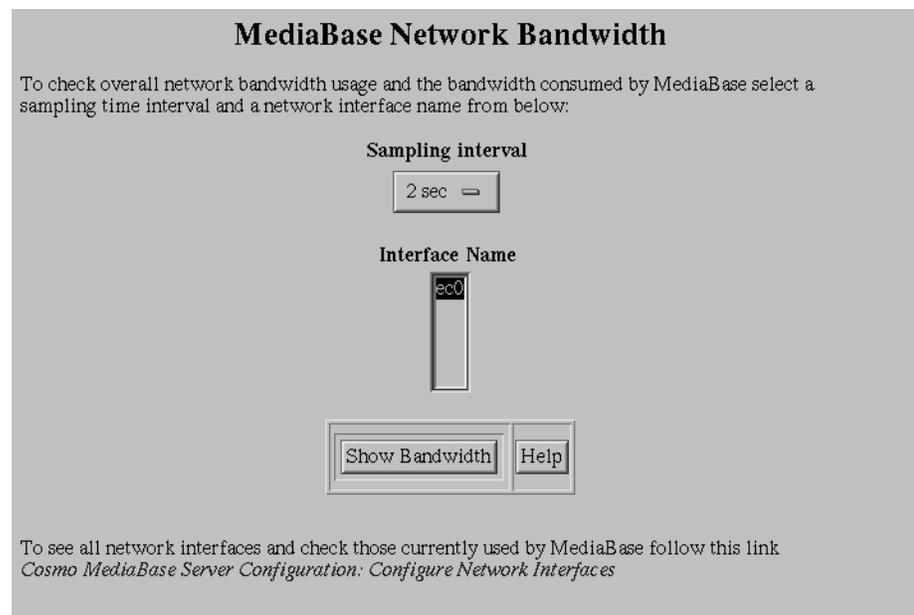
Figure 6-1 The MediaBase Monitoring Tool

3. Select one of the following buttons in the table of contents to access the desired page in the MediaBase Monitoring Tool:
  - *MediaBase Network Bandwidth* to monitor network interfaces managed by Mediabase
  - *Service Status* to determine which MediaBase services are running
  - *Storage Usage* to monitor filesystems managed by Mediabase

## Monitoring Network Interfaces

To obtain network bandwidth information for a particular network interface on the server, follow these steps:

1. Select *MediaBase Network Bandwidth* in the table of contents of the MediaBase Monitoring Tool. The MediaBase Network Bandwidth page, which is shown in Figure 6-2, appears.

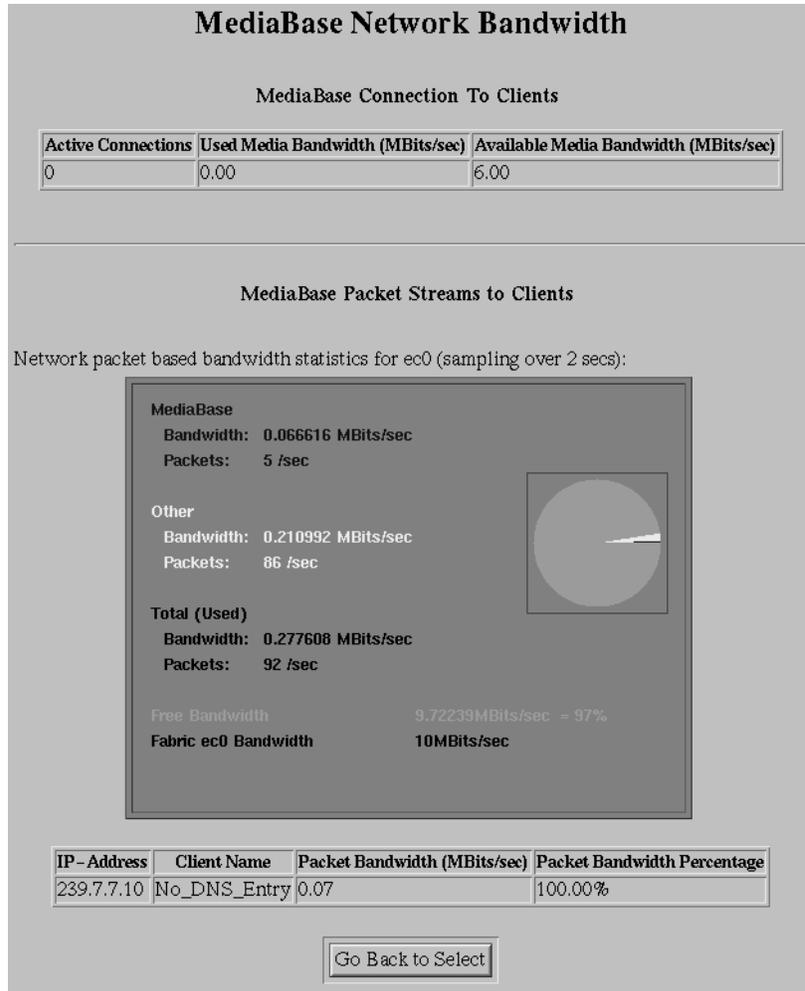


**Figure 6-2** The MediaBase Network Bandwidth Page

The box underneath the Interface Name label lists each active network interface on the system. (A “+” sign before the name of an interface indicates that only statistics related to MediaBase connections will be gathered and network packet statistics will not be determined.) To see which interfaces are managed by MediaBase, select the hyperlink to “Configure Network Interfaces” shown below the buttons.

2. To see an explanation of this page, select the *Help* button. The help information displays in a separate window.
3. To change the sampling interval, use the sampling interval pop-up menu to select a different interval.

4. Select the name of the interface for which you want to display bandwidth use.
5. Select the *Show Bandwidth* button. The page changes to show the network bandwidth use for the selected interface. This is shown in Figure 6-3.



**Figure 6-3** MediaBase Network Bandwidth Page Showing Bandwidth Use

The MediaBase Network Bandwidth page shows information about connections to clients as well as the total bandwidth and the bandwidth used during the sampling interval.

6. To select another interface whose bandwidth use you want to see, select the *Go Back to Select* button.

See “Troubleshooting Network Problems” on page 76 for information about the Connection Manager, which is the service that manages the network, and information about troubleshooting network problems.

## Monitoring MediaBase Services

MediaBase consists of services that perform specific functions. For example, the Media Delivery Service is the service that streams videos at a constant bitrate to client workstations, and the Storage Manager is the service that stores video data in the MediaBase filesystem.

This section discusses how to monitor MediaBase services. The following topics are discussed:

- “Determining the Status of MediaBase Services” on page 58 describes how to determine service status. If there are problems with MediaBase (for example, videos cannot be installed), the first step should be to determine the status of MediaBase services.
- “About Media Delivery Service Processes” on page 59 identifies processes spawned by the Media Delivery Service.
- “About the MediaBase Event Log” on page 60 describes the log to which MediaBase services write messages, and explains how to view it and back it up.
- “About the Informix Message Log” on page 63 identifies the location of the Informix message log and explains how it is backed up.
- “Where Core Files Are Stored” on page 63 explains where core files are stored if a MediaBase service crashes.

## Determining the Status of MediaBase Services

To determine the status of MediaBase services, select *Service Status* in the table of contents of the MediaBase Monitoring Tool. The Service Status page, which is shown in Figure 6-4, appears.



**Figure 6-4** The Service Status Page

The color of the bullet to the left of the service name indicates the service's status. The color of the bullet may be one of the following:

- A green bullet indicates that the associated service is up and running.
- A red bullet indicates that the associated service is down. If a service is down, you should look at the MediaBase event log to determine whether the log has any messages that indicate why the service is down.

If all the lights are red, MediaBase isn't running. You can use the MediaBase Configuration Tool to start it. (See "Starting and Stopping MediaBase" on page 50 for more information.)

- A yellow bullet indicates that the associated service is unresponsive. The service may be unresponsive because it is overloaded or because there is a problem. If the service is overloaded, the situation is temporary and will resolve itself after some time. If there is a problem, it will not be resolved over time. In this case, you should look at the MediaBase event log to determine whether the log has any messages that indicate why the service is unresponsive.

### About Media Delivery Service Processes

The Media Delivery Service (MDS) is the MediaBase service that sends videos to client workstations. The MDS has the following processes associated with it:

- front end processes named *mdsfe*, which communicate with the Storage Manager and the Communications Manager
- one system-wide delivery service control process named *mds*
- one feeder process named *mds*, for each cpu that's actively sending videos to clients

**Note:** Each feeder process can handle approximately 120 videos. Another feeder process is spawned if the number of active videos handled by the cpu exceeds this limit.

- one normal-file reader process named *mds*, for each movie being sent to a client
- one I-frame reader process named *mds*, for each movie being sent to a client, if the client's player supports fast forward/rewind

The *mds* process with the smallest process id is the MDS control process.

## About the MediaBase Event Log

Most MediaBase services write information to the MediaBase event log. Each log entry identifies the WebFORCE Media Server, the service that logged the message, the severity of the message, a message ID, a timestamp, and the message. Severity levels used in these log entries are identified in Table 6-1.

**Table 6-1** MediaBase Log Severity Codes

Severity Code	Severity Level	Meaning
2	CRITICAL	Message has system-wide impact; for example, a service fails to start. Immediate action is required.
3	ERROR	Message indicates that there is a problem that needs correcting; for example, a video file cannot be opened. Does not require immediate action.
4	WARNING	Message indicates that there may be a problem, for example, that no network connections are available. The problem may be transient.
6	INFO	Message contains information such as the successful completion of a task or the successful starting of a service.
7	DEBUG	Message used by engineers for debugging.

The highest level message, which is the most severe, is CRITICAL. The lowest level message, which is the least severe, is DEBUG.

MediaBase maintains an event logging threshold that determines the message levels that are written to the log. All messages at and above that threshold level are written. For example, if the threshold is set to WARNING, then WARNING, ERROR, and CRITICAL messages are written to the log. If the threshold is set to DEBUG, then all messages are written to the log.

See “Configuring MediaBase Network Interfaces” on page 41 for information about how to set the event logging threshold. It is recommended that the threshold level be set to WARNING during normal operation. If there are problems, the threshold level should be set to DEBUG so that debugging information will be written to the log.

The MediaBase event log is stored in `/usr/ocs/logs/mbaselog.local`. It should be monitored on a regular basis. In addition, if there are problems with MediaBase services (for example, videos cannot be installed), you should review the event log to look for messages that may indicate the cause of the problem.

The MediaBase event log can be viewed using `/usr/ocs/sbin/viewlog`. The following sample line shows an informational message that is output from `/usr/ocs/sbin/viewlog`:

```
media_server LANCast INFO 9600 Jun 11 17:15:01 : DAEMON STARTED
```

In this sample line, “media\_server” is the name of the server, “LANCast” is the service, 9600 is the message ID, “June 11 17:15:01” is the timestamp, and the actual message is “DAEMON STARTED.”

The following sample line from `/usr/ocs/sbin/viewlog` shows a critical message:

```
media_server namesrvr CRITICAL 4414 Jun 11 17:15:02 :  
createDB::rootContext[POSDefs::StoreException]
```

In this sample line, “namesrvr” is the service and the actual message is “createDB::rootContext[POSDefs::StoreException].”

### Monitoring the MediaBase Event Log

To monitor messages as they are added to the MediaBase event log, use the following command:

```
tail -f /usr/ocs/logs/mbaselog.local | /usr/ocs/sbin/viewlog
```

To view all the messages in the MediaBase event log, use the following command:

```
/usr/ocs/sbin/viewlog /usr/ocs/logs/mbaselog.local
```

**Note:** In the event that services cannot write to the MediaBase event log, services will write to the system log in `/var/adm/SYSLOG`. Therefore, you should also monitor the system log for MediaBase messages.

### Backing Up the MediaBase Log

The MediaBase event log can grow very large because services continually write log messages to it. For this reason, the following is done by the system at 2 a.m. each morning:

- The MediaBase event log is backed up to a file named *mbaseolog.local.backup.n*, where “n” is a number beginning with zero. For example, the first time the log is backed up, the log is copied to a file named *mbaseolog.local.backup.0*. The second time it’s backed up, the log is copied to a file named *mbaseolog.local.backup.1*.

The backup files are stored in the */usr/ocs/logs* directory, which is the directory that contains the MediaBase event log, *mbaseolog.local*.

- If there are more than ten log backup files, all but the ten most recent backups are removed.
- The event log is emptied.

These automatic backups are scheduled through a *crontab* entry that forces the */usr/ocs/logs/rotatelog*s command to be executed at 2 a.m. each morning. If you wish to change the time or frequency of these backups, edit root’s *crontab* file. If you want to change the number of log backups that are retained, find the line in the *crontab* file that executes the *rotatelog*s command. Then add the argument “-m #backups” to this line, where #backups is the number of backup files that should be retained.

The */usr/ocs/logs/rotatelog*s command uses the *backuplog* utility to backup the log and clear it. You can use this utility directly if you want to backup the log manually.

**Note:** The log service must be running when you use this utility. To determine whether the service is running, use the Service Status page described in “Determining the Status of MediaBase Services” on page 58.

The following example shows how to use the *backuplog* utility:

```
% su
# /usr/ocs/sbin/backuplog
```

Each time that *backuplog* is run, it copies the MediaBase event log to a file named *mbaseolog.local.backup.n*. The utility then empties the event log.

To conserve disk space, you can periodically remove these log backups.

## About the Informix Message Log

The Informix relational database system writes to its own log file, which is stored in */usr/informix/online.log*. This message log can also grow very large. For this reason, the following is done by the system at 2 a.m. each morning:

- The Informix message log is backed up to a file named *online.log.backup.date*, where “date” is the date on which the backup was created. For example, the backup named *online.log.backup.96jul23* was created on July 23, 1996.

The backup files are stored in the */usr/informix* directory, which is the directory that contains the Informix log, *online.log*.

- If there are more than ten log backup files, all but the ten most recent backups are removed.
- The Informix message log is emptied.

These automatic backups are scheduled through a *crontab* entry that forces the */usr/informix/bin/backupmsglog* script to be executed at 2 a.m. each morning. If you wish to change the time or frequency of these backups, edit root’s *crontab* file. If you want to change the number of log backups that are retained, find the line in the *crontab* file that executes the *backupmsglog* script. Then add the argument “-m #backups” to this line, where #backups is the number of backup files that should be retained.

## Where Core Files Are Stored

If a MediaBase service crashes, it may create a core file. In order to be able to preserve core files for different services, each service has its own directory into which its core files are written.

MediaBase services store their core files in */usr/ocs/coredir* and */usr/mbase/coredir*. Table 6-2 identifies the directories contained in */usr/ocs/coredir*. The column headed “MediaBase Service” identifies the service that stores its core file in that directory. The name in this column is the service name that appears on the Service Status page of the MediaBase Monitoring Tool.

**Table 6-2** Core Directories in */usr/ocs/coredir*

Directory Name	MediaBase Service
cbsrvr	Callback Service
logd	Local Log Daemon
namesrvr	Name Service
ras	Resource Audit Service

Table 6-3 identifies the directories contained in */usr/mbase/coredir*.

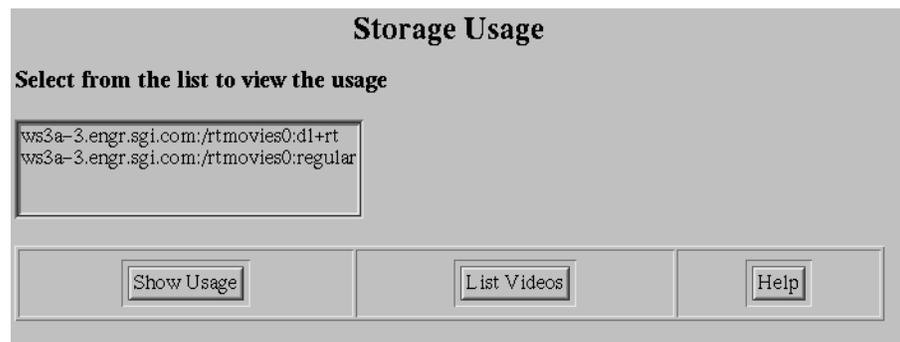
**Table 6-3** Core Directories in */usr/mbase/coredir*

Directory Name	MediaBase Service
chkserveron	Informix
csm	Subcluster Storage Manager
ggdgc	XFS Guarantee Granting Daemon, XFS Guarantee Reclaiming Daemon
mb_proxy	MediaBase Proxy Service
ins_svc	Installation Service
mds	Media Delivery Service, MDS Front End
scm	Server Connection Manager
showtimed	LANCast Daemon
ssm	Server Storage Manager
xps	Xing Proxy Service

## Monitoring Storage Use

To monitor storage use, follow these steps:

1. Select *Storage Usage* in the table of contents of the MediaBase Monitoring Tool. The Storage Usage page, which is shown in Figure 6-5, appears.



**Figure 6-5** The Storage Usage Page

2. To see information about a storage device, do the following:
  - Select the storage device for which you want to view storage information.
  - Select the *Show Usage* button. The information about the storage device displays below the Storage Usage page.
3. To see the videos stored in a storage device, do the following:
  - Select the storage device whose videos you want to see.
  - Select the *List Videos* button. The information about the videos displays below the Storage Usage page.



---

## Troubleshooting Problems

This chapter discusses how to troubleshoot MediaBase problems. The following topics are discussed:

- “Accessing the MediaBase Troubleshooting Tool” on page 67 describes how to access the tool used to troubleshoot problems.
- “Troubleshooting Problems on the Server” on page 69 describes how to check the use of physical memory, the processor, and swap space on the server.
- “Checking Accessibility of Videos” on page 75 describes how to verify that a video can be opened and to obtain information about a video’s files.
- “Troubleshooting Network Problems” on page 76 describes how to troubleshoot problems with the network.
- “Determining Whether a Client Is Accessible on the Network” on page 74 describes how to determine whether a particular client is accessible from the server.
- “Troubleshooting Problems With the Informix Database” on page 81 describes how to troubleshoot problems with the Informix database, such as when the database runs out of space.

### Accessing the MediaBase Troubleshooting Tool

To access the MediaBase Troubleshooting Tool, follow these steps:

1. Select *Server Administration* on the initial page for the MediaBase administration site. (See Chapter 4, “Using the MediaBase Administration Tools,” for information about accessing the MediaBase administration site.)
2. Select *Troubleshoot* in the navigation bar to access the MediaBase Troubleshooting Tool. The MediaBase Troubleshooting Tool is shown in Figure 7-1.

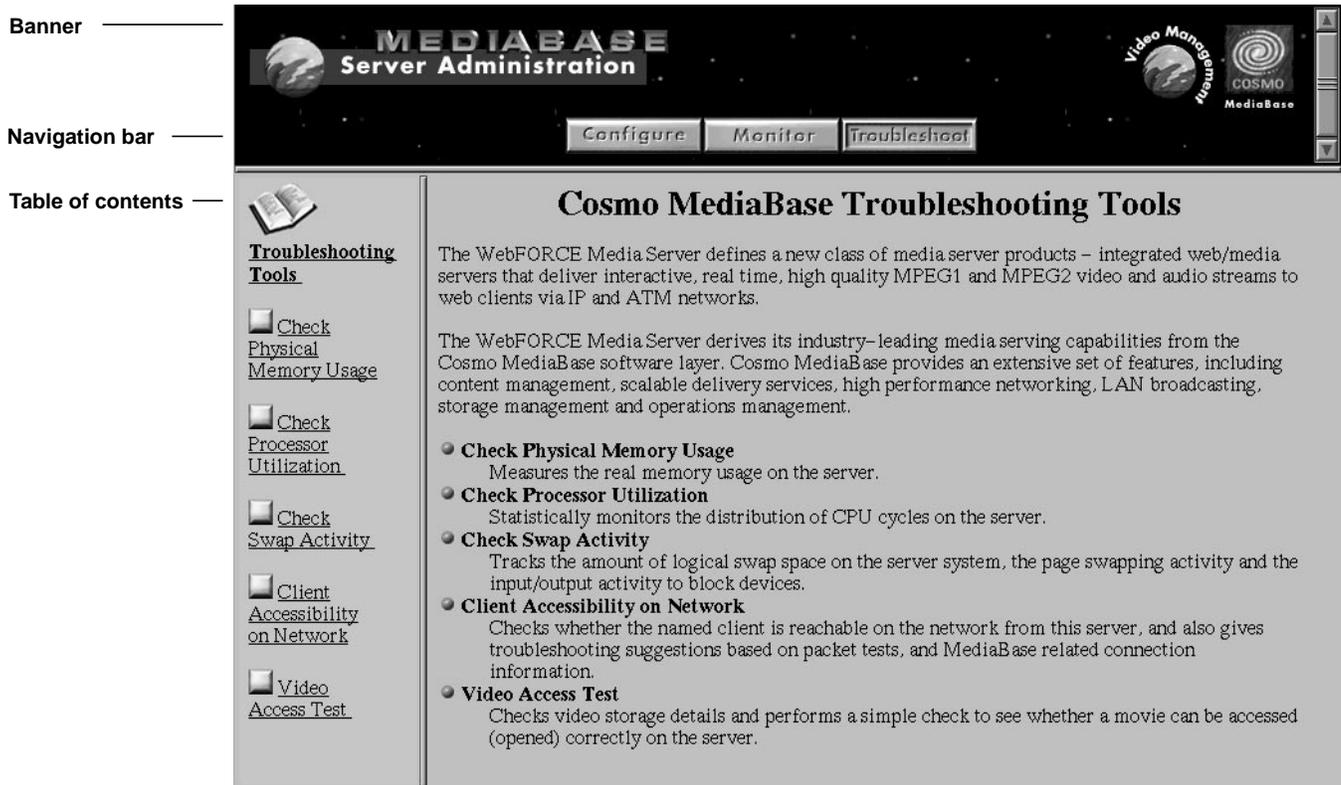


Figure 7-1 The MediaBase Troubleshooting Tool

3. Select one of the following buttons in the table of contents to access the desired page in the MediaBase Troubleshooting Tool:
  - *Check Physical Memory Usage* to determine real memory use on the server
  - *Check Processor Utilization* to determine the distribution of CPU cycles between user programs, the operating system, interrupt overhead, graphics, and idle time on the server

- *Check Swap Activity* to determine the amount of logical swap space on the system, the page swapping activity, and the input/output activity to block devices on the server
- *Client Accessibility on Network* to check whether a client is reachable on the network from the server, and to obtain information about packet transmission times gathered from pings of the server
- *Video Access Test* to perform a simple check to see whether a movie can be opened correctly on the server and to obtain information about filesystem resources used by a video

## Troubleshooting Problems on the Server

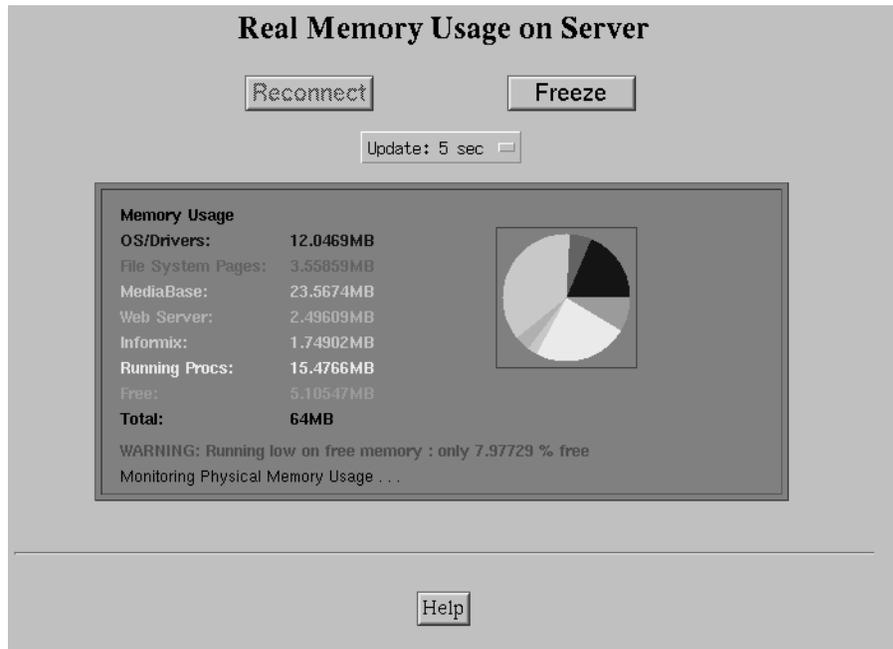
This section discusses how to troubleshoot problems on the WebFORCE Media Server. The following topics are discussed:

- “Checking Physical Memory Use” on page 70
- “Checking Processor Utilization” on page 71
- “Checking Swap Activity” on page 73

## Checking Physical Memory Use

To check the use of physical memory on the server, follow these steps:

1. Select *Check Physical Memory Usage* in the table of contents of the MediaBase Troubleshooting Tool. The Real Memory Usage on Server page, which is shown in Figure 7-2, appears.



**Figure 7-2** The Real Memory Usage on Server Page

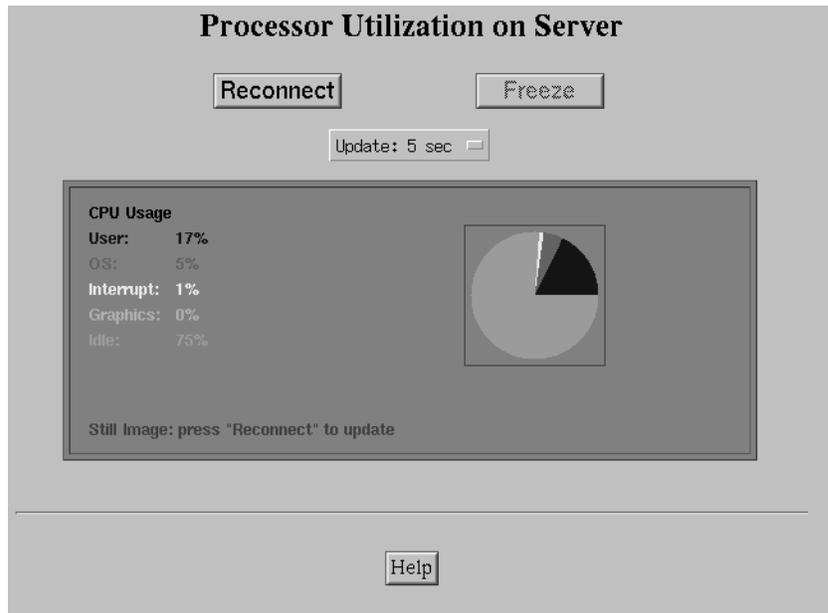
This page is updated according to the update interval shown on the page.

2. To obtain information about the use of this page, select the *Help* button. The help information appears in a separate window.
3. To prevent this page from being updated, select the *Freeze* button. The page freezes with the last values that were displayed.
4. To resume the updating of this page after it has been frozen, select the *Reconnect* button. The page updates are resumed.
5. To change the interval for updating this page, do the following:
  - Select the *Freeze* button.
  - Change the update interval by using the pop-up menu.
  - Select the *Reconnect* button to resume the updates with the new interval.

### Checking Processor Utilization

To check processor utilization on the server, do the following:

1. Select *Check Processor Utilization* in the table of contents of the MediaBase Troubleshooting Tool. The Processor Utilization on Server page, which is shown in Figure 7-3, appears.



**Figure 7-3** The Processor Utilization on Server Page

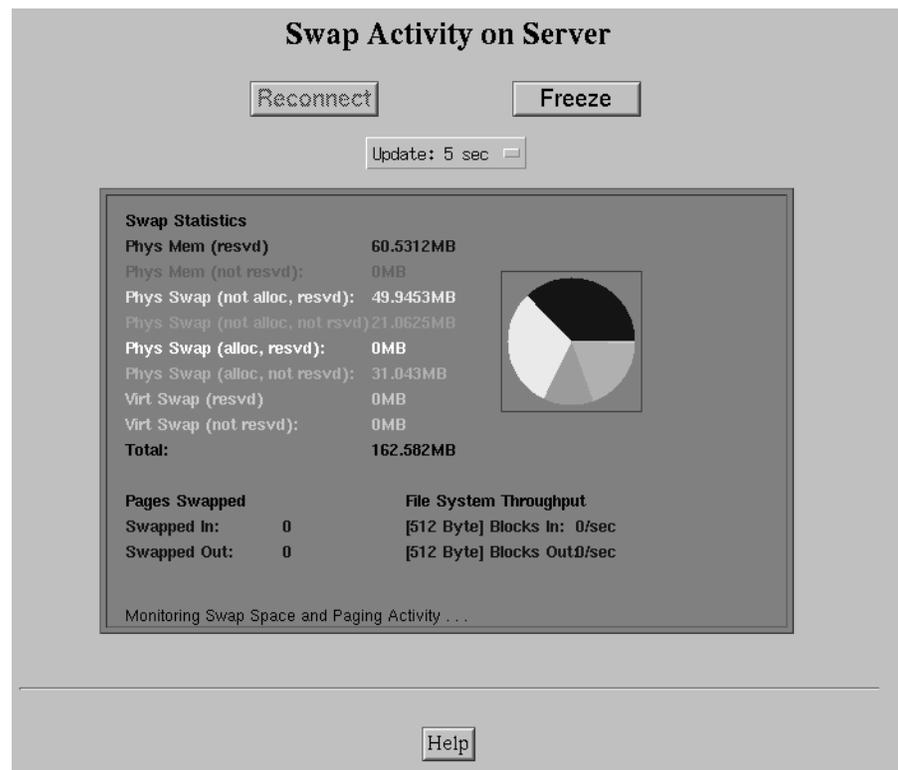
This page is updated according to the update interval shown on the page.

2. To obtain information about the use of this page, select the *Help* button. The help information appears in a separate window.
3. To prevent this page from being updated, select the *Freeze* button. The page freezes with the last values that were displayed.
4. To resume the updating of this page after it has been frozen, select the *Reconnect* button. The page updates are resumed.
5. To change the interval for updating this page, do the following:
  - Select the *Freeze* button.
  - Change the update interval by using the pop-up menu.
  - Select the *Reconnect* button to resume the updates with the new interval.

## Checking Swap Activity

To check swap activity on the server, do the following:

1. Select *Check Swap Activity* in the table of contents of the MediaBase Troubleshooting Tool. The Swap Activity on Server page, which is shown in Figure 7-4, appears.



**Figure 7-4** The Swap Activity on Server Page

This page is updated according to the update interval shown on the page.

2. To obtain information about the use of this page, select the *Help* button. The help information appears in a separate window.
3. To prevent this page from being updated, select the *Freeze* button. The page freezes with the last values that were displayed.

4. To resume the updating of this page after it has been frozen, select the *Reconnect* button. The page updates are resumed.
5. To change the interval for updating this page, do the following:
  - Select the *Freeze* button.
  - Change the update interval by using the pop-up menu.
  - Select the *Reconnect* button to resume the updates with the new interval.

### Determining Whether a Client Is Accessible on the Network

To determine if a client is reachable on the network from the server, and obtain information about packet transmission times gathered from ping, do the following:

1. Select *Client Accessibility on Network* in the table of contents of the MediaBase Troubleshooting Tool. The Test for Client Accessibility page, which is shown in Figure 7-5, appears.



**Figure 7-5** The Test for Client Accessibility Page

2. To obtain information about the use of this page, select the *Help* button. The help information appears in a separate window.
3. Enter the hostname or IP address of the client for which you want the test performed.
4. Select the *OK* button. The page changes to show the results of the test.

## Checking Accessibility of Videos

To verify that a video can be opened on the server, do the following:

1. Select *Video Access Test* in the table of contents of the MediaBase Troubleshooting Tool. The Video Access Test page, which is shown in Figure 7-6, appears.



**Video Access Test**

Enter the name of a video to test its storage usage and accessibility.  
To see video names follow this link *Cosmo MediaBase Video Management: Look Up Videos*

Video Name:

**Figure 7-6** The Video Access Test Page

2. To obtain information about the use of this page, select the *Help* button. The help information appears below the Video Access Test page.
3. Enter the name of the video for which you want the test performed.
4. Select the *Test* button. Filesystem information about the video and the results of the video access test are displayed below the Video Access Test page.

**Note:** The test that's performed checks to see that the video can be opened on the server. This test does not check the accessibility of the video across the network.

## Troubleshooting Network Problems

This section discusses how to troubleshoot network problems. The following topics are discussed:

- “About the Connection Manager” on page 76 describes the MediaBase service that manages the network.
- “Troubleshooting Common Network Problems” on page 77 describes how to troubleshoot network problems.
- “Capturing Connection Manager Debug-Level Messages” on page 80 describes how to obtain debugging level messages from the Connection Manager.

### About the Connection Manager

The Connection Manager manages the network resources. It does this by hiding the idiosyncracies of the underlying network devices and providing a uniform abstraction.

The Connection Manager has the following functions:

- Sets up and opens the network connections based on the connection specification and other cost functions. (The connection specification describes the type of connection requested, bandwidth, and so on.)
- Guarantees quality of service by managing network bandwidth, keeping track of used and available bandwidth for each interface, and disallowing streaming of media over an interface that is fully allocated.
- Chooses routes by which videos are delivered through the network to client workstations. The routes to clients are chosen depending on the favored routes as decided by the internet routing tables.

If there are two or more routes to a client, the Connection Manager chooses the one that involves the fewest hops. For example, if one route involves three hops and the other five hops, the Connection Manager chooses the route that takes three hops.

- Manages multicast parameters for LANCast showings, such as the time-to-live (TTL) value.
- Records statistical information that associates videos, connections established, and routes by which videos are delivered through the network. This statistical information is displayed by the MediaBase tools.

When MediaBase is started, it invokes the Connection Manager to allocate and initialize network resources. As clients request videos, the Connection Manager decides the delivery path for videos, and opens and closes network connections, as required.

There is one Connection Manager process for each WebFORCE Media Server. The name of the process is *scm*. Each active *scm* process typically has five to ten concurrent threads. The minimum and maximum number of threads is set when the Connection Manager is started. By default, these values are five for the minimum number of threads, and twenty for the maximum.

In addition to the Connection Manager process, for correct IP behavior a network routing daemon runs on the local subnet (including the server) and all subnets leading to clients. The process is named *routed*. There should be only one *routed* process on each subnet.

If multicast is used, an IP multicast routing daemon runs on the server, the local subnet, and all subnets leading to clients. The process is named *mrouterd*. There should be only one *mrouterd* process on the server and each local subnet.

If the server machine is a gateway to a number of subnets, *routed* and *mrouterd* should also be running on the server machine.

## Troubleshooting Common Network Problems

This section identifies common network problems, and suggests what to do to resolve them. The following types of problems are discussed:

- “General Network Problems” on page 78
- “Newly-Added Network Interface Isn’t Accessible” on page 78
- “Client Cannot Play a Video” on page 79
- “Multicast Showings Aren’t Reaching a Client” on page 79
- “Multicast Problems or Showers” on page 79
- “Maximum Bandwidth Used on a Particular Interface” on page 79
- “Network Traffic Imbalance” on page 80

### General Network Problems

If there are general network problems, consider the following:

- Are all MediaBase services running?  
**Note:** The network routing daemon or the IP multicast routing daemon may not be running on the local server. If that is the case, there may not be a problem if *routed* and *mrouterd* are running on the local subnet and all subnets leading to clients.
- Is one *routed* process running on the local server subnet and each subnet leading to clients?  
**Note:** There should be only one *routed* running on each subnet.
- If there are multicast problems, is one *mrouterd* process running on the local server subnet and each subnet leading to clients?  
**Note:** There should be only one *mrouterd* running on each subnet.
- Is IP forwarding turned on for all interfaces on the server?
- Are you capturing Connection Manager debugging information in the MediaBase event log? (See “Capturing Connection Manager Debug-Level Messages” on page 80 for how to do this.)

### Newly-Added Network Interface Isn't Accessible

If you've recently added a network interface to MediaBase using the MediaBase Configuration Tool, and the interface isn't accessible, consider the following:

- If the interface is for an IP over ATM network, did you install and configure the interface according to the instructions in “Installing and Configuring IP Over ATM” on page 16?
- When you use the MediaBase Configuration Tool, does it recognize that the interface is managed by MediaBase?
- Did you stop and then start MediaBase after you added the interface to MediaBase?

### Client Cannot Play a Video

If a client can't play a video, consider the following:

- Is accessible from the server? (See “Determining Whether a Client Is Accessible on the Network” on page 74 for how to do this.)
- Can the video be accessed on the server? (See “Checking Accessibility of Videos” on page 75 for how to do this.)

### Multicast Showings Aren't Reaching a Client

If multicast showings aren't reaching a client, consider the following:

- Is *mrouterd* running on the server and on each subnet leading to the client?  
**Note:** There should be only one *mrouterd* running on each subnet.
- Is the multicast time-to-live (TTL) value high enough to reach the client?

### Multicast Problems or Showers

If there are multicast problems or showers, consider the following:

- Is only one *mrouterd* running on each subnet?  
**Note:** There should be only one *mrouterd* running on each subnet.
- Is the multicast time-to-live (TTL) value higher than needed to reach clients?
- Is multicasting turned on for general public networks?

### Maximum Bandwidth Used on a Particular Interface

If the maximum bandwidth is used on a particular interface, consider elementary load balancing by doing one of the following:

- Change the IP routing metric for the interface by increasing its hop count.
- Alter the routing tables to divert the server traffic from that interface to other interfaces managed by MediaBase.

### Network Traffic Imbalance

If there is an imbalance in the network traffic across the MediaBase interfaces, consider elementary load balancing by doing one of the following:

- Change the hop counts for the network interfaces managed by MediaBase.
- Alter the routing tables for the interfaces managed by MediaBase.

### Capturing Connection Manager Debug-Level Messages

To capture Connection Manager debugging information in the MediaBase event log, do the following:

1. Set the event log threshold to DEBUG. See “Setting the Event Logging Threshold” on page 44 for information about how to do this.
2. Turn on Connection Manager debugging by modifying the */etc/inittab* file. To do this, find the line in the */etc/inittab* file that starts *scm*. This line may look like the following:

```
mb10:23:respawn:/usr/mbase/sbin/scm -m 5 -M 20 -cwd  
/usr/mbase/coredir/scm \
```

Modify this line by adding the parameter to turn on debugging (“-D 5”). The following shows how to do this for the sample line above:

```
mb10:23:respawn:/usr/mbase/sbin/scm -D 5 -m 5 -M 20 -cwd  
/usr/mbase/coredir/scm \
```

The text in bold shows the parameter that was added to turn on Connection Manager debugging.

3. Stop and then restart MediaBase. When MediaBase is restarted, it will write debug-level messages to the log.

To turn off debugging mode in the Connection Manager, do the following:

1. Turn off Connection Manager debugging by modifying the */etc/inittab* file. To do this, find the line in the */etc/inittab* file that starts *scm*. This line may look like the following:

```
mb10:23:respawn:/usr/mbase/sbin/scm -D 5 -m 5 -M 20 -cwd
/usr/mbase/coredir/scm \
```

The text in bold identifies the parameter that turns on Connection Manager debugging.

Modify this line by removing the parameter that turns on debugging (“-D 5”). The following shows how to do this for the sample line above:

```
mb10:23:respawn:/usr/mbase/sbin/scm -m 5 -M 20 -cwd
/usr/mbase/coredir/scm \
```

2. Stop and then restart MediaBase. When MediaBase is restarted, it will no longer write debug-level messages to the log, regardless of how the event log threshold is set.

## Troubleshooting Problems With the Informix Database

Problems with the database usually result in messages being written to the Informix message log, which is stored in */usr/informix/online.log*. This file should be periodically monitored. In addition, if there are problems with the database, this message log should be viewed for relevant information.

This section describes how to troubleshoot problems with the Informix database. The following topics are discussed:

- “Running Out of Space” on page 81
- “Running Out of Locks” on page 83

### Running Out of Space

If the Informix database runs out of space, you will see a message in the Informix log (*/usr/informix/online.log*) that is similar to the following:

```
SQLSTATE IX000: ISAM error: no free disk space
```

By default, the Informix database information is stored in `/usr/informix/data/root_chunk`. To add more space to the database without bringing down Mediabase or the Informix server, do the following:

1. Log in to the host as `informix` by typing the following:  

```
% su - informix
```
2. Make sure there is enough space on the filesystem where the extension to `root_chunk` will be located. (In this procedure, the name of the space that will be added is called `extend_root_chunk`.)
3. Touch the file `extend_root_chunk` by typing the following:  

```
% touch extend_root_chunk
```
4. Make sure the file is owned by `informix` by typing the following:  

```
% chown informix.informix extend_root_chunk
```
5. Allow the `extend_root_chunk` file to be read and written by Informix, by typing the following:  

```
% chmod 660 extend_root_chunk
```
6. Add a 200 megabyte extension named `extend_root_chunk` to the database by typing the following:  

```
% setenv INFORMIXSERVER odlshm
% setenv INFORMIXDIR /usr/informix
% cd /usr/informix/bin
% onspaces -a rootdbs -p absolutePath -o 0 -s 200000
```

where `absolutePath` is the absolute pathname of the location of `extend_root_chunk`, for example, `/usr/informix/data/extend_root_chunk`.

Wait until you see messages similar to the following:

```
Adding chunk...
Successfully Added chunk...
%
```

When you see these messages, the Informix server knows it has the additional space and will use it automatically.

## Running Out of Locks

If the Informix database runs out of locks, you will see a great many messages in the Informix log (*/usr/informix/online.log*) similar the following:

```
19:58:09 Lock table overflow - user id 55555, session id 1691
```

**Note:** One or a few messages like this in the log are normal. There is a problem only if you see this message repeated a great many times.

To recover from this problem, do the following:

1. Log in to the server host as root, or become the superuser by issuing the *su* command.

2. Stop MediaBase and Informix by typing the following:

```
# /etc/init.d/mediabase stop
# /etc/init.d/informix stop
```

3. The previous command may not work. If it doesn't, kill Informix by typing the following:

```
# killall oninit
```

4. Determine whether there are any shared memory segments left over by typing the following:

```
# ipcs -ma
```

If there are any shared memory segments belonging to Informix, you will see output that looks similar to the following:

```
IPC status from /dev/kmem as of Tue Jul 23 21:21:04 1996
T      ID      KEY          MODE          OWNER      GROUP  CREATOR  CGROUP
NATTCH SEGSZ  CPID  LPID   ATIME    DTIME    CTIME
Shared Memory:
m   1202 0x52564801 --rw-rw----   root informix   root
informix      12 5054464 16912 19696 21:21:00 21:21:01 20:23:00
m   1203 0x52564802 --rw-rw----   root informix   root
informix      12 8192000 16912 19696 21:21:00 21:21:01 20:23:00
m   1204 0x52564803 --rw-rw-rw-   root informix   root
informix      14 622592 16912 19696 21:21:00 21:21:01 20:23:10
m   1206 0x52564804 --rw-rw----   root informix   root
informix      12 8388608 16912 19696 21:21:00 21:21:01 20:41:38
```

5. If there are any segments that belong to Informix, as seen above, remove all the segments, one at a time, by typing the following for each segment:

```
# ipcrm -m SHARED_MEMORY_SEGMENT_ID
```

For example, the following removes the segment whose shared memory ID is 1202:

```
# ipcrm -m 1202
```

6. # Start informix by typing the following:

```
# /etc/init.d/informix start
```

7. Start MediaBase by typing the following:

```
# /etc/init.d/mediabase start
```

---

## Managing MediaBase Videos

This chapter describes how the media administrator installs and manages videos. The following topics are discussed:

- “Before You Add a Video” on page 85 describes the steps to perform before you add a video to MediaBase.
- “Adding and Managing Videos With the Video Management Tool” on page 88 describes how to use the Video Management Tool to add videos to MediaBase; edit, delete, and obtain information about videos; and view a video by playing it on the workstation.
- “Adding and Deleting Videos With the *mbinst* Utility” on page 104 describes how to use the *mbinst* utility to add and delete videos through the command line.

For information about how filesystem resources are reserved for videos, see Chapter 2, “About MediaBase Video Assets.”

### Before You Add a Video

This section identifies the steps that need to be performed, and the decisions that need to be made, before you add a video to MediaBase. The following steps are discussed:

- “Stage the Video” on page 86
- “Determine Whether the XFS Real-Time Filesystem Is Used” on page 86
- “Determine How the Video Should Be Stored” on page 86
- “Collect the Video’s Metadata” on page 87

## Stage the Video

A video must be staged before you add it to MediaBase. During the staging process, you copy the MPEG-encoded video from an external device, such as a tape, to a staging area on disk. The staging area is considered a temporary holding place.

**Note:** If you have a raw video, you must first MPEG-encode it before copying it to the staging area. (MediaBase currently supports MPEG-1 videos with system stream, and MPEG-2 videos.)

## Determine Whether the XFS Real-Time Filesystem Is Used

The XFS real-time filesystem has a feature called guaranteed rate I/O (GRIO). This feature is used by MediaBase to guarantee the performance of videos. If the XFS real-time filesystem is not used by MediaBase, the performance of videos cannot be guaranteed.

When you add a video to MediaBase, you may have to indicate whether the video is to be stored on an XFS real-time filesystem. Ask the person who set up and configured the filesystem used by MediaBase, whether the XFS real-time filesystem should be used.

## Determine How the Video Should Be Stored

MediaBase stores videos only on disks that it manages. These disks are identified when MediaBase is configured.

When you add a video to MediaBase, you normally have MediaBase copy the video from the staging area to one of its managed disks. (The staging area must not be on one of MediaBase's managed disks.) MediaBase determines which of its disks has sufficient space and bandwidth available, and copies the video to that disk. If the disk on which the video is stored doesn't have sufficient resources to support the maximum number of simultaneous users, MediaBase replicates the video on another managed disk. MediaBase repeats this replication until the combined copies support the requested number of simultaneous users.

Instead of having MediaBase store the video on a disk that it chooses, you can tell MediaBase to

- store the staged video in a *specific* file in its filesystem
- use an existing video file on a managed disk in its filesystem

If you choose one of these two options, MediaBase doesn't make additional copies of the video, even if the single copy isn't sufficient to support the requested guaranteed number of plays.

When you add the video to MediaBase, you tell MediaBase how to store the video.

### Collect the Video's Metadata

When you add a video to MediaBase, you enter some of its metadata, which is descriptive information about the video. Table 8-1 identifies the metadata attributes that should be collected before you add the video. MediaBase calculates other metadata about the video, such as the delivery bitrate and the duration, from the video source file.

**Table 8-1** Metadata Associated With a Video

Attribute	Description
Video Name	Text string that identifies the video.
Video Encoding	The way the video is encoded. MediaBase currently supports MPEG-1 with system stream and MPEG-2.
Number of Guaranteed Viewers	Whole number that defines the guaranteed number of plays, that is, the maximum number of simultaneous users for which MediaBase guarantees the performance of the video.
Chance of Additional Viewers	Whole number that defines the probability that an additional viewer can play the video when all the guaranteed plays are in use. The value is entered as a percent in the range 0-99.
Comments	Text string that contains descriptive information about the video. This field is used to organize videos into logical groupings. It is highly recommended that you use keywords that will assist users in searching for videos.

The number of guaranteed viewers, and the chance that an additional viewer can play the video, are used by MediaBase to reserve filesystem resources. A higher number of users, or a greater probability that an additional viewer can play the video, can cause MediaBase to reserve a large amount of filesystem resources for the video. By using large values for these attributes, you may limit the number of videos that MediaBase can manage.

**Note:** The combination of the number of guaranteed viewers and the chance of an additional viewer being able to play the video is called the video's "number of plays." For example, if the number of guaranteed viewers is 2, and the chance that an additional viewer can play the video is 50%, or 0.5, the video's number of plays is 2.5. (For information about how MediaBase uses the number of plays to reserve filesystem resources, see "A Video's Number of Plays" on page 8.)

## **Adding and Managing Videos With the Video Management Tool**

This section describes how to use the MediaBase Video Management Tool to add and manage videos. The following topics are discussed:

- "Accessing the Video Management Tool" on page 89
- "Using the Help Function" on page 90
- "Adding a Video" on page 91
- "Obtaining Information About MediaBase Videos" on page 96
- "Editing and Deleting Videos That Are Installed and Playable" on page 100
- "Deleting a Video That Isn't Installed and Playable" on page 102
- "Resuming the Installation of a Video" on page 102
- "Viewing a Video" on page 103

## Accessing the Video Management Tool

To access the Video Management Tool, follow these steps:

1. Select *Video Management* on the initial page for the MediaBase administration site to access the Video Management Tool. (See Chapter 4, “Using the MediaBase Administration Tools,” for information about accessing the MediaBase administration site.) The Video Management Tool is shown in Figure 8-1.



**Figure 8-1** The Video Management Tool

2. Select the *Videos* button in the navigation bar if the Video Management Tool doesn't appear in the Netscape Navigator window.

3. Select the appropriate button in the table of contents to access the page that allows you to perform the tasks identified in Table 8-2.

**Table 8-2** Video Management Tool Tasks

Button	Gives Access to Page Used To
Add Video	Enter a video's metadata, and request that the video be added to MediaBase
Edit Video Attributes or Delete Video	Change a video's metadata, or remove a video from MediaBase
Look Up Videos	Obtain information about a video, play a video on the workstation, delete a video whose number of plays is being changed, delete a video whose installation is in progress or has failed, and restart an installation that failed after the problem has been corrected
View Video	Play a video on the workstation

### Using the Help Function

The pages in the Video Management Tool have online help, which appears in a separate window on the desktop.

To access the online help, do one of the following:

- Select the *Help* button. The online help window appears. It displays information about all the fields on the page that contained the *Help* button.
- For labels that are rendered as links by Netscape Navigator, select the label associated with a specific field. The online help window appears.

## Adding a Video

To add a video to MediaBase, follow these steps:

1. Select *Add Video* in the table of contents of the Video Management Tool. The first part of the Add Video page is shown in Figure 8-2.

**Add Video**

Select any linked field label for information about that field.

Video Name :

Source File :

Video Encoding : MPEG-1 ▾

---

Number of Guaranteed Viewers :

Chance of Additional Viewers :  %

---

Place this video only on an XFS real-time file system? :  Yes  No

**Figure 8-2** The Add Video Page: Part 1

2. Enter the name of the video in the Video Name field.
3. Enter one of the following in the Source File field:
  - the name of the staged file, if this video is in a staging area and is to be copied by MediaBase to its managed storage; the complete pathname of the file on the WebFORCE Media Server should be specified
  - the name of an existing video file on MediaBase storage, if this video is to use an existing MediaBase video file
4. Select the type of video in the Video Encoding field. Currently, MediaBase supports MPEG-1 with system stream and MPEG-2 videos.

5. In the field labelled “Number of Guaranteed Viewers,” enter the guaranteed maximum number of simultaneous viewers who can play the video. This is the guaranteed number of plays, that is, the maximum number of users for whom performance is guaranteed.

This field defaults to zero.

**Note:** MediaBase uses this field to reserve filesystem resources. Large values for this field result in more resources being reserved, and may limit the number of videos that can be managed by MediaBase.

6. The next field is labelled “Chance of Additional Viewers.” In this field, enter a whole number that represents the probability that, once all guaranteed plays are in use, an additional user can view the video. This number is entered as a percentage in the range 0-99. For example, a value of 25 means that there’s a 25% chance that an additional user can view the video when all guaranteed plays are in use.

Larger numbers should be assigned to videos with a higher probability of being played.

This field defaults to 1%.

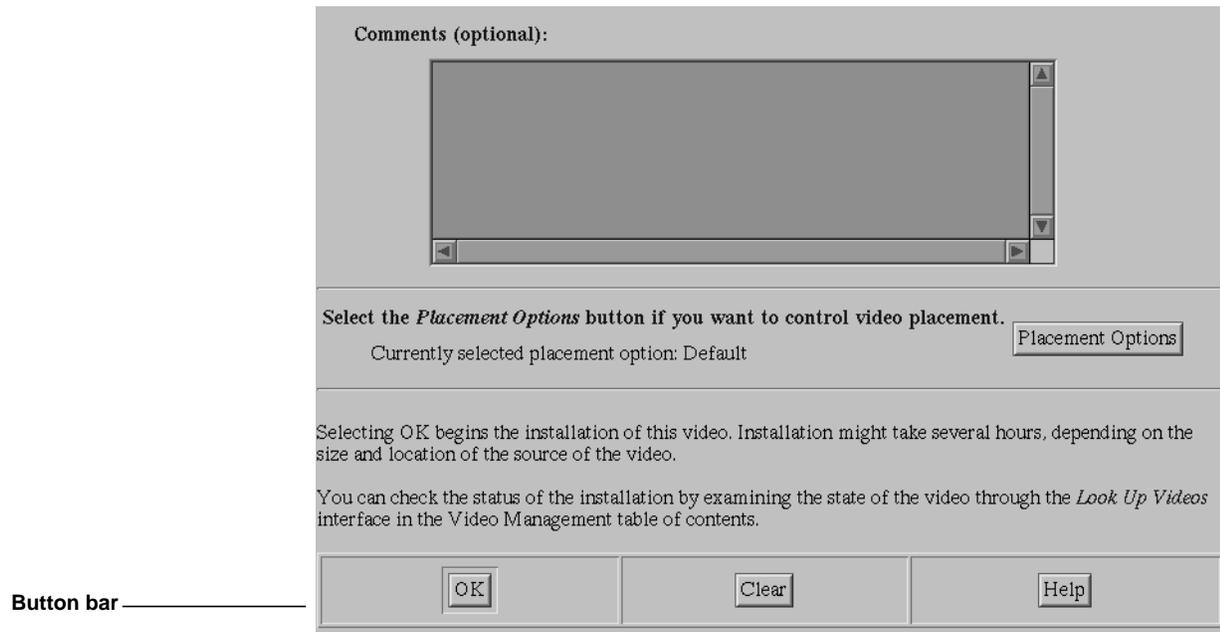
**Note:** MediaBase uses this field to reserve filesystem resources. Large values for this field result in more resources being reserved, and may limit the number of videos that can be managed by MediaBase.

7. In the field labelled “Place this video only on an XFS real-time file system?,” select one of the following:
  - *Yes* if the video should be placed on an XFS real-time filesystem with guaranteed rate I/O, thereby providing guaranteed performance
  - *No* if the video should be placed on a filesystem without guaranteed rate I/O, thereby not providing guaranteed performance

This field appears only if MediaBase manages an XFS real-time filesystem.

**Note:** Ask the network administrator who set up and configured the filesystem used by MediaBase for the answer to this question.

The second part of the Add Video page is shown in Figure 8-3.



**Figure 8-3** The Add Video Page: Part 2

8. Enter a text string in the Comments field. This field contains descriptive information that can be used to query MediaBase about videos. This field is optional.

**Note:** The Comments field is used to organize videos into logical groupings. It is highly recommended that you use keywords that will assist users in searching for videos.

9. The label “Currently selected placement option” identifies how the video will be stored. (“Default” indicates that MediaBase will decide how to store the video.) If you want to change this placement option, select *Placement Options*. The Placement Options page, shown in Figure 8-4, opens in a separate window.



**Figure 8-4** The Placement Options Page

The use of the Placement Options page is optional. If this page isn't used, MediaBase determines where to store the video data within its managed filesystems.

If you entered a value in the Source File field on the Add Video page, that value is automatically copied to the Source File field on the Placement Options page.

- If the video is in a staging area and you want it copied to any MediaBase filesystem disk, select the button next to the field labelled “Allow MediaBase to Decide Placement.” This is the default option.

- If you want MediaBase to use an existing video file on one of its managed disks, select the button next to the field that begins “Use Existing Video File.” If you choose this option, enter the name of the existing MediaBase video file in the Source File field at the top of the Placement Options page or on the Add Video page.

If you select this option and the shared file is an XFS real-time file, the video to be added must also be an XFS real-time video. If the shared file is not an XFS real-time file, the video to be added must not be an XFS real-time video. (“XFS real-time video” refers to a video that is placed on an XFS real-time filesystem with guaranteed rate I/O.)

- If the video is in a staging area and you want it copied to a specific file on a MediaBase managed disk, select the button next to the field that begins “Copy to Specified File.” If you choose this option, enter the name of the file in which MediaBase is to store the video in the Copy Location field.
- If you want to accept the placement options specified on this page, select *Accept Placement* in the button bar on the Placement Options page.
- If you don’t want to accept the placement options specified on this page, select *Close (Placement Not Accepted)* in the button bar on the Placement Options page.

If you entered or changed the value in the Source File field in the Placement Options window, the new value is automatically copied to the Source File field on the Add Video page if you select the *Accept Placement* button.

10. Select *OK* in the button bar of the Add Video page to request that the video be added to MediaBase.

When you select *OK*, if MediaBase detects an error, it displays an error message either in a separate window or below the Add Video page. If there are no errors, MediaBase initiates a task to perform the actual installation. The actual installation of the video by this task can take some time.

11. If you want to clear the fields on the Add Video page, select the *Clear* button. If you select this button, the fields on the page are cleared, with the exception of the fields labelled “Number of Guaranteed Viewers” and “Chance of Additional Viewers.” These fields are set to 0 and 1%, respectively.
12. To check the status of the installation, use the Look Up Video page. (See “Obtaining Information About MediaBase Videos” on page 96 for information about using this page.) You can go to the Look Up Video page by selecting that item from the table of contents, or by clicking *Look Up Videos* at the bottom of the Add Video page. The *Look Up Videos* link is above the button bar.

## Obtaining Information About MediaBase Videos

You can obtain the following information about MediaBase videos:

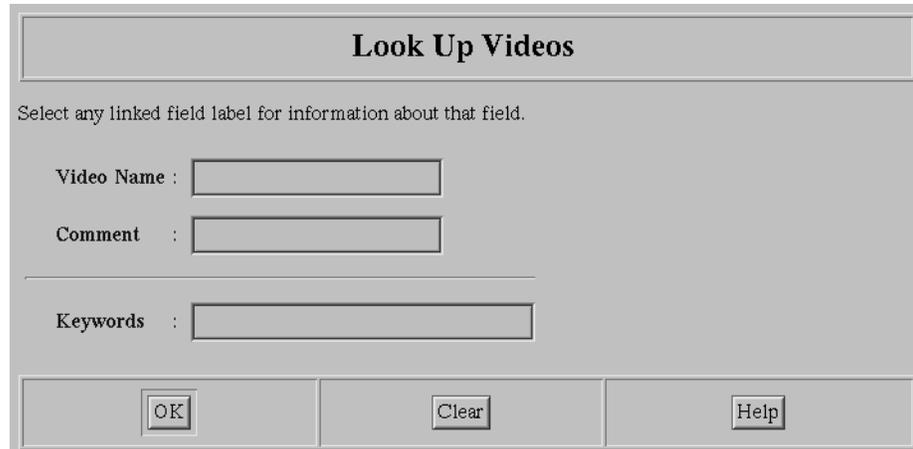
- video name and encoding
- number of guaranteed viewers
- probability that an additional viewer can play the video
- whether the video content is stored on a real-time filesystem
- MediaBase filename and server name where the video content is stored
- duration in seconds
- delivery rate in bits per second
- MediaBase video URL
- comments
- status of the most recent modification request

In addition, you can do the following:

- Play a video on your workstation
- Delete a video whose number of plays is being changed
- Delete a video whose installation is in progress or has failed
- Restart an installation that failed after the problem has been corrected

To obtain information about MediaBase videos, follow these steps:

1. Select *Look Up Videos* in the table of contents of the Video Management Tool. The Look Up Videos page, shown in Figure 8-5, appears.



The screenshot shows a web interface titled "Look Up Videos". Below the title is a subtitle: "Select any linked field label for information about that field." There are three input fields: "Video Name :", "Comment :", and "Keywords :". At the bottom of the form are three buttons: "OK", "Clear", and "Help".

Figure 8-5 The Look Up Videos Page



**Warning:** Generating a list of all the videos in a large database could take an unreasonably long time. Therefore, if the database contains more than one hundred videos, a paragraph is inserted on this page to indicate that a query that returns all the videos cannot be performed. The paragraph appears immediately below the title of the page. You should qualify the query so that fewer than one hundred videos are returned.

2. Enter the video name or a pattern-matching text string in the Video Name field. Leave this field blank if you don't want to qualify the search by this field.

Table 8-3 contains the characters that have special meaning within the text string used for pattern-matching.

**Table 8-3** Special Pattern-Matching Characters

Symbol	Meaning
*	any zero or more characters
?	any one character
\*	the asterisk
\?	the question mark
[]	single character within specified range or set
[^]	single character not within specified range or set

For example, to search for videos with names beginning with the letters a, b, or c, enter [abc]\* in this field.

3. Enter a pattern-matching text string in the Comment field. Leave this field blank if you don't want to qualify the search by this field.

You can use the special pattern-matching characters described with the Video Name field. For example, to search for videos with comments containing the string "comedy," enter \*comedy\* in the Comment field.

4. Enter keywords in the Keywords field if you want to qualify the search by these keywords. Only videos whose comments contain all the keywords entered in this field are selected. Leave this field blank if you don't want to qualify the search by this field.

You can enter up to ten keywords. If more than ten keywords are entered, only the first ten are used. The keyword search is case-insensitive.

5. Select *OK* in the button bar.

When you select *OK*, the Video Look Up Results page replaces the Look Up Video page. The names of the videos that satisfy the search criteria are displayed on this page. A symbol in front of the video name has the following significance:

- A plus sign in front of the name indicates that the video is currently being installed or that its installation terminated with an error.
- A minus sign in front of the name indicates that the video is currently being deleted or that a deletion of the video terminated with an error.
- An asterisk in front of the name indicates that the video's number of plays is being changed or that the most recent change to the video's number of plays terminated with an error.

6. To view the information about a specific video, select the name of the video from the list on the Video Look Up Results page. The information for that video is displayed on the Video Information page, which appears below the Video Look Up Results page.

- To determine the status of the installation or last modification of this video, scroll to the bottom of the Video Information page. If the request is in progress, or it ended with an error, information about the most recent modification appears at the bottom of the Video Information page. If no information about the most recent modification appears, then the most recent installation or modification was completed successfully.

**Note:** While a modification is in progress, the Video Information page is updated once every 60 seconds. When the Video Information page is updated for the last time, the Video Look Up Results page is also updated.

- To play the video on your workstation, click the link whose label is "Click to Play." The video plays in a separate window on your workstation.

## Editing and Deleting Videos That Are Installed and Playable

To edit or delete videos that have been successfully installed and are playable, follow these steps:

1. Select *Edit Video Attributes or Delete Video* in the table of contents of the Video Management Tool. The Edit Video Attributes or Delete Video page, shown in Figure 8-6, appears.



**Figure 8-6** The Edit Video Attributes or Delete Video Page

The box under the Video Name label lists the videos that have been successfully installed and are playable. Videos currently being installed or not playable do not appear in this list.



**Warning:** Generating a list of all the videos in a large database could take an unreasonably long time. Therefore, if the database contains more than one hundred videos, this page doesn't appear when you select *Edit Video Attributes or Delete Video*. Instead, a page similar to the Look Up Videos page appears, and you're requested to perform a query to limit the number of videos. (See "Obtaining Information About MediaBase Videos" on page 96 for information about using this page.) You should qualify the query so that fewer than one hundred videos are returned. After you perform the query, the Edit Video Attributes or Delete Video page appears with the names of the videos returned by the query.

2. To edit the attributes associated with a video, do the following:
  - Select the video's name from the box under the Video Name label.
  - Select the *Edit* button. The Edit Video Attributes page, which displays information about the video, appears.
  - Change the following fields in this page, as needed: Video Name, Number of Guaranteed Viewers, Chance of Additional Viewers, and Comments.

To change any other information (for example, how the video content is stored), delete the video and then re-install it.
  - Select the *Apply Changes* button on the Edit Video Attributes page.

If you change the video name or the comments field, MediaBase makes the change and then displays an appropriate message. If you change the fields about the number of guaranteed viewers, MediaBase initiates a separate task to perform the change.

**Note:** If you increase the fields that define the number of guaranteed viewers or the chance of additional viewers, MediaBase determines whether the current number of copies and the placement support the new value. If they don't, MediaBase makes additional copies of the video. If the number of guaranteed viewers is decreased, MediaBase may delete one or more copies of the video until it has the fewest number of copies needed to support the requested number of users.

If MediaBase initiates a separate task to make the change, see "Obtaining Information About MediaBase Videos" on page 96 to check the status of this task.

3. To delete a video, do the following:
  - Select the names of one or more videos from the box under the Video Name label.

**Note:** To delete a video that isn't installed and playable, see "Deleting a Video That Isn't Installed and Playable" on page 102.
  - Select the *Delete* button. A separate confirmation window appears.
  - If you want to proceed with the delete, select the *OK* button in the confirmation window. If you don't want to proceed with the delete, select the *Cancel* button.

MediaBase initiates a separate task to delete the video. See "Obtaining Information About MediaBase Videos" on page 96 to check the status of the request to delete the video.

## Deleting a Video That Isn't Installed and Playable

This section describes how to delete the following:

- A video whose number of plays is being changed
- A video whose installation is in progress or has failed

To delete a video that isn't installed and playable, follow these steps:

1. Use the Look Up Videos page to display information about the video. (The use of the Look Up Videos page is described in "Obtaining Information About MediaBase Videos" on page 96.) The information about the video displays in the Video Information page.
2. Scroll to the bottom of the Video Information page to see the information about the most recent modification to the video.
3. Select the *Abort* button to delete the video from MediaBase.

## Resuming the Installation of a Video

To resume the installation of a video that failed due to a correctable problem, follow these steps:

1. Correct the problem that caused the installation to fail.
2. Use the Look Up Videos page to display information about the video. (The use of the Look Up Videos page is described in "Obtaining Information About MediaBase Videos" on page 96.) The information about the video displays in the Video Information page.
3. Scroll to the bottom of the Video Information page to see the information about the most recent modification to the video.
4. Select the *Resume* button to restart the installation of the video.

## Viewing a Video

To view a video on your workstation, follow these steps:

1. Select *View Video* in the table of contents of the Video Management Tool. The View Video page, shown in Figure 8-7, appears.



**Figure 8-7** The View Video Page

The box under the Video Name label lists the videos that have been installed and are playable.



**Warning:** Generating a list of all the videos in a large database could take an unreasonably long time. Therefore, if the database contains more than one hundred videos, this page doesn't appear when you select *View Video*. Instead, a page similar to the Look Up Videos page appears and you're requested to perform a query to limit the videos. (See "Obtaining Information About MediaBase Videos" on page 96 for information about using this page.) You should qualify the query so that fewer than one hundred videos are returned. After you perform the query, the View Video page appears with the names of the videos returned by the query.

2. Select the name of the video that you want to view.
3. If you don't want the video to play in a separate window, select *No* in the field labelled "Display video in a separate window?"
4. If you don't want the video to begin playing as soon as the player is ready, select *No* in the field labelled "Start video as soon as player is ready (without pressing the 'play' button)?"
5. Select *OK* in the button bar.

### Adding and Deleting Videos With the *mbinst* Utility

This section describes how to use the *mbinst* utility to add and delete videos in batch mode.

The following is the general format for invoking the *mbinst* utility:

```
# /usr/mbase/sbin/mbinst [options] input
```

**Note:** If you don't run *mbinst* as root, you'll be prompted for a MediaBase administration username and password when you run this utility.

The options for the *mbinst* utility are described in Table 8-4.

**Table 8-4** Options for the *mbinst* Utility

Option	Description
-a	Add the video to MediaBase. This is the default if neither the -a nor the -d option is specified.
-d	Delete the video from MediaBase.
-n	Read and check the input for errors, but don't add or delete any videos.
-s	Perform the installation synchronously. If this option is used, <i>mbinst</i> terminates after the video installation completes. If this option isn't used, <i>mbinst</i> terminates after the video installation is initiated.
-v...	Provide output level of detail as specified in this option. -v specifies the least detail, -vvv specifies a medium amount of detail, and -vvvvv specifies the most detail possible.
-q	Suppress all output from <i>mbinst</i> .

The input is read from either standard input or a batch file. Each line of input describes one video to be added, or one or more videos to be deleted. Each line is terminated with the return key. Input lines that begin with the # character are comment lines and are ignored.

The format of each input line is

```
filename video_name encoding #plays %chance XFSRT placement comment
```

where

- *filename* is one of the following:
  - the location of the staged file, including the complete pathname of the file on the WebFORCE Media Server, if this video is in a staged file and is to be copied to MediaBase
  - the location of an existing MediaBase video file, if this video is to use an existing file in MediaBase’s managed filesystems
  - an asterisk (\*), if this video is being deleted
- *video\_name* is the name of the video.
- *encoding* can be one of the following:
  - “MPEG-1” (the default)
  - “MPEG-2”
  - an asterisk (\*), to indicate the default
- *#plays* is the guaranteed number of plays. An asterisk (\*) for this parameter indicates that you want the default, which is zero plays.
- *%chance* is a whole number in the range 0-99. It represents the percent that defines the probability an additional viewer can play the video when all the guaranteed plays are in use. An asterisk (\*) for this parameter indicates that you want the default, which is 1.
- *XFSRT* is “TRUE” if the video is to be placed only on an XFS real-time filesystem and “FALSE” if the video should not be placed on an XFS real-time filesystem. An asterisk (\*) for this parameter indicates that you want the default, which is FALSE.

- *placement* is one of the following:
  - “AUTO” if MediaBase is to decide how to store the video
  - “SHARED” if an existing MediaBase video file is to be used
  - a filename, which indicates that the staged file should be copied to that specific file
- *comment* is a text string that contains descriptive information; an asterisk (\*), or no comment, indicates that the default string “video created by mbinst” should be used

**Note:** If the comment is terminated with a back slash (“\”), it is assumed that the comment is continued on the next line. The final line in the comment should be terminated with a return, without a preceding back slash.

If a video is being deleted, only the *video\_name* parameter is required. All other parameters may be asterisks.

The exit status of the *mbinst* utility is zero if all assets have been successfully added or deleted. It is one if an error was encountered.

The following example reads the input parameters from standard input:

```
# /usr/mbase/sbin/mbinst
/staging/mpegfile1 myfile * * * * * my new video
Ctrl+D
```

In this example, the staged file is in */staging/mpegfile1* and the video is named *myfile*. The video is an MPEG-1 encoded video, it has no guaranteed plays, and there is a 1% chance of additional plays. The video is automatically placed by MediaBase, and it contains the comment “my new video.”

The following example specifies the input parameters in a batch file name *batch\_file*:

```
# /usr/mbase/sbin/mbinst -c batch_file
```

The following shows the contents of *batch\_file*:

```
/d2/mpegfile1 firstvideo MPEG-1 2.0 70 SHARED *
/d2/mpegfile2 secondvideo MPEG-2 * * /videos/video2 Video2
```

The first line in this example adds a video named firstvideo. Its format is MPEG-1, there are 2 guaranteed plays, and there is a 70% chance of additional plays. It uses the existing video file */d2/mpegfile1*. The video has a comment field of “video created by mbinst.”

The second line in this example creates a video whose name is secondvideo. Its format is MPEG-2, it has no guaranteed plays, and there is a 1% chance of additional plays. Its placement will be forced, meaning that the data from the staged file */d2/mpegfile2* will be copied to */videos/video2* file. The video has a comment field of “Video2.”

The following example reads the input parameters from standard input:

```
# /usr/mbase/sbin/mbinst -d
* myfile1 * * * * *
* myfile2 * * * * *
Ctrl+D
```

In this example, the videos myfile1 and myfile2 are deleted.



---

## Managing LANCast Showings

LANCast is the MediaBase feature that enables videos to be scheduled for directed broadcast at specified times. A scheduled video, called a showing, is available for viewing at a time designated by the LANCast administrator. Showings are requested by users through a Web-based showings guide that identifies the videos that have been scheduled.

This chapter describes the procedures that the LANCast administrator uses to set up and manage LANCast showings. The following topics are discussed:

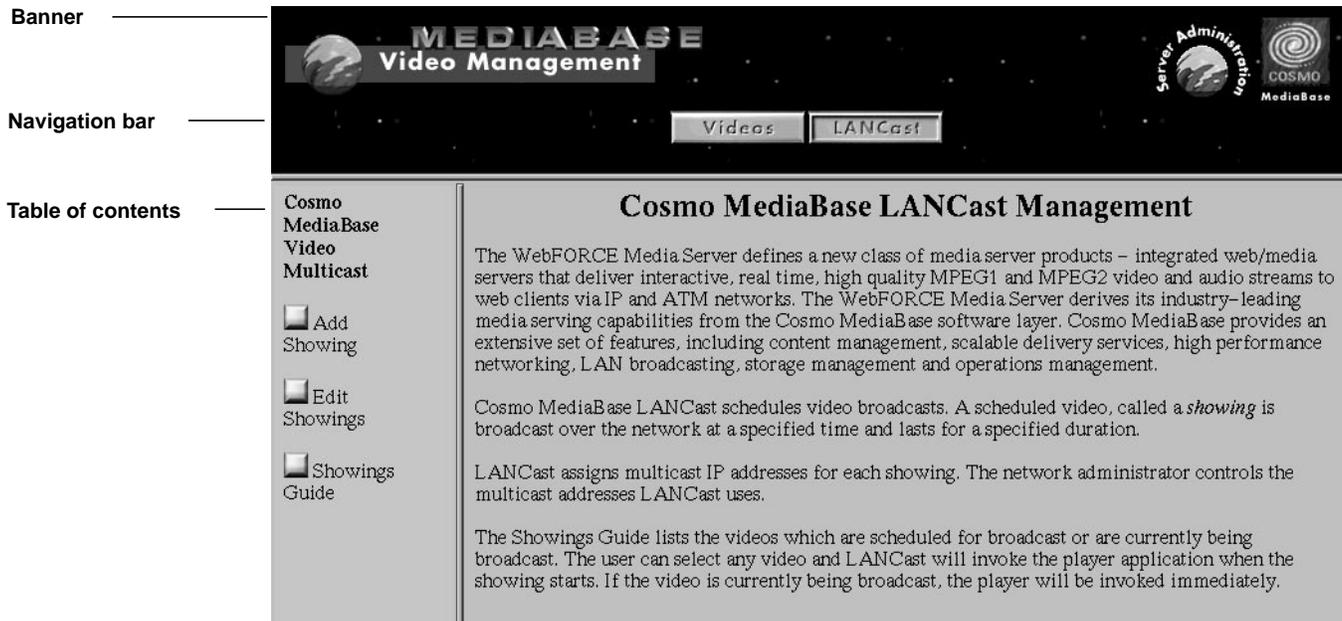
- “Accessing the LANCast Management Tool” on page 109 describes how to access the tool used by the LANCast administrator.
- “Adding and Managing Showings With the LANCast Management Tool” on page 112 describes how to use the tool to schedule videos, as well as modify, copy, delete, and obtain information about scheduled videos.
- “Using the Showings Guide” on page 123 describes how to use the showings guide from the LANCast Management Tool.
- “Adding and Managing Showings With Command-Line Utilities” on page 124 describes how to use command-line utilities to add, delete, and query showings.

### Accessing the LANCast Management Tool

The LANCast Management Tool is used to schedule videos for directed broadcast at specified times. To access the LANCast Management Tool, follow these steps:

1. Select *Video Management* on the initial page for the MediaBase administration site. (See Chapter 4, “Using the MediaBase Administration Tools,” for information about accessing the MediaBase administration site.)

2. Select *LANCast* in the navigation bar to access the LANCast Management Tool. The LANCast Management Tool is shown in Figure 9-1.



**Figure 9-1** The LANCast Management Tool

3. Select the appropriate button in the table of contents to access the page that allows you to perform the tasks identified in Table 9-1.

**Table 9-1** LANCast Management Tasks

Button	LANCast Management Task
Add Showing	Schedule a video for a showing
Edit Showings	Obtain information about currently scheduled videos, make additional copies of a showing, and modify or delete a showing
Showings Guide	Display currently scheduled videos, and select scheduled videos to be played on the workstation

## Using the Help Function

The pages in the LANCast Management Tool have online help, which appears in a separate window on the desktop.

To access the online help, do one of the following:

- Select the *Help* button. The online help window appears. It displays information about all the fields on the page that contained the *Help* button.
- For labels that are rendered as links by Netscape Navigator, select the label associated with a specific field. The online help window appears. If all the online help for the form cannot appear in the window at the same time, the text is positioned so that the online help for the selected field is at the top of the window.

## Using the Clear Button

Some of the pages have a *Clear* button. If you select this button, the fields on the page are cleared of data.

## Adding and Managing Showings With the LANCast Management Tool

This section describes how to add, obtain information about, modify, copy, and delete showings.

### Before You Add a Showing

Table 9-2 identifies the attributes associated with each showing. Before you schedule a new video for a showing, be sure to decide which values you want for each of these attributes.

**Table 9-2** LANCast Showing Attributes

Showing Attribute	Description
Video to Play	Text string that identifies the video that's scheduled. The media administrator defines this name when the video is added to MediaBase.
Showing Name	Text string that identifies the showing. This is the name that appears in the showings guide.
Start Time	Time that identifies when the showing starts.
End Time	Time that identifies the latest that the showing ends. This field is optional; if it is omitted, the tool calculates the end time automatically.
Repeat Interval	The time interval between successive showings, for a video that is repeated at regular intervals. This field is optional.
No. of Showings	Total number of showings that are scheduled at regular intervals. This field is optional.
Keywords	Text string used to qualify searches. For example, if this field contains "sales training," searches can be performed using the keywords "sales," "training," and "sales training". This field is optional.  This field is used to organize showings into logical groupings. It is highly recommended that you use keywords that will assist users in searching for showings.
AutoDelete	Flag that indicates if the showing should be deleted automatically after it has played successfully.

## About Time Formats

The LANCast Management Tool provides a great deal of flexibility in the way you can enter time fields. The following rules apply to these fields:

- You can enter the hour, minutes, and seconds for a time entry, in the format hh:mm:ss. At a minimum, you must enter a time with hourly resolution.
- If you don't specify minutes in the time, you must specify a.m. or p.m.
- The earliest time you can enter is 00:00:00. The latest time you can enter is 23:59:59.
- The 24-hour clock is assumed if you don't specify otherwise.
- You may enter a date along with the time. If no date is specified, the current date is assumed. If no year is specified, the current year is assumed.
- To spell out the name of a month, enter at least the first three letters of the month. For example, enter jun for the month of June. The month can be entered in upper or lower case, or mixed case.
- If you use numerals to specify a date, the date must be in the format mm/dd/yy or mm/dd. If the year is omitted, the current year is assumed.

Table 9-3 contains examples of valid entries for a time field.

**Table 9-3** Valid Time Field Entries

Entry in Time Field	Meaning
7pm	Current day at 19:00:00
June 30 00:00:00	June 30 (current year) at 00:00:00
10:15	Current day at 10:15:00
10:30:15 pm	Current day at 22:30:15
May 8 10:00	May 8 (current year) at 10:00:00.
may 8 10:00PM	May 8 (current year) at 22:00:00
May 8 10:00 1997	May 8, 1997 at 10:00:00
may 8 1997 10:00	May 8, 1997 at 10:00:00
7:30pm apr 13	April 13 (current year) at 19:30:00
6/1/97 8pm	June 1, 1997 at 20:00:00
6/1 7pm	June 1 (current year) at 19:00:00

Table 9-4 shows examples of invalid time field entries.

**Table 9-4** Invalid Time Field Entries

Entry in Time Field	Reason Entry Is Invalid
6	If minutes aren't specified, a.m. or p.m. must be specified
Ja 1 7pm	At least first three letters of month must be given
6/97 10am	Date format must be mm/dd/yy or mm/dd
6/1/97	Time must be specified
20:30:00:30	Maximum time resolution is hh:mm:ss

## Adding a Showing

To add a showing to LANCast, follow these steps:

1. Select *Add Showing* in the table of contents of the LANCast Management Tool. The Add Showing page is shown in Figure 9-2.

**Figure 9-2** The Add Showing Page

2. Enter the name of the video to be scheduled in the Video to Play field. If you want to see a list of videos, click the link labelled Lookup Videos.
3. Enter the name of the showing in the Showing Name field. This is the name that appears in the showings guide.
4. Enter the starting time of the showing in the Start Time field. For a video scheduled to play at regular intervals, this is the start time of the first showing.

5. Enter the ending time of the showing in the End Time field. For a video scheduled to play at regular intervals, this is the end time of the first showing.

**Note:** The end time cannot be later than the start time plus the duration of the video. However, the end time can be earlier than the start time plus the duration. In the latter case, the showing terminates at the end time, even though it isn't at the end of the video.

This field is optional. If it is omitted, the tool automatically calculates the end time from the start time and the video's duration.

6. For videos that are to be scheduled at regular intervals, enter the repeat interval in the Repeat Interval field. For example, if the video is to be repeated at fifteen minute intervals, enter 15 in the box under the Minutes label. This field is optional.
7. For videos that are to be scheduled at regular intervals, enter the total number of showings in the No. of Showings field. This field is used with the Repeat Interval field. It is optional.
8. Enter keywords that you wish to use for searching. This field is optional. (See "Obtaining Information About Showings" on page 117 for information about how these keywords are used.)

**Note:** This field is used to organize showings into logical groupings. It is highly recommended that you use keywords that will assist users in searching for showings.

9. If you don't want the showing deleted automatically after it has played, select the box labelled AutoDelete.
10. Select *Add* to add this showing to LANCast. If there are no errors, LANCast adds the showing, and displays information about the showing below the Add Showing page.

If you schedule showings at repeat intervals, LANCast adds multiple showings when you select *Add*. The number of showings is determined by the No. of Showings field. The first showing is scheduled at the time entered in the Start Time field. Subsequent showings are started at intervals specified in the Repeat Interval field.

For example, assume the Start Time field is 2 p.m., the Repeat Interval field is fifteen minutes, and the No. of Showings field is four. Four showings are added, and they start at 2, 2:15, 2:30, and 2:45 p.m.

## Obtaining Information About Showings

To obtain information about LANCast showings, follow these steps:

1. Select *Edit Showings* in the table of contents of the LANCast Management Tool. The Edit Showings page is shown in Figure 9-3.

**Figure 9-3** The Edit Showings Page

2. Enter the showing name or a pattern-matching text string in the Showing Name field. Leave this field blank if you want all showings to be searched.

Table 9-5 contains the characters that have special meaning within the text string used for pattern-matching.

**Table 9-5** Special Pattern-Matching Characters

Symbol	Meaning
*	any zero or more characters
?	any one character
\*	the asterisk
\?	the question mark

**Table 9-5 (continued)** Special Pattern-Matching Characters

Symbol	Meaning
[ ]	single character within specified range or set
[^]	single character not within specified range or set

For example, to search for showings whose names begin with the letters a, b, or c, enter [abc]\* in this field.

3. Enter a range of times for the start time in the Start Time field. All showings within this range, inclusive of the beginning and end of the range, qualify for the search. You can specify just a time, just a date, or a time and a date in this field. Leave this field blank if you don't want to qualify the start time.

Table 9-6 shows valid entries for the Start Time field.

**Table 9-6** Valid Start Time Entries for Edit Showings Page

>=	<=	Showings That Qualify
May 1	June 30	All showings that start from May 1 at 00:00:00 of the current year, through June 30 at 23:59:59 of the current year
9am	9PM	All showings that start from 9:00:00 through 21:00:00 of the current day
may 31	(blank)	All showings that start on or after May 31 at 00:00:00 of the current year
(blank)	June 30	All showings that start on or before June 30 at 23:59:59 of the current year

4. Enter a range of times for the ending time in the End Time field. Leave this field blank if you don't want to qualify the ending time.

**Note:** The rules and examples that apply to the Start Time field also apply to the End Time field, too.

5. Enter the keywords for which you want to qualify the search in the Keywords field. You can use the special pattern-matching characters described with the Showing Name field. For example, to search for showings whose Keywords field contains the string "training," enter `training`.

Only showings whose keywords contain all those entered in this field are selected. Leave this field blank if you don't want to qualify the search by this field.

You can enter up to ten keywords. If more than ten keywords are entered, only the first ten are used. The keyword search is case-insensitive.

6. Select *Query* to perform the search. The LANCast Management Tool displays the Query Results page that identifies each showing that satisfies the search. The Query Results page is shown in Figure 9-4.

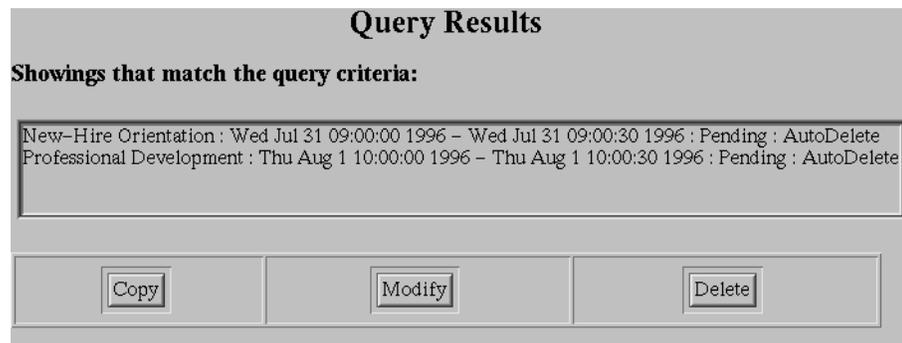


Figure 9-4 The Query Results Page

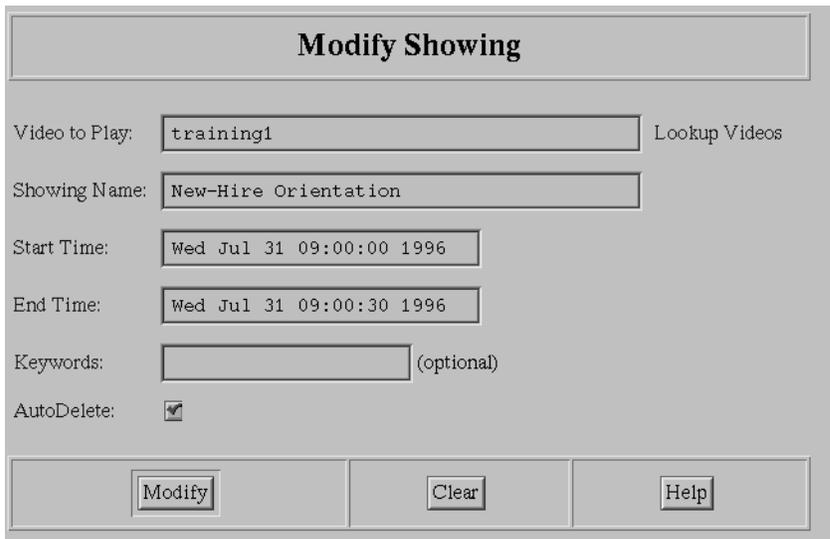


**Warning:** Generating a list of more than 750 showings could take an unreasonably long time. Therefore, if this query returns more than 750 showings, you will get an error message informing you that there are too many showings. You should qualify the query so that fewer than 750 showings are returned.

## Modifying a Showing

To modify a LANCast showing, follow these steps:

1. Select *Edit Showings* in the table of contents of the LANCast Management Tool, and perform a query that returns the showing that you want to modify. See “Obtaining Information About Showings” on page 117 for information about how to do this.
2. On the Query Results page, select the showing you want to modify.
3. Select the *Modify* button on the Query Results page. The Modify Showing page, which is shown in Figure 9-5, appears.



The screenshot shows a web form titled "Modify Showing". It contains several input fields and a checkbox. The "Video to Play" field contains "training1" and has a "Lookup Videos" link to its right. The "Showing Name" field contains "New-Hire Orientation". The "Start Time" field contains "Wed Jul 31 09:00:00 1996". The "End Time" field contains "Wed Jul 31 09:00:30 1996". The "Keywords" field is empty and has "(optional)" to its right. The "AutoDelete" checkbox is checked. At the bottom of the form are three buttons: "Modify", "Clear", and "Help".

**Figure 9-5** The Modify Showing Page

4. Modify the showing, as required.
5. If you want to see a list of videos, click the link labelled *Lookup Videos*.
6. Select *Modify* on the Modify Showing page for the changes to take effect.

## Copying a Showing

To make copies of a LANCast showing, follow these steps:

1. Select *Edit Showings* in the table of contents of the LANCast Management Tool, and perform a query that returns the showing you want to copy. See “Obtaining Information About Showings” on page 117 for information about how to do this.
2. On the Query Results page, select the showing you want to copy.
3. Select *Copy* on the Query Results page. The Copy Showing page, shown in Figure 9-6, appears.

**Figure 9-6** The Copy Showing Page

4. Modify the fields, as desired.
5. If you want to see a list of videos, click the link labelled *Lookup Videos*.
6. Select *Copy* on the Copy Showing page for the copy to be made.

**Note:** If you schedule showings at repeat intervals, LANCast adds multiple showings when you select *Copy*. The number of showings is determined by the No. of Showings field. Each showing has the same showing name, but the start and end times reflect the times for that particular showing.

### Deleting a Showing

To delete a LANCast showing, follow these steps:

1. Select *Edit Showings* in the table of contents of the LANCast Management Tool, and perform a query that returns the showings you want to delete. See “Obtaining Information About Showings” on page 117 for information about how to do this.
2. On the Query Results page, select each showing you want to delete.
3. Select *Delete* on the Query Results page. The Delete Showings page, shown in Figure 9-7, appears.



**Figure 9-7** The Delete Showings Page

4. Select *Delete* if you want the showings deleted.

## Using the Showings Guide

To use the LANCast showings guide from the LANCast Management Tool, follow these steps:

1. Select *Showings Guide* in the table of contents of the LANCast Management Tool to display the Showings Guide page. The Showings Guide page is shown in Figure 9-8.



Showings Guide				
Click on a showing to view it.				
Showing Name	Status	Start time	End time	Multicast Address
New-Hire Orientation	Pending	Wed Jul 31 09:00:00 1996	Wed Jul 31 09:24:43 1996	231.1.2.3
Professional Development	Pending	Thu Aug 1 10:00:00 1996	Thu Aug 1 10:24:43 1996	231.1.2.3

**Figure 9-8** The Showings Guide Page



**Warning:** Generating a list of all the showings in a large database could take an unreasonably long time. Therefore, if the database contains more than 750 showings, the showings guide will not appear on the Showings Guide page. The page will contain a message instructing you to use the user Web site to obtain a listing of showings.

2. Click on the name of the showing that you want to view. A separate window opens to show the countdown to the showing's start time. When the showing starts, another window opens to play the actual video.

## Adding and Managing Showings With Command-Line Utilities

This section describes how to use command-line utilities to add, delete, and obtain information about showings. For an explanation of the time formats used with these utilities, see “About Time Formats” on page 113.

### Adding Showings With the `showing_add` Utility

The `showing_add` utility is used to add showings to MediaBase. The following is the general format for invoking the `showing_add` utility:

```
# /usr/mbase/sbin/showing_add -v video -n name -s start  
[-e end][-c count -i interval] [-k keywords] [-h] [-d]
```

where

- *video* is a text string that identifies the video to be scheduled.
- *name* is a text string that identifies the showing. This is the name that appears in the showings guide.
- *start* is the time that the showing starts.
- *end* is the time that the showing ends; it must be greater than the start time. If omitted, the end time is calculated from the start time and the duration of the video.

**Note:** The end time cannot be later than the start time plus the duration of the video. However, the end time can be earlier than the start time plus the duration. In the latter case, the showing terminates at the end time, even though it isn't at the end of the video.

- *count* is the total number of showings that are scheduled at regular intervals. This parameter is optional.
- *interval* is the time interval between successive showings, for showings scheduled at regular intervals. This parameter is optional.
- *keywords* is a text string used to qualify searches. For example, if this field contains “sales training”, searches can be performed using the keywords “sales,” “training,” and “sales training.” This parameter is optional.
- *-d* indicates that you don't want the showing to be deleted after it plays. If this option is omitted, the showing is automatically deleted after it plays.

**Note:** If you don't run *showing\_add* as root, you'll be prompted for a MediaBase administration username and password when you run this utility.

In addition, the option *-h* displays a line showing the usage of this utility.

If you schedule showings at repeat intervals, this utility adds multiple showings. The number of showings is determined by the *count* parameter. The first showing is scheduled at the time entered in the *start* parameter. Subsequent showings are started at intervals specified in the *interval* parameter.

The following example adds a showing named "New-Hire":

```
# /usr/mbase/sbin/showing_add -v 'training 1' -n 'New-Hire' -s '3pm'
```

This showing has a start time of 3 p.m. on the current day. The end time is calculated automatically.

The following example adds two showings named "Repeated Showings":

```
# /usr/mbase/sbin/showing_add -v 'training 1' -n 'Repeated Showings'
-s '3pm' -c 2 -i 15
```

One of the showings has a start time of 3 p.m. on the current day. The other has a start time of 3:15 p.m. on the current day. The end times are calculated automatically.

## Deleting Showings With the *showing\_delete* Utility

The *showing\_delete* utility is used to delete showings from MediaBase. The utility can delete a maximum of 750 showings. If you attempt to delete more than 750 showings, an error message is displayed and no showings are deleted.

The following is the general format for invoking the *showing\_delete* utility:

```
# /usr/mbase/sbin/showing_delete [-n name] [-s minstart] [-s maxstart]
[-e minend] [-E maxend] [-k keywords] [-h]
```

where

- *name* is a showing name or a pattern-matching text string. Omit this parameter if you want all showings to be considered.

Table 9-7 contains the characters that have special meaning within the text string used for pattern-matching.

**Table 9-7** Special Pattern-Matching Characters

Symbol	Meaning
*	any zero or more characters
?	any one character
\*	the asterisk
\?	the question mark
[]	single character within specified range or set
[^]	single character not within specified range or set

For example, to consider showings whose names begin with the letters a, b, or c, specify `[abc]*` for this parameter.

- *minstart* and *maxstart* represent a range of times for the starting time of the showings to be deleted. All showings within this range, inclusive of the beginning and end of the range, qualify. You can specify just a time, just a date, or a time and a date for these parameters. Omit these parameters if you don't want to qualify the start time.

Table 9-8 shows valid entries for the *minstart* and *maxstart* parameters.

**Table 9-8** Valid Entries for Minstart and Maxstart Entries for showing\_delete Utility

Minstart	Maxstart	Showings That Qualify
May 1	June 30	All showings that start from May 1 at 00:00:00 of the current year, through June 30 at 23:59:59 of the current year
9am	9PM	All showings that start from 9:00:00 through 21:00:00 of the current day
may 31	(blank)	All showings that start on or after May 31 at 00:00:00 of the current year
(blank)	June 30	All showings that start on or before June 30 at 23:59:59 of the current year

- *minend* and *maxend* represent a range of times for the ending time of the showings to be deleted. All showings within this range, inclusive of the beginning and end of the range, qualify. You can specify just a time, just a date, or a time and a date for these parameters. Omit these parameters if you don't want to qualify the end time.

**Note:** The rules and examples that apply to the *minstart* and *maxstart* parameters also apply to the *minend* and *maxend* parameters.

- *keywords* is a text string used to qualify the showings to be deleted. For example, if this parameter contains "sales training," searches can be performed using the keywords "sales," "training," and "sales training." This parameter is optional.

**Note:** If you don't run *showing\_delete* as root, you'll be prompted for a MediaBase administration username and password when you run this utility.

In addition, the option *-h* displays a line showing the usage of this utility.

The following example deletes all showings whose names contain the string "repeat" and whose start times begin on or before midnight on July 8 of the current year:

```
# /usr/mbase/sbin/showing_delete -n '*repeat*' -s 'Jul 8'
```

## Querying Showings With the *showing\_query* Utility

The *showing\_query* utility is used to obtain information about showings. The following is the general format for invoking the *showing\_query* utility:

```
% /usr/mbase/sbin/showing_query [-g] [-n name]
[-s minstart] [-s maxstart] [-e minend] [-E maxend] [-k keywords] [-h]
```

where

- The *-g* option indicates that you want the output in a format suitable for creating customized showing guides for the MediaBase user Web site. The following is sample output when this option is used:

```
showing_name = New-Hire Orientation
asset_name = name of video
start_time= Mon Jul  8 00:00:00 1996
end_time=Mon Jul  8 15:24:58 1996
resource=224.0.1.3
status=Pending
keywords=
URL=http://...
```

- *name* is a showing name or a pattern-matching text string. Omit this parameter if you want all showings to be considered.

Table 9-9 contains the characters that have special meaning within the text string used for pattern-matching.

**Table 9-9** Special Pattern-Matching Characters

Symbol	Meaning
*	any zero or more characters
?	any one character
\*	the asterisk
\?	the question mark
[]	single character within specified range or set
[^]	single character not within specified range or set

For example, to consider showings whose names begin with the letters a, b, or c, enter `[abc]*` for this parameter.

- *minstart* and *maxstart* represent a range of times for the starting time of the showings. All showings within this range, inclusive of the beginning and end of the range, qualify. You can specify just a time, just a date, or a time and a date for these parameters. Omit these parameters if you don't want to qualify the start time.

Table 9-10 shows valid entries for the *minstart* and *maxstart* parameters.

**Table 9-10** Valid Entries for Minstart and Maxstart Entries for showing\_query Utility

Minstart	Maxstart	Showings That Qualify
May 1	June 30	All showings that start from May 1 at 00:00:00 of the current year, through June 30 at 23:59:59 of the current year
9am	9PM	All showings that start from 9:00:00 through 21:00:00 of the current day
may 31	(blank)	All showings that start on or after May 31 at 00:00:00 of the current year
(blank)	June 30	All showings that start on or before June 30 at 23:59:59 of the current year

- *minend* and *maxend* represent a range of times for the ending time of the showings. All showings within this range, inclusive of the beginning and end of the range, qualify. You can specify just a time, just a date, or a time and a date for these parameters. Omit these parameters if you don't want to qualify the end time.

**Note:** The rules and examples that apply to the *minstart* and *maxstart* parameters also apply to the *minend* and *maxend* parameters.

- *keywords* is a text string used to qualify the showings. For example, if this parameter contains "sales training," searches can be performed using the keywords "sales," "training," and "sales training." This parameter is optional.

In addition, the option *-h* displays a line showing the usage of this utility.

The following example returns all showings whose names contain the string "training" and whose start times begin before midnight on July 30 of the current year:

```
% /usr/mbase/sbin/showing_query -n '*training*' -S 'Jul 30'
```



---

## Using the MediaBase User Web Site

This chapter describes how to use the user Web site. The following topics are discussed:

- “Accessing the User Web Site” on page 131
- “About Pattern-Matching Character Strings” on page 133
- “Requesting Showings” on page 134
- “Requesting Videos” on page 137
- “Installing a MediaBase Client” on page 140
- “Seeing Web-Based Documentation” on page 140
- “Going to the MediaBase Administration Site” on page 140

### Accessing the User Web Site

To access the user Web site, follow these steps:

1. Use the following URL in Netscape Navigator to access the user Web site on the WebFORCE Media Server:

`http://hostname/mbase`

where *hostname* is the name of the WebFORCE Media Server. The default Cosmo MediaBase user Web site is shown in Figure 10-1. This is the site as it appears after the WebFORCE Media Server is installed, without any modifications.



Figure 10-1 The Cosmo MediaBase User Web Site

The default Cosmo MediaBase user Web site gives users access to pages that allow them to do the following:

- see the showings scheduled for the current day
- see the showings scheduled for a given month
- find a video and play it on the workstation
- see a list of all videos and play them on the workstation
- install the MediaBase client



**Warning:** Generating a list of all the videos in a large database could take an unreasonably long time. Therefore, if the database contains more than one hundred videos, the link to the page that lists all the videos in the database will not appear on the initial page of the user Web site.

In addition, the user Web site also gives the user access to a Web-based copy of this document and the Cosmo MediaBase administration Web site.

## About Pattern-Matching Character Strings

The video name and showing name fields that you enter in the pages in the user Web site allow you to enter a pattern-matching character string. The pattern-matching string allows you to limit the videos or showings that you'll see.

Table 10-1 contains the characters that have special meaning within the text string used for pattern-matching.

**Table 10-1** Special Pattern-Matching Characters

Symbol	Meaning
*	any zero or more characters
?	any one character
\*	the asterisk
\?	the question mark
[]	single character within specified range or set
[^]	single character not within specified range or set

For example, to search for videos whose names contain the word *training*, use the `*training*` pattern-matching character string. All video names that contain the word *training* satisfy the search. To search for videos whose names begin with the letters a, b, or c, use `[abc]*` for the pattern-matching string.

## Requesting Showings

Showings can be requested in the following ways:

- From a list of the current day's showings
  - From a list of the showings for a given day
1. To see the showings scheduled for the current day, click the link labelled "Today's Scheduled Showings." The Scheduled for Viewing Today page, as shown in Figure 10-2, appears.

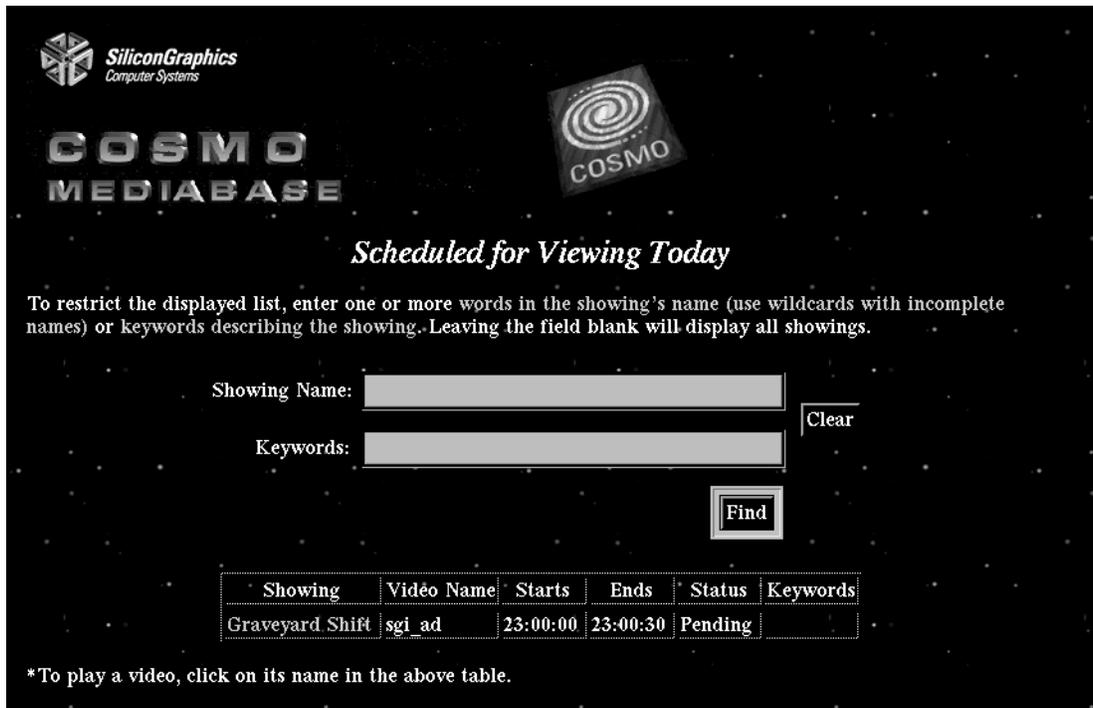


Figure 10-2 The Scheduled for Viewing Today Page

---

This page displays a table containing the showings scheduled for the current day. The page allows the user to enter the showing name or keywords to limit the showings that appear in the table.



**Warning:** Generating a list of all the showings in a large database could take an unreasonably long time. Therefore, if more than 750 showings are scheduled for the current day, this table doesn't appear when this page is displayed. You should qualify the search so that fewer than 750 showings are returned.

**Note:** The keywords correspond to the keywords that are entered when the showing is created.

- To qualify the table by the name of the showing, enter the showing name or a pattern-matching character string. Then click the *Find* button. A table with the showings is displayed.
- To qualify the table by keywords, enter the keywords. Then click the *Find* button. A table with the showings is displayed.

You can enter up to ten keywords. If more than ten keywords are entered, only the first ten are used.

- To request a showing, click the name of the showing that you want to request. The page changes to a Showing Pending page that contains a countdown to the scheduled start time.
- To return to the initial page for the Cosmo MediaBase user Web site, click the *COSMO* button.

2. To see the showings scheduled for a particular day, click the link labelled "Calendar of Scheduled Showings." The Scheduled Showings by Month page, as shown in Figure 10-3, appears.

**SiliconGraphics**  
Computer Systems

**COSMO**  
MEDIABASE

*Scheduled Showings by Month*

Enter one or more words in the showing's name (use wildcards with incomplete names) or keywords describing the showing, or leave the field blank to show all the showings...

Showing Name:

Keywords:

---

**Showings for July, 1996**

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
*28	29	30	31			

Click on highlighted days to see schedules for those days.

Sun Jul 28 13:06:49 PDT 1996

Figure 10-3 The Scheduled Showings by Month Page

This page allows the user to enter keywords or the showing name to limit the search. If neither is entered, all showings for a given day are shown.

**Note:** The keywords correspond to the keywords that are entered when the showing is created.

- To see the showings for a different month or year, use the month or year pop-up menus.
- To qualify the search by the name of the showing, enter the showing name or a pattern-matching character string. Then click the *Find* button. A table with the showings is displayed.

The calendar is updated to reflect the showings that qualify.

- To qualify the search by keywords, enter the keywords. Then click the *Find* button. The calendar is updated to reflect the showings that qualify

You can enter up to ten keywords. If more than ten keywords are entered, only the first ten are used.

- To see the showings for a given day, click the day in the calendar. Only days rendered as links have scheduled showings.
- To return to the initial page for the Cosmo MediaBase user Web site, click the *COSMO* button.

## Requesting Videos

Videos can be requested in the following ways:

- By searching for a specific video
- By selecting the video from a list of all the installed videos

1. To search for a specific video and play it on the workstation, click the link labelled "Find and Play Videos." The Find a Video page, as shown in Figure 10-4, appears.



Figure 10-4 The Find a Video Page

This page allows the user to enter keywords or the video name to limit the search. If neither is entered, all videos are returned.

**Note:** The keywords correspond to the comments that are entered when the video is added to MediaBase.

- To see a list of all videos, click the *Find* button. A table with the videos is displayed.



**Warning:** Generating a list of all the videos in a large database could take an unreasonably long time. Therefore, if the database contains more than one hundred videos, a message appears on this page informing you to qualify the search so that fewer than one hundred videos are returned.

- To qualify the search by the name of the video, enter the video name or a pattern-matching character string. Then click the *Find* button. A table with the videos is displayed.

- To qualify the search by keywords, enter the keywords. Then click the *Find* button. A table with the videos is displayed.

You can enter up to ten keywords. If more than ten keywords are entered, only the first ten are used.

- To play a video on the workstation, click the name of the video that you want to play. The page changes to the Select Video Playback Method page. This page asks you to indicate whether the video should play in a separate window or in the Netscape Navigator window.

Select how you want the video to be played.

- To return to the initial page for the Cosmo MediaBase user Web site, click the *COSMO* button.
2. To see a list of all videos, click the link labelled "List All Videos." The All Videos page, as shown in Figure 10-5, appears.



**Figure 10-5** The All Videos Page

This page displays a table that identifies all videos.



**Warning:** Generating a list of all the videos in a large database could take an unreasonably long time. Therefore, if the database contains more than 100 videos, you will get a message that there are too many videos to list.

- To play a video on the workstation, click the name of the video that you want to play. The page changes to the Select Video Playback Method page. This page asks you to indicate whether the video should play in a separate window or in the Netscape Navigator window.

Select how you want the video to be played.

- To return to the initial page for the Cosmo MediaBase user Web site, click the *COSMO* button.

## Installing a MediaBase Client

To install a MediaBase client, follow these steps:

1. Click the link labelled "Install COSMO MediaBase Video Players." The Cosmo MediaBase Player Installation page appears.
2. Click the link that describes the installation that you want to perform. The page changes to describe how to perform the installation.
3. Follow the instructions to install the MediaBase client.

## Seeing Web-Based Documentation

To see a Web-based copy of this document, click the link labelled "Documentation." The documentation displays in a separate page.

## Going to the MediaBase Administration Site

To go to the Cosmo MediaBase administration Web site, click the link labelled "COSMO MediaBase Administration." You must enter a valid MediaBase administration username and password before you will be able to use the site.

---

## Customizing the MediaBase User Web Site

This chapter describes how to customize the user Web site. The following topics are discussed:

- “The Way the User Web Site Is Generated” on page 141 identifies the files and directories from which the user Web site is generated.
- “Modifying the User Web Site” on page 145 explains how to modify the user Web site.

### The Way the User Web Site Is Generated

The user Web site is generated from the files in the `/var/www/htdocs/mbase` directory. This directory consists of files, CGI scripts, Perl 5 scripts, and GIF files used to generate the user Web site. The file `MBase_Info.txt`, within this directory, lists each of the files and directories shown in this section, and contains additional information about their use.

Table 11-1 identifies the files in the `/var/www/htdocs/mbase` directory that control the user Web site.

**Table 11-1** Files That Control the User Web Site

Filename	Description
<code>index.html</code>	Entry point for the user site; launches the <code>_index.cgi</code> script
<code>_index.cgi</code>	Generates the initial page for the Cosmo MediaBase user Web site

Table 11-2 identifies the files in the `/var/www/htdocs/mbase` directory that contain environment settings. For example, the `config.sys` file contains a setting that controls background colors.

**Table 11-2** Files Containing Environment Settings

Filename	Description
<code>config.sys</code>	Contains settings that control how the page looks
<code>labels.sys</code>	Identifies labels that appear in tables

Table 11-3 identifies the files in the `/var/www/htdocs/mbase` directory that contain the primary scripts used by the site.

**Table 11-3** Primary User Web Site Scripts

Filename	Description
<code>0daily.cgi</code>	Generates the Scheduled for Viewing Today page
<code>1monthly.cgi</code>	Generates the Scheduled Showings by Month page
<code>2findone.cgi</code>	Generates the Find a Video page
<code>3showall.cgi</code>	Generates the All Videos page

Table 11-4 identifies the scripts in the `/var/www/htdocs/mbase` directory that provide support functions.

**Table 11-4** Support Scripts

Filename	Description
<code>_showday.cgi</code>	Displays videos scheduled for selected day (passed in URL: month,date,year); used by <code>_1monthly.cgi</code>
<code>_showtime.cgi</code>	Displays LANcast playback countdown; spawns viewer at appropriate time; used by <code>0daily.cgi</code> , <code>_showday.cgi</code>
<code>_selectit.cgi</code>	Displays page allowing playback mode selection as helper app or plugin; used by <code>2findone.cgi</code> , <code>3showall.cgi</code>
<code>_showit.cgi</code>	Plays back video using helper or plugin; used by <code>_selectit.cgi</code>
<code>_help.cgi</code>	Creates stand-alone help page; used by all main scripts

**Table 11-4 (continued)** Support Scripts

Filename	Description
<code>_install.cgi</code>	Displays MediaBase MPEG player installation options; used by <code>_index.cgi</code>
<code>_procedure.cgi</code>	Displays installation page enclosed by appropriate links; used by <code>_install.cgi</code>

Table 11-5 identifies the subdirectories in the `/var/www/htdocs/mbase` directory.

**Table 11-5** Subdirectories

Subdirectory	Description
<code>admin/</code>	Contains pages for the MediaBase administration site; password authorization required for web access
<code>sbin/</code>	Contains useful PERL scripts and UNIX text filters used by MediaBase
<code>documentation/</code>	Contains the Web-based version of this document
<code>help/</code>	Contains HTML pages for MediaBase user site help links
<code>players/</code>	Contains HTML pages describing intallation of MPEG players

Table 11-6 identifies the Perl scripts and UNIX text filters in the `/var/www/htdocs/mbase/sbin` directory.

**Table 11-6** Perl Scripts and Text Filters

Filename	Description
<code>setup.pl</code>	Provides general HTML page setup; reads <code>config.sys</code> and creates page; also parses form values
<code>parse.pl</code>	Contains subroutine to parse HTTP form input values (requires "POST" method)
<code>listvideos.pl</code>	Contains subroutine to format results from a <code>user_ls_assets</code> query
<code>showscheduled.pl</code>	Contains a subroutine to format results from a query returned by the <code>showing_query</code> utility

**Table 11-6 (continued)** Perl Scripts and Text Filters

Filename	Description
convert_assets	Converts output from <i>user_ls_assets</i> or <i>showing_query</i> to a tab-delimited columnar table
convert_assets.pl	Contains the subroutines used by the <i>convert_assets</i> program

Table 11-7 identifies the Java applets in the */var/www/htdocs/mbase* directory.

**Table 11-7** Java Applets

Filename	Description
CountDown.class	Java applet for counting down to the start time of a LANCCast showing; invoked by <i>_showtime.cgi</i>

Table 11-8 identifies the graphics files in the */var/www/htdocs/mbase* directory. These graphics files are used in the initial page for the user Web site, which is created by *\_index.cgi*.

**Table 11-8** Graphics Files Used in Initial User Site Page

Filename	Description
0daily.gif	Used for link to <i>0daily.cgi</i> (“Today’s Scheduled Showings”)
1monthly.gif	Used for link to <i>1monthly.cgi</i> (“Calendar of Scheduled Showings”)
2findone.gif	Used for link to <i>2findone.cgi</i> (“Find and Play Videos”)
3showall.gif	Used for link to <i>3showall.cgi</i> (“List all Videos”)
_install.gif	Used for link to MPEG Player installation pages (“Install COSMO MediaBase Video Players”)
documentation.gif	Used for link to on-line documentation (“Documentation”)
cosmo.administration.gif	Planet and text link (“Cosmo MediaBase administration”)

Table 11-9 identifies additional graphics files in the `/var/www/htdocs/mbase` directory.

**Table 11-9** Additional Graphics Files

Filename	Description
d0.gif	Gif image for use by "CountDown.class" applet; '0' character
d1.gif	Gif image for use by "CountDown.class" applet; '1' character
d2.gif	Gif image for use by "CountDown.class" applet; '2' character
d3.gif	Gif image for use by "CountDown.class" applet; '3' character
d4.gif	Gif image for use by "CountDown.class" applet; '4' character
d5.gif	Gif image for use by "CountDown.class" applet; '5' character
d6.gif	Gif image for use by "CountDown.class" applet; '6' character
d7.gif	Gif image for use by "CountDown.class" applet; '7' character
d8.gif	Gif image for use by "CountDown.class" applet; '8' character
d9.gif	Gif image for use by "CountDown.class" applet; '9' character
d10.gif	Gif image for use by "CountDown.class" applet; ':' character
cosmo.gif	Banner graphic placed at top of all MediaBase user web pages (change in <code>config.sys</code> )
space.gif	Starry background used on all user pages (change in <code>config.sys</code> )

## Modifying the User Web Site

This section describes how to modify the user Web site. The following topics are discussed:

- "Modifying the Appearance of the Initial Page" on page 146
- "Removing User Pages" on page 146
- "Modifying the User Pages" on page 146
- "Adding Pages to the User Site" on page 147

## Modifying the Appearance of the Initial Page

The following describes how to modify the appearance of the initial user page:

- To change the appearance of the initial page, modify the contents of the `/var/www/htdocs/mbase/config.sys` file. This file defines attributes such as the title of the page and the spacing between lines.
- To modify the label for the link to a user page, replace the corresponding GIF file. For example, to change the label for the link to the Current Day's Showings page, replace the contents of `0daily.gif`.
- To reorder the entries in the initial user page, change the contents of the `_index.cgi` script.

## Removing User Pages

To remove a page from the user site, do one of the following:

- Remove the corresponding files from the `/var/www/htdocs/mbase` directory.
- Rename the corresponding files by inserting an underscore in front of the name. For example, to remove the "Lists all videos" page from the user site, change the name of the `showall.*` files to `_showall.*`.
- Delete the page links from the `_index.cgi` script.

## Modifying the User Pages

You can modify any of the user pages by modifying the corresponding `*.cgi` files. For example, to modify the Current Day's Showings page, modify the contents of `0daily.cgi`.

**Note:** You may want to modify the pages to limit the videos and showings to which users have access. The default is that all users have access to all videos and all showings. If you want to limit the videos or showings that the user sees on these pages, modify the appropriate `*.cgi` file.

## Adding Pages to the User Site

To add pages to the user site, do the following:

1. Create the following files in the `/var/www/htdocs/mbase` directory:
  - The `*.cgi`, `*.html`, or `*.shml` file contains the script or file that generates the user page.
  - The `*.gif` file contains the link that appears to the page.
2. Add an appropriate link to the `_index.cgi` script.



---

## Authoring With MediaBase Videos

This appendix describes the two ways that MediaBase videos can be used in Web documents. The following topics are discussed:

- “Format of the MediaBase Video URL” on page 149
- “Using a MediaBase Video as a Hyperlink” on page 150
- “Using a MediaBase Video as a Plugin” on page 151

### Format of the MediaBase Video URL

The following is the general format of a MediaBase URL:

`http://hostname/mbase/asset/videoname[?query-portion]`

where

- *hostname* is the name of the WebFORCE Media Server.
- *videoname* is the name of the video.
- *query-portion* consists of one or more name-value pairs that modify the appearance or behavior of the video. The query portion of the URL is optional.

Table A-1 identifies the name-value pairs used in the query portion of a MediaBase video URL.

**Table A-1** MediaBase Video URL Name-Value Pairs

Name-Value Pair	Description
displaymethod=embed	Required if the video is to be embedded in a web page. This name-value pair must appear only in the <EMBED> markup tag, and must not appear any place else.
autostart= <i>value</i>	Indicates whether the video starts playing as soon as the player is ready. The value is “true” if the video starts playing as soon as the player is ready, and “false” if the user must click the start button.  If this name-value pair is omitted, false is assumed.

See “Obtaining Information About MediaBase Videos” on page 96 for how to determine the MediaBase URL for a given video.

## Using a MediaBase Video as a Hyperlink

You can use any HTML hyperlink method (for example, forms or anchors) to cause a MediaBase video to play in a separate window. A MediaBase Video URL is required in either the <A> or <FORM> HTML markup tag as the argument to the HREF or ACTION attributes, respectively. For example, the following HTML creates a hyperlink to the video named train2:

```
<A HREF="http://server1/mbase/asset/train2?autostart=true">
```

The video plays in a separate window and starts playing as soon as the player is ready.

## Using a MediaBase Video as a Plugin

You use the Netscape EMBED markup tag to embed a video in a Web page. Videos can be embedded anywhere in an HTML document, in a manner analogous to images (the HTML IMG markup tag).

For example, the following HTML causes the video named train2 to play as a plugin in the Netscape Navigator window:

```
<EMBED SRC="http://server1/mbase/asset/train2?displaymethod=embed"  
WIDTH=366 HEIGHT=288>
```

The video starts playing when the user clicks the play button.

**Note:** The WIDTH and HEIGHT attributes of the EMBED markup tag must be carefully selected to accommodate the dimensions of the selected video, as well as the video controls.



---

## Building XLV Logical Disk Volumes for MediaBase

This appendix explains how to build a logical disk volume for MediaBase. The following topics are discussed:

- “Building a Logical Disk Volume” on page 153
- “Creating a Single Giant Partition” on page 158
- “Configuring Non-SGI Disk Drives for Use in Real-Time Subvolumes” on page 159

See the *IRIX Admin: Disks and Filesystems* manual for detailed information about the commands used in this appendix.

### Building a Logical Disk Volume

MediaBase operates best when given XFS real-time filesystems for video storage. An XFS real-time filesystem is built upon an XLV logical disk volume containing a real-time subvolume.

A logical disk volume is created using `xlvmake(1M)` which combines several physical disk partitions into a single XLV logical volume. The following disk partitions are needed:

- A disk partition to hold the XLV data subvolume
- One, two, or four full disk partitions to hold the XLV real-time subvolume

**Note:** If using non-SGI disk drives for the real-time subvolume, be sure to follow the instructions in “Configuring Non-SGI Disk Drives for Use in Real-Time Subvolumes” on page 159 prior to doing so.

The data subvolume is used for the filesystem metadata, directories, log, and ordinary data. It is composed of a single physical disk partition, which can be part of a miscellaneous spare disk drive. It should be approximately 5 percent of the size of the real-time subvolume.

The real-time subvolume consists of one, two, or four entire physical disk drives with the following constraints:

- Each disk drive must be partitioned as just one giant partition
- The disk drives should be approximately equal in capacity
- Each disk drive must be connected to a SCSI bus connecting only disk drives used in real-time subvolumes

For example, consider a system with two SCSI buses. Bus 0 contains the root drive and another miscellaneous drive. The miscellaneous drive had been previously partitioned into two partitions, one of which (*/dev/dsk/dks0d2s1*) is unused and is about 1 GByte in size. Bus 1 is unused, and there are available two unused 4-GByte drives which can be connected to Bus 1.

The unused partition (*/dev/dsk/dks0d2s1*) on the miscellaneous drive is just right for the XLV data subvolume. The two unused 4-GByte drives are perfect for the XLV real-time subvolume.

The first step is to connect each of the 4-GByte drives to Bus 1, and partition each into a single partition. See “Creating a Single Giant Partition” on page 158 for an explanation of how to partition these drives. This will result in the following two partitions:

- */dev/dsk/dks1d1s7*
- */dev/dsk/dks1d2s7*

Next use the *xlvmake* command to assemble these pieces into a logical volume. At the IRIX command-line prompt, while running as root, type the following:

```
xlvmake
vol rtmovies_vol
data
plex
ve /dev/dsk/dks0d2s1
rt
plex
ve -stripe_unit 128 /dev/dsk/dks1d1s7 /dev/dsk/dks1d2s7
show
end
exit
```

The *xlvmake* command is invoked from the command line. It will prompt for interactive commands. Table B-1 contains an explanation of the *xlvmake* directives.

**Table B-1** Explanation of *xlvmake* Directives

Directive	Explanation
vol	The <i>xlvmake</i> vol directive tells <i>xlvmake</i> the name of the logical volume to be created. This name will appear in the directory <code>/dev/dsk/xlv</code> after <i>xlvmake</i> is done.
data	The <i>xlvmake</i> data directive tells <i>xlvmake</i> that a data subvolume is about to be described.
plex (for the data subvolume)	The <i>xlvmake</i> plex directive tells <i>xlvmake</i> that a subvolume plex is about to be described. In this example the plexing feature of XLV is not used. However, the directive is still required.
ve (for the data subvolume)	The <i>xlvmake</i> ve directive specifies a volume element of a plex of a subvolume. In this example, the data subvolume has a single plex with a single volume element: the disk partition <code>/dev/dsk/dks0d2s1</code> .
rt	The <i>xlvmake</i> rt directive tells <i>xlvmake</i> that a real-time subvolume is about to be described.
plex (for the rt subvolume)	The <i>xlvmake</i> plex directive tells <i>xlvmake</i> that a subvolume plex is about to be described. In this example the plexing feature of XLV is not used. However, the directive is still required.
ve (for the rt subvolume)	The <i>xlvmake</i> ve directive specifies a volume element of a plex of a subvolume. In this example, the real-time subvolume has a single plex with a 2-way striped volume element consisting of the disk partitions <code>/dev/dsk/dks1d1s7</code> and <code>/dev/dsk/dks1d2s7</code> . MediaBase requires that the stripe step size (i.e., <code>stripe_unit</code> ) be 64 KBytes. Since <i>xlvmake</i> works in units of 512 bytes, we specify 128 ( $128 * 512 = 64K$ ).
show	The <i>xlvmake</i> show directive tells <i>xlvmake</i> to display the logical volume so far described.
end	The <i>xlvmake</i> end directive tells <i>xlvmake</i> the logical volume is fully described.
exit	The <i>xlvmake</i> exit directive tells <i>xlvmake</i> to commit the changes and terminate. At this point the logical volume will be recorded persistently (in the involved disk labels).

A logical volume has been created, named *rtmovies\_vol*. To verify, look for it in */dev/dsk/xlv*.

Finally, The XFS filesystem must be created and mounted. Once again, while running as root, type the following:

```
mkfs -l internal,size=1000b -r extsize=128k /dev/dsk/xlv/rtmovies_vol
mkdir /rtmovies
mount /dev/dsk/xlv/rtmovies_vol /rtmovies
```

Table B-2 contains an explanation of these commands.

**Table B-2** Explanation of Commands

Command	Explanation
<i>mkfs</i>	The <i>mkfs(1M)</i> command actually invokes <i>mkfs_xfs(1M)</i> . The <i>-l</i> option specifies that an internal log 1000 filesystem blocks in length is to be used. This is the recommended configuration. The <i>-r</i> option specifies the real-time I/O extent size. This must match the stripe size of the real-time subvolume of the logical disk volume. In fact it does in this example: 128 KBytes per stripe is equal to 2 stripe units per stripe times (128 * 512) bytes per stripe unit.
<i>mkdir</i>	We need a mount point for the new filesystem. In this example we create one in the root directory.
<i>mount</i>	Mount the new filesystem so it can be used by MediaBase. Be sure to add it to <i>/etc/fstab</i> , so it will be automatically mounted on system reboot. The easiest way to do this is to copy the pertinent line from <i>/etc/mtab</i> , after mounting.

The filesystem is created, mounted, and ready to be handed over to MediaBase. Be sure to copy the resultant new line in */etc/mtab* into */etc/fstab*, to enable automatic mounting on reboot.

To hand the filesystem over to MediaBase, go to the Configure Filesystems page of the MediaBase Server Configuration Tool. */rtmovies* will appear in the list of eligible filesystems. Simply select the filesystem from the list, and click on the *Add* button.

A similar set of procedures is followed to create an XFS filesystem with a real-time subvolume containing 1 or 4 disk drives. For the 4 disk drive case, consider that the system described above contained four unused 4-GByte drives on SCSI Bus 1. The following are the disk partitions to be used to construct the XLV real-time subvolume are:

- `/dev/dsk/dks1d1s7`
- `/dev/dsk/dks1d2s7`
- `/dev/dsk/dks1d3s7`
- `/dev/dsk/dks1d4s7`

Use the `xlvmake` command to assemble the pieces into a logical volume. At the IRIX command-line prompt, while running as root, type the following:

```
xlvmake
vol rtmovies_vol
data
plex
ve /dev/dsk/dks0d2s1
rt
plex
ve -stripe_unit 128 /dev/dsk/dks1d1s7 /dev/dsk/dks1d2s7
/dev/dsk/dks1d3s7
/dev/dsk/dks1d4s7
show
end
exit
```

To create and mount the appropriate XFS filesystem, type the following:

```
mkfs -l internal,size=1000b -r extsize=256k /dev/dsk/xlv/rtmovies_vol
mkdir /rtmovies
mount /dev/dsk/xlv/rtmovies_vol /rtmovies
```

For the case where the XLV real-time subvolume contains a single disk drive, assume that the system described above has only one 4-GByte disk on SCSI Bus 1. The partition to be used to construct the XLV real-time subvolume is `/dev/dsk/dks1d1s7`.

Use the `xlvmake` command to assemble the partition into a logical volume. At the IRIX command-line prompt, while running as root, type the following:

```
xlvmake
vol rtmovies_vol
data
plex
ve /dev/dsk/dks0d2s1
rt
plex
ve /dev/dsk/dks1d1s7
show
end
exit
```

To create and mount the appropriate XFS filesystem, type the following:

```
mkfs -l internal,size=1000b -r extsize=64k /dev/dsk/xlv/rtmovies_vol
mkdir /rtmovies
mount /dev/dsk/xlv/rtmovies_vol /rtmovies
```

## Creating a Single Giant Partition

Use the command `fx(1M)` to partition a disk drive. In this case, we want to create one partition encompassing the entire disk drive. Actually, there are various housekeeping partitions (such as the disk label partition) which are always required.

Fortunately, `fx` makes it fairly easy to do this because it is an interactive utility. Assuming we want to partition drive 1 on SCSI Bus 1, type the command

```
# fx -x
```

You will be prompted to supply the following answers:

```
fx: "device-name" = (dksc) Enter
fx: ctrlr# = (0) 1
fx: drive# = (1) 1
fx: lun# = (0) Enter
... please choose one ...fx> repartition
... please choose one ...fx> optiondrive
fx/repartition/optiondrive: type of data partition = (xfs) Enter
fx/repartition/optiondrive: create usr log partition? = (yes) no
Warning: ... Continue? yes
fx/repartition> ../exit
```

When the *fx* command completes, the drive has been partitioned into just one gigantic partition (plus the aforementioned housekeeping partitions). The partition number to use is 7 which in this example is */dev/dsk/dks1d1s7*.

## Configuring Non-SGI Disk Drives for Use in Real-Time Subvolumes

This section explains how to configure IRIX to use non-SGI disk drives in XFS real-time filesystems.

First attach the disk drive to a SCSI bus. Be sure this bus will be used for no purpose other than to access disks used in XLV real-time subvolumes.

To look up the SCSI Drive Type string using *fx(1M)*, type the following:

```
/usr/bin/fx "dksc(<bus number>,<unit number>)"
```

For example,

```
/usr/bin/fx "dksc(0,5)"
```

tells *fx(1M)* to look at drive 5 on SCSI bus 0. The output of *fx* will look something like the following:

```
fx version 6.2, Mar  9, 1996
..opening dksc(0,5,0)
fx: partition already in use by xlv or lv logical volume
fx: devname          seq start  end    owner  cause
fx: /dev/rdisk/dks0d5s7  1 4128  3932607 xlv    part of lv/xlv vol
fx: Warning:  this disk appears to have mounted filesystems.
Don't do anything destructive, unless you are sure nothing is really
mounted on this disk.
...controller test...OK
Scsi drive type == SGI      0664N1D      6S61
----- please choose one (? for help, .. to quit this menu)-----
[ex]it          [d]ebug/          [l]abel/
[b]adbblock/    [ex]ercise/      [r]epartition/
fx>
```

The only item of interest is the string of characters following Scsi drive type == . In this case it is the following:

```
"SGI      0664N1D      6S61"
```

Type the following to terminate *fx(1M)*:

**exi**

In the GRIO disks inventory file */etc/grio\_disks* (see *REACT Real-Time Programmer's Guide* for information about GRIO), look for an ADD line containing this drive type string followed by 64K (indicating an optimal I/O size of 64K). For example,

```
ADD      "SGI      0664N1D      6S61"  64K      23
```

The number 23 at the end of the line in this example indicates the number of optimal I/Os per second is 23. If the line is not present, or the number of optimal I/Os per second field is suspect, continue. Otherwise, no further configuration is necessary.

Run the command *grio\_bandwidth(1M)* to determine the appropriate value for the number of optimal I/Os per second field. For example,

```
/usr/sbin/grio_bandwidth -d /dev/rdisk/dks0d5vol -s 65536 -t 600 -r
```

**Note:** The *-t 600* option means this will take 5 minutes to complete. Be sure to use the *-r* option (read-only). The *-s* argument is in bytes, and must match the 3rd field in the */etc/grio\_disks* entry: e.g., 64K is 65536 (64 times 1024).

This will result in output similar to the following:

```
device /dev/rdisk/dks0d5vol with id "SGI      0664N1D      6S61",  
using only read ops, provided :  
on average:                24 ops of size 65536 each second  
in the worst case:         4 ops of size 65536 each second
```

The on average value output from *grio\_bandwidth(1M)* is to be placed in the last field of */etc/grio\_disks*.

The drive may now be incorporated into a XLV real-time subvolume.

---

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