



# Administering IP/TV Program Manager

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This chapter describes how to administer IP/TV Program Manager. Topics include:

- [IP/TV Program Manager Components, page 4-2](#)
- [Sending and Receiving Session Announcements, page 4-2](#)
- [Customer Sites Using Multiple IP/TV Program Managers, page 4-4](#)
- [Setting Up a Secondary IP/TV Program Manager, page 4-5](#)
- [Backing Up IP/TV Program Manager Databases and Files, page 4-6](#)
- [Monitoring Server Status, page 4-6](#)
- [Journaling, page 4-11](#)

# IP/TV Program Manager Components

IP/TV Program Manager consists of the following integrated components:

- IP/TV Program Manager Administration runs under the Apache Web Server, and uses Perl scripts and a Java servlet to create scheduled and on-demand programs, recordings, and FTP transfers, and to define servers, server clusters, proximity groups, subnets, and channels.
- IP/TV Program Manager service uses Perl scripts to send and receive scheduled sdp program announcements, manage questions received during scheduled programs from the users of IP/TV Viewer, and pass information to Cisco FTP Server.
- OnDemand Publish is a Java servlet that runs under the Apache Web Server, publishes information about IP/TV and Windows Media Technologies (WMT) on-demand programs and WMT scheduled programs, and updates on-demand journal records.
- OnDemand Manager is a Java servlet that runs under the Apache Web Server and manages on-demand programs and servers. This application uses the Real-Time Streaming Protocol (RTSP) for communication with IP/TV Viewer and IP/TV Server.
- OnDemand Manager and IP/TV Program Manager Administration use a PostgreSQL database to store information about on-demand programs and servers. A second database stores information about the journal records of OnDemand sessions.

## Sending and Receiving Session Announcements

The Multicast Backbone (Mbone) is the deployment of multicast in the global Internet. If your network has multicast connectivity to the Mbone, IP/TV Program Manager can be configured to include Mbone sessions in its program listings. IP/TV Viewer users can then view these sessions.

IP/TV is compatible with Mbone sessions that are multicast using the Lawrence Berkeley Labs (LBL) tools vic 2.7 and later with H.261 encoding for the video portion of the multicast, and vat 4.0 with Global System for Mobile

Communications (GSM), Digital Video Interactive (DVI), or pulse code modulation (PCM) (mu-law) encoding for the audio portion. All other MBone sessions are ignored.

Many MBone session announcements are sent and received using sdr, a tool from University College London (UCL). IP/TV Program Manager includes the Cisco Systems sdp listener utility, which uses the same format and addressing as the UCL sdr tool to send and receive announcements of scheduled programs.

Once sdp begins running, it sends out program announcements approximately every 5 minutes.

Each sdp announcement uses the TTL value assigned to the program being announced. Thus, the announcement is limited to the same geographic range as the program itself.

The multicast range specified for each program determines how far the sdp announcements are propagated. For example, if the multicast range of a program is set to Local (a TTL of 1 by default), the sdp message of the program will not go over the MBone. If the range is Worldwide (a TTL of 127 by default), the sdp announcement will propagate through all multicast-enabled routers.

If a program uses a multicast address starting with 224.*n.n.n*, the announcement uses the standard sdp announcement address, and all sdp tools and all other IP/TV Program Managers within the TTL limit of the program receive it.

However, if a program uses an administratively scoped IP multicast address (the range starting at 239.0.0.0), the program announcement uses the highest address of the administratively scoped address range set in your preferences. This means that sdp and other IP/TV Program Manager servers only receive the announcement if they are configured to use the same address range and are within the TTL limit of the program and administratively scoped boundary.

For more information about IP multicast addresses, see the [“Setting IP/TV Program Manager Defaults and Preferences”](#) section on page 3-2.

If you want IP/TV Program Manager to send or receive session announcements using sdp, follow these steps:

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- Step 1** To send session announcements, check the **Announce Local Programs** check box in the Scheduled Program Management section of the Preferences window.
- Step 2** To configure IP/TV Program Manager to receive session announcements, choose one of the options under Listen for Program Announcements in the Preferences window.
- Step 3** Stop and restart the Cisco IP/TV Program Manager service to ensure that IP/TV Program Manager begins sending and receiving session announcements immediately.

If you do not stop and restart, up to 5 minutes may elapse before incoming announcements are displayed in the Programs window of IP/TV Program Manager or outgoing IP/TV program announcements are sent to other servers.

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## Customer Sites Using Multiple IP/TV Program Managers

Multiple IP/TV Program Managers are used for the following reasons:

- To geographically localize network traffic and minimize global network traffic by having IP/TV Viewers point to their local IP/TV Program Manager and server cluster
- To allow remote multicast environments to set up their own programs

If your organization has multiple IP/TV Program Managers, you may want the scheduled program listings on all of them to contain the same information. You can configure each IP/TV Program Manager to send or receive IP/TV scheduled program announcements. Configuring all IP/TV Program Managers in this way enables IP/TV Viewer to list all IP/TV scheduled programs on your network, not just the listings from the primary IP/TV Program Manager, and also ensures that the listings of the primary and secondary IP/TV Program Managers are the same.

To configure IP/TV Program Manager, follow these steps:

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- Step 1** Set IP/TV Program Manager to send, receive, or send and receive program announcements.
- To send program announcements, check the **Announce Local Programs** check box in the Scheduled Program Management section of the Preferences window.
  - To receive program announcements, check the **Listen to these IP/TV Program Managers** check box in the Scheduled Program Management section of the Preferences window, and enter the IP/TV Program Manager host name.
- Step 2** Repeat this procedure on every IP/TV Program Manager.
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## Setting Up a Secondary IP/TV Program Manager

Both IP/TV Viewer and IP/TV Server allow you to define a secondary IP/TV Program Manager from which IP/TV Viewer and IP/TV Server can fetch scheduled program listings if the primary IP/TV Program Manager does not respond. IP/TV Viewer allows multiple IP/TV Program Manager entries in the Program Managers option and there can be a primary and secondary IP/TV Program Manager defined for each entry. (Refer to the *Cisco IP/TV Viewer User Guide* for information.)

An IP/TV Viewer request for an on-demand program is directed only to the IP/TV Program Manager listed in the program information (the IP/TV Program Manager from which the listing was obtained). If that IP/TV Program Manager does not respond, the user can access the secondary IP/TV Program Manager by refreshing the IP/TV Viewer program listing. New requests for on-demand programs will succeed if all of the IP/TV Servers have been configured with information about the secondary IP/TV Program Manager (refer to the *Cisco IP/TV Broadcast Server User Guide* for more information), and if on-demand programs have been duplicated on the secondary IP/TV Program Manager.

# Backing Up IP/TV Program Manager Databases and Files

It is important to back up your IP/TV Program Manager databases and files at regular intervals. If the databases or files become corrupted, you can then restore them from the backup.

**Note**

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To access the IP/TV Program Manager command prompt, open a Telnet session to the IP/TV Program Manager host and enter your username and password to validate the session.

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To do the backup, enter the following command at the command prompt:

```
programmanagerhost# iptv program-manager database backup
```

where *programmanagerhost* is the IP address or host name for IP/TV Program Manager.

This command saves a backup of IP/TV Program Manager files and databases as `pmdb_backup.tar` in the local `I` folder. You can move or copy this file to some other location if you wish. However, you must keep a copy of the file at the default location to allow restoration of settings when needed.

To restore the settings, enter the following command at the IP/TV Program Manager command prompt:

```
programmanagerhost# iptv program-manager database restore
```

If the `pmdb_backup.tar` file is not available at the default location, IP/TV Program Manager generates an error message and stops the restoration process.

## Monitoring Server Status

The ServerWatch windows provide information on the current status of IP/TV Servers. The main ServerWatch windows include static information. To refresh the data, you must click the **Reload** or **Refresh** button of your browser.

## Using ServerWatch

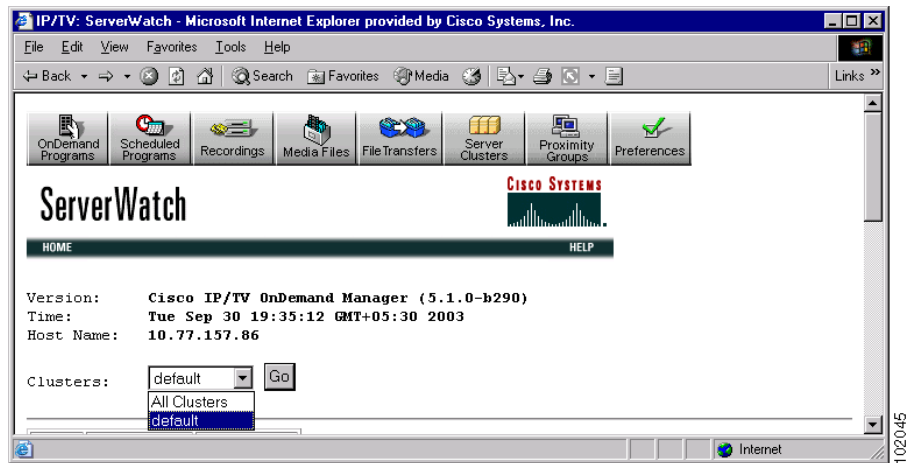
To access ServerWatch, follow these steps:

- Step 1** Click **ServerWatch** in the IP/TV Program Manager main window, or click the **ServerWatch** link in the banner bar of the Server Clusters window.

The ServerWatch main window appears. (See [Figure 4-1](#).)

The window includes information about the current version of the OnDemand Manager component of IP/TV Program Manager, the date and time at which the window was displayed, and the host name of IP/TV Program Manager.

**Figure 4-1** *ServerWatch Window*



- Step 2** Choose a server cluster or scroll to **All Clusters** and click **Go**.

The ServerWatch window is filled in with information about the selected cluster. (See [Figure 4-2](#).)

Figure 4-2 Completed ServerWatch Window

The screenshot shows the ServerWatch web interface. At the top, it says "ServerWatch" with the Cisco Systems logo. Below that, it displays system information: "Version: Cisco IP/TV OnDemand Manager (5.1.0-b290)", "Time: Tue Sep 30 19:41:02 GMT+05:30 2003", and "Host Name: 10.77.157.86". There is a "Clusters:" dropdown menu set to "default" and a "Go" button. Below this is a section titled "Status of Servers: default Cluster" which contains a table with columns: IP/TV Servers, Cluster, Status, Sessions, Allocated (kbps), and Capacity (kbps). The table lists five servers with their respective statuses and session counts. Below that is a section titled "Active Sessions for Server: 10.77.140.117" with a table showing one active session. Finally, there is a section titled "Active Sessions for Server: 10.77.140.234" with a table showing one active session. The browser's status bar at the bottom shows "Done" and "Internet".

Version: Cisco IP/TV OnDemand Manager (5.1.0-b290)  
 Time: Tue Sep 30 19:41:02 GMT+05:30 2003  
 Host Name: 10.77.157.86

Clusters:

Status of Servers: default Cluster

IP/TV Servers	Cluster	Status	Sessions	Allocated (kbps)	Capacity (kbps)
<a href="#">10.77.140.117</a>	default	Managed	1	1122	99999999
<a href="#">10.77.140.188</a>	default	Down	0	0	99999999
<a href="#">10.77.140.210</a>	default	Managed	0	0	99999999
<a href="#">10.77.140.234</a>	default	Managed	1	1342	99999999
<a href="#">10.77.140.243</a>	default	Managed	2	3500	99999999
<a href="#">10.77.157.78</a>	default	Down	0	0	99999999

Active Sessions for Server: 10.77.140.117

Title	Type	Client	Proximity Group	Bandwidth
22222	Scheduled	Scheduled@-		1122

Active Sessions for Server: 10.77.140.234

Title	Type	Client	Proximity Group	Bandwidth
Mpeg AV	Scheduled	Scheduled@-		1342

Table 4-1 describes the fields in the Clusters section. This section appears only if you chose **All Clusters**.

**Table 4-1 Cluster Fields**

Field	Description
Cluster	Displays the name of the cluster.
Allocated	Displays the currently used capacity of the cluster in kbps.
Capacity	Displays the maximum cluster capacity in kbps.

Table 4-2 describes the fields in the Status of Servers section.

**Table 4-2 Status of Servers Fields**

Field	Description
IP/TV Servers	Displays the name of the server.
Cluster	Displays the name of the cluster to which the server belongs.
Status	Displays the status of the server. <ul style="list-style-type: none"> <li>• <i>Managed</i> indicates that the server is up and being managed by IP/TV Program Manager.</li> <li>• <i>Not Managed</i> indicates that the server is up but is being managed by another IP/TV Program Manager or is in maintenance mode.</li> <li>• <i>Down</i> indicates that IP/TV Program Manager could not contact the server.</li> <li>• <i>Disabled</i> indicates that the server is not an IP/TV Server.</li> </ul>
Sessions	Displays the number of currently active scheduled and on-demand sessions.
Allocated (kbps)	Displays the currently used capacity of the server in kbps.
Capacity (kbps)	Displays the maximum server capacity in kbps.

Table 4-3 describes the fields in the Active Sessions for Server section underneath the Status of Servers section.

**Table 4-3 Active Sessions for Server Section**

Field	Description
Title	Displays the name of the IP/TV programs being served by the server.
Type	Indicates whether the program is scheduled or on-demand.
Client	For on-demand programs, displays the name of the client requesting the program. For scheduled programs, displays a dash (-).
Proximity Group	For on-demand programs, indicates the proximity group to which the client belongs. For scheduled programs, this field is blank.
Bandwidth	Displays the bandwidth required by the program in kbps.

**Step 3** If you click a server name in the Status of Servers section, the Server Information window appears. (See Figure 4-3.)

**Figure 4-3 Server Information Window**

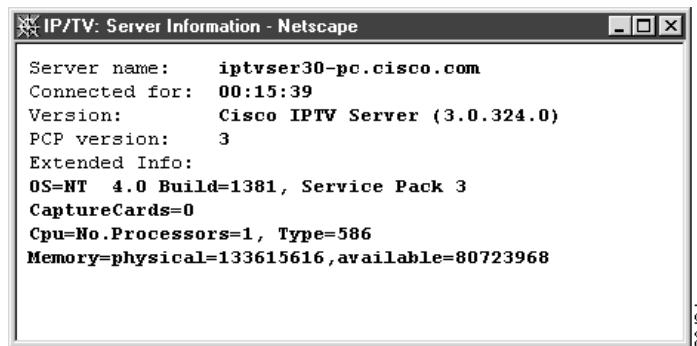


Table 4-4 describes the fields in the Server Information window.

**Table 4-4 Server Information Window Fields**

Field	Description
Server name	Displays the name of the server.
Connected for	Displays the length of time that IP/TV Program Manager has been connected to the server.
Version	Displays the version number of IP/TV Server.
PCP version	Displays the version of the control protocol that is being used by the server.
Extended Info	Lists information about the operating system of the server, build number, capture card, CPU, and system memory.

## Journaling

You can configure IP/TV Program Manager to maintain a journal record of each on-demand session. By default, journaling is disabled (journal records are kept for zero days).

To enable journaling, follow these steps:

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- Step 1** In the IP/TV Program Manager main window, click **Preferences**.
  - Step 2** Locate the Other Options section at the bottom of the Preferences window.
  - Step 3** Decide how many days you want IP/TV Program Manager to save journaling records, and enter this number in the Save Journaling Records field. IP/TV Program Manager automatically purges journal records after the number of days that you specify.
  - Step 4** Click **Revise Preferences** at the bottom of the window to submit the change to IP/TV Program Manager.
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**Caution**

Journaling uses reverse DNS lookups. If you enable journaling, be sure to configure your DNS system to allow reverse DNS lookups. Allowing reverse DNS lookups ensures that your journaling database is complete and accurate. If you do not enable reverse DNS lookups, viewer requests for on-demand programs may experience delays in the start of the program.

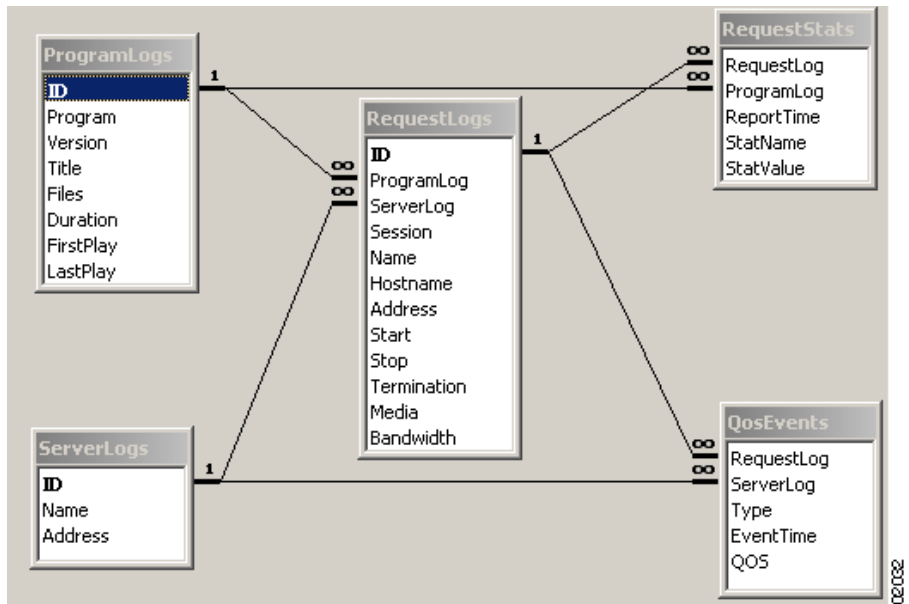
## Organization of the Journaling Database

IP/TV Program Manager uses PostgreSQL database to manage the journaling database. The journaling database contains the following tables:

- **RequestLogs table**—This table includes the name of the requesting user, the name and IP address of the user's computer, the time of the program request and end, a media list, and the bandwidth of the selected media.  
The fields ProgramLogs and ServerLogs point to the other three tables, where information common to many sessions is recorded.
- **ProgramLogs table**—This table includes the ID and modification version of the program, the full path name and duration of the program, the list of files in the playlist of the program, and the start time of the first and last time that the program was played.
- **ServerLogs table**—This table includes the name of the media server and the IP address of the server.
- **Requests Stats table**—This table includes statistics of user requests such as generated ID of the request, program log ID, time of the event, name of the event, and value of the event.
- **QoS Events table**—This table includes a log of Quality of Service (QoS) events, including the generated ID of the event, generated ID of the logging instance of a program, the type and time of the event, and the QoS associated with the event.

Figure 4-4 shows the relationship of the journaling database tables and the fields in each table.

Figure 4-4 Journaling Database Tables



## Accessing the Journaling Database

To access the journaling database, enter the following command in EXEC mode:

```
programmangerhost# iptv program-manager database dump journal
```

where *programmangerhost* is the IP address or host name of IP/TV Program Manager.



### Note

To access the command prompt, open a Telnet session to the IP/TV Program Manager host using the IP address or host name of the device. Enter your username and password to validate the session.

IP/TV Program Manager creates a file called `journalDB.sql`, which includes the schema of the database and its raw data under the directory `/local1`. You can access the file from the given directory and review the database entries.

