# CISCO™

# Application Server 3.5
## User Guide

# Please Read

## Important

Please read this entire guide. If this guide provides installation or operation instructions, give particular attention to all safety statements included in this guide.

# Notices

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# Contents

# About This Guide

## Introduction

The Application Server works with the Digital Network Control System (DNCS) to deliver digital applications to subscribers. Together, the Application Server and the DNCS form the core of the Digital Broadband Delivery System (DBDS). The DBDS delivers broadcast data and digital applications from the headend to the subscribers' homes.

This guide provides procedures for setting up and managing digital applications such as pay-per-view (PPV) and the Interactive Program Guide (IPG) on the Application Server.

This guide contains procedures for defining digital applications as well as deleting and changing the definitions for these applications. You will not complete these procedures in the order they are presented here. In addition, you will not necessarily use all of the procedures in this guide, depending on the applications that you offer to your subscribers.

**Note:** The illustrations and screen captures shown in this guide may not exactly match what displays on your system.

## Purpose

The purpose of this guide is to enable users to manage the applications that reside on Application Server 3.5. You will learn how to set up, or provision, each of the applications that reside on the Application Server.

## Prerequisites

Application Server software version 3.5 requires one of the following system releases:

- System Release (SR) 2.7 and later

- SR 3.7 and later

- SR 4.2 and later

## Audience

This guide is intended for system operators who are using SARA Server 3.5 with one of the system releases listed earlier.

## Document Version

This is the Second release of this document.

# 1

## Introducing the Application Server

This chapter explains the purpose of the Application Server, how it differs from the Digital Network Control System (DNCS), and how it fits into the Digital Broadband Delivery System (DBDS). In addition, this chapter provides an overview of how to monitor the status of the Application Server and how to use the online Help system.

## In This Chapter

# Understand the DBDS Network

The Application Server is a workstation that transfers data to the DNCS. The Application Server runs the applications that are necessary for providing digital services to subscribers.  You must set up, or provision, the following applications so that the DBDS can deliver digital services to subscribers:

| | |
|---|---|
| Foreign language support | *Chapter 3_Setting Up Language Support* (see "Setting Up Language Support" on page 19) |
| Described Video Service (DVS) | *Chapter 4_Setting Up Described Video Services* (see "Defining PPV Services and Events" on page 37) |
| Pay-Per-View (PPV) | *Chapter 5_Defining PPV Services and Events* (see "Defining PPV Services and Events" on page 37) |
| Interactive Program Guide (IPG) | *Chapter 6_Setting Up the Interactive Program Guide*  (see "Setting Up the Interactive Program Guide" on page 63) |
| Virtual Channel Service (VCS) | *Chapter 7_Setting Up a Virtual Channel Service* (see "Setting Up a Virtual Channel Service" on page 97) |
| Enabling Tracing on the Application Server | *Chaper 8_Enabling Tracing on the Application Server* (see "Enabling Tracing on the Application Server" on page 109) |
| Digital Video Disc (DVD) | *Chapter 9_Adding and Updating a dvd Server on the BFS* (see "Adding and Updating a dvd Server on the BFS" on page 115) |

**Important Note for Multiple-Site (RCS-Enabled) Systems:** When provisioning an application for the Broadcast File System (BFS), manually set up any BFS server or source for the "AllSites" site only, and not for any other individual sites in your system. Otherwise, the server and source will fail. Currently, VCS and DVD are the only applications the Application Server uses that must be set up in this manner. Chapter 7 and Chapter 9 provide more information on setting up applications for RCS-enabled systems.

The DNCS graphical user interface (GUI) allows you to manage and monitor the Application Server. The following two windows are available on the DNCS desktop and provide the means of entry to the Application Server as needed:

- DNCS Administrative Console Status

- DNCS Administrative Console

*View DNCS Monitor Windows* (on page 4) describes these windows and explains how they relate to the Application Server.

## The DBDS

This section briefly describes the relationship between the Application Server and the DBDS and explains how the Application Server works with the DBDS.

The DBDS is a network of hardware and software elements, including the Application Server, that connects content servers to DHCTs in order to deliver MPEG-2 video, audio, digital data, and analog services to subscribers. The following diagram illustrates how the various hardware elements interconnect to form a DBDS.

**Note:** The following illustration shows a basic DBDS with no optional features.
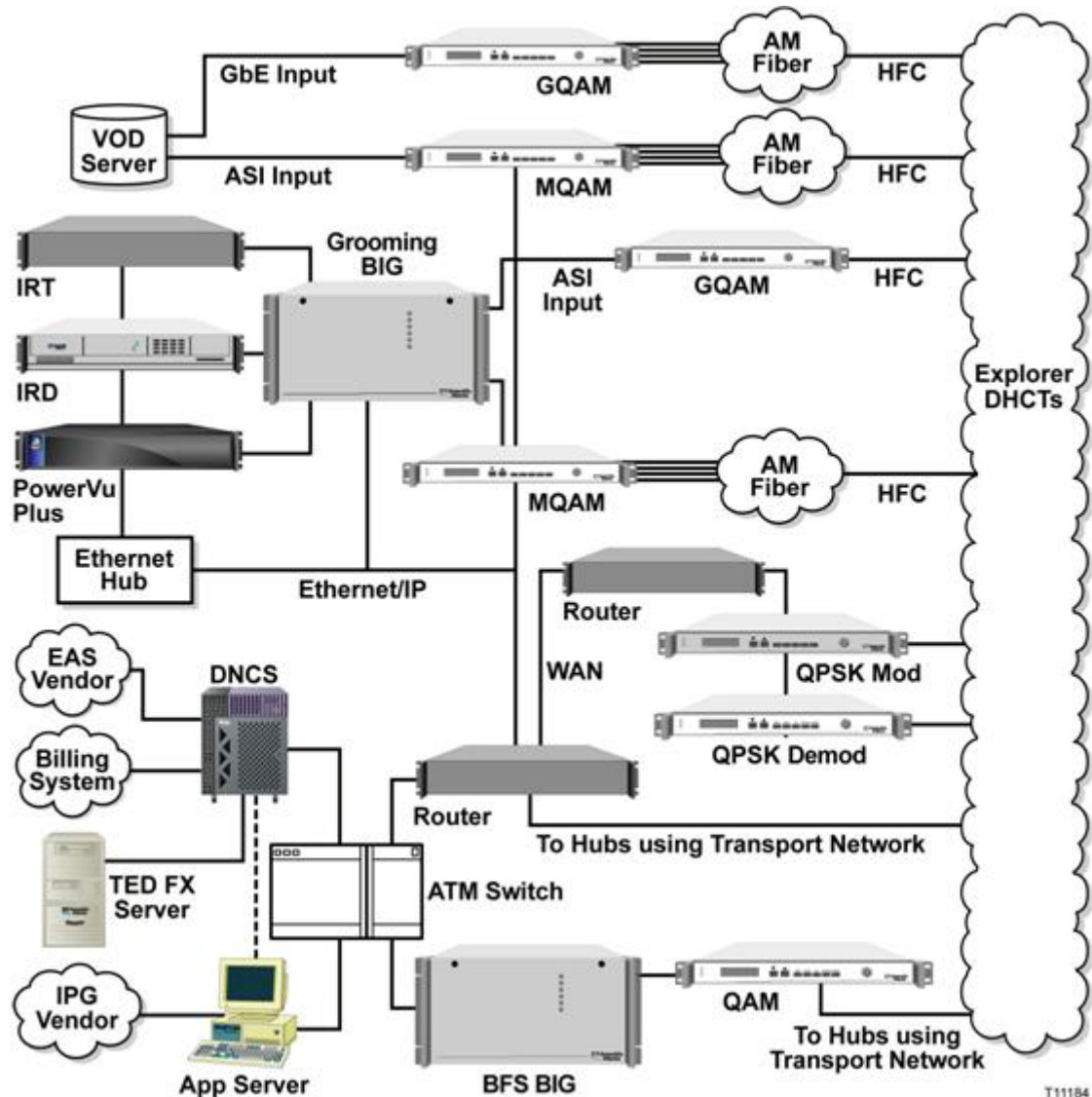
# View DNCS Monitor Windows

## DNCS Administrative Console Status Window

Use the DNCS Administrative Console Status window to determine the overall status of various processes and network elements. To determine the status of the individual Application Server processes, see *AppServer Control Window* (on page 5), next in this section.

The DNCS Administrative Console Status window is divided into the following four areas:

- DNCS
- Spectrum NMS (if used)
- AppServer
- Alarms

**Note:** Instead of Spectrum Network Management System (NMS), we offer a separate product called the DBDS Alarm Management System to help you monitor your network elements. For more information, contact your customer service representative.

The following illustration indicates that the DNCS; Application Server (AppServer); and Spectrum NMS, if used, are all running. If one of these elements was not running, the associated box would appear red (instead of green) and display Inactive (instead of Running). The Alarms area indicates the number of critical (Cr), major (Mj), and minor (Mn) alarm conditions, if any, that are present in the DBDS.

# AppServer Control Window

If you click the Control button in the AppServer area of the DNCS Administrative Console Status window, the AppServer Control window appears. The AppServer Control window provides a list of all the processes on the Application Server workstation, along with the working state of each.
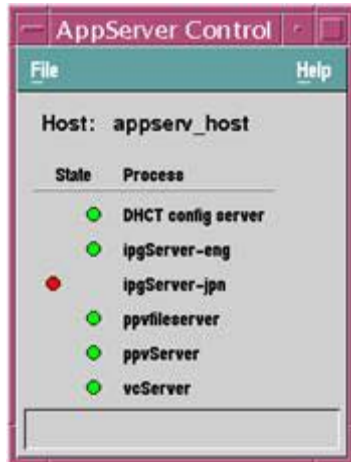


We recommend that you leave the AppServer Control window open and visible at all times to help you monitor the system. The following list describes the different working states that can appear on this window:

- **Green:** The process as a whole is running, although a sub-process may be paused.

- **Yellow:** The process has not finished starting up or shutting down, or the process is waiting for a subprocess to finish starting up or shutting down.

- **Red:** The process has stopped or did not start.

Once the Application Server is up and running, all of these processes should be green. If any of them are red or yellow, there is a problem with that process, and you should contact Cisco Services.

Some processes restart automatically in response to an error. If this happens, the status indicator cycles through red, yellow, and green as the process shuts itself down, restarts itself, and then becomes active.

## Application Server Processes Description

The following table provides a description of the processes on the Application Server that display in the AppServer Control window.

| Process | Description |
|---|---|
| DHCT config server | DHCT Configuration Server – Generates the files containing the global, hub-specific global, and staging configuration values for the Application Server; places the files on the BFS |
| IPGServer-xxx | Interactive Program Guide Server – Generates the IPG files for language xxx, for example "eng" for English, and places that file on the BFS<br><br>**Note:** The languages available are English, French, Spanish, and Japanese. |
| ppvfileserver | Pay-per-view File Server – Generates PPV files for the Application Server and places those files on the BFS |
| ppvServer | Pay-per-view Server – Receives PPV event definitions from the billing system and the PPV UI and stores them in the database. The ppvServer also notifies the ppvfileserver process when it is time for the ppvfileserver to generate updated files |
| vcServer | Virtual Channel Server – Places the files for all configured virtual channels on the BFS |

## DNCS Administrative Console Window tabs

Each of the four primary tabs on the DNCS Admin Console provides access to specific functions.

You will use the Server Applications tab to provision applications.  For more information on using the other tabs in DNCS processes, refer to the Digital Network Control System (DNCS) Online Help for your system release.

The following table describes the specific functions of the primary tabs on the DNCS Admin Console.

**Note:**  The options that appear on these tabs vary depending on the optional features you have installed on your system.

| Tab | Description |
| --- | --- |
| DNCS | Allows you to provision basic digital services and manage DBDS hardware on the DNCS |
| Application Interface Modules | Allows you to set parameters for the DNCS to interact with DHCTs and service providers (for example, HBO or Internet services) to permit a smooth transfer of information between the service providers and DHCTs |
| Server Applications | Provides access to applications that reside on the Application Server so that you can enable DHCTs to offer services associated with those applications to subscribers<br><br>The options that appear on this tab vary depending on the applications available on your system. |
| Network Management | Provides access to network management windows, including the DHCT Monitor, so that you can monitor and manage activity on your system |

# Online Help

The DNCS Online Help provides additional information about a window or a particular procedure. This section describes the different ways you can access the DNCS Online Help.

## List Windows

If you are viewing a window that provides a list of items, access the Online Help by clicking **Help** on the toolbar as indicated in the following illustration.

A drop-down list appears with the following options:

- Version
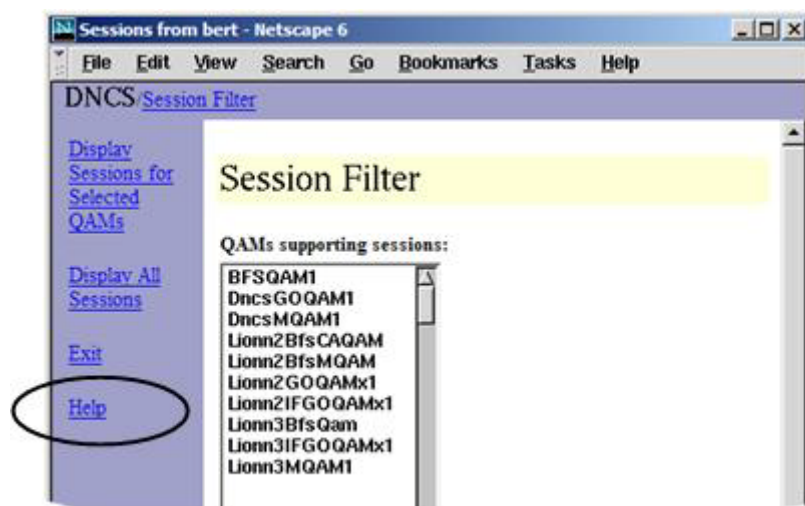
- Online Help

If you select **Version,** the system opens the Internet browser with a list of software versions installed on your DNCS workstation.

If you click **Online Help**, the system opens the DNCS Online Help in the Internet browser.

## WUI Windows Provide Targeted Help

Web-based User Interface (WUI) windows were introduced in SR 2.2 and 3.2. These windows display using a Web browser, such as Firefox. If you are viewing a WUI window, access the Online Help by clicking the **Help** link located in the left pane of the WUI window.



**Note:** As new DNCS windows are introduced, or old windows modified, they are converted to the new WUI format, which provides more flexibility.

Clicking the Help link from a WUI opens a targeted page of the DNCS Online Help in a Internet browser.

## Other Windows Provide General Help

If you are viewing a DNCS Administrative Console window that does not use an Internet browser, access the Online Help by clicking the **Help** button located at the bottom of the window as indicated in the following example.
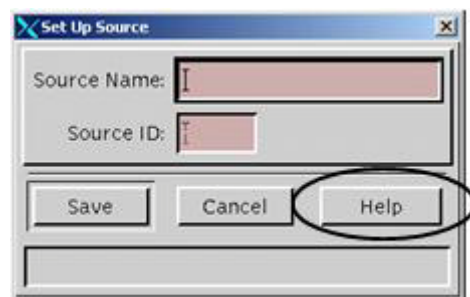
The system opens the Welcome page of the DNCS Online Help in an Internet browser.



## Finding Information

You can use any of the following methods to find information you need in the DNCS Online Help:

- Click the topic in the **Contents** list

- Click the **Index** tab and type a keyword

- Click the **Search** tab and type a keyword

- Click the **Troubleshooting** topic in the Contents list for help resolving errors you may be experiencing

- Click the **Glossary** topic at the bottom of the Contents list for definitions of terms used throughout the Online Help

## Conventions

At the beginning of most procedures in the DNCS Online Help is a Quick Path for getting to a specific GUI window to perform the procedure. The following example shows the Quick Path for opening the Source Definitions List window.

Quick Path:
DNCS Administrative Console > DNCS tab > System Provisioning tab > Source > [Source Name] > File > Source Definitions

As you become more experienced in using the DNCS, these Quick Paths may be the only reminders you need of how to perform certain tasks. In this example, you would use the Quick Path to perform the following steps.

1   On the DNCS Administrative Console, click the **DNCS** tab.

2   On the DNCS tab, click the **System Provisioning** tab.

3   On the System Provisioning tab, click the **Source** button. The Source List window opens.

4   On the Source List window, click once on the source name ([**Source Name**]) whose definition you need.

5   Click on the **File** menu, and then select **Source Definitions**. The Source Definitions List window opens for the source you selected.

## Navigation Tips

The following tips may help you to navigate more efficiently around the DNCS and the Online Help:

■   To open a window for an existing item on the DNCS, the procedures in the Online Help advise you to click once on the item name; then, click **File** and select **Open**. In most cases, you can simply double-click on the item name to open the window, if you prefer.

■   To return to a Help topic you have previously visited, click **Go** on your browser toolbar, and then choose **Back** from the drop-down menu that appears. You can also click the right mouse button in the Help topic window and select **Back** from the menu that appears.

■   Occasionally, a Help page may not display properly. This is especially true if you try to resize the Help window. If this happens, simply close the Online Help and then re-open it.

## Search Tips

Entering a word or phrase in the Search tab and clicking Find explores the content of topics and finds all occurrences of the word or phrase. This method can help you find a topic (if you know its title) or every instance of a concept or feature in the system.

The following tips may help you to find topics more quickly:

- Searches are not case-sensitive. You can type your search in uppercase characters, lowercase characters, or a mix.

- You may search for any combination of letters (a-z) and numbers (0-9).

- To search for an exact phrase, surround the elements of your search with double quotes. For example, to search for information about the window Set Up BFS Host, enter "**Set Up BFS Host**" in the search field. This ensures that the system looks for this exact phrase. On the other hand, entering **Set Up BFS Host**, in the search field causes the system to look for topics that contain any of these four words.

## Printing Help Topics

If your system has print capabilities, you can print any Help topic by completing these steps.

1   Click once within the topic to select that area (frame).

2   Click **File** on your browser toolbar, and then select **Print Frame** from the menu.

# 2

## Getting Started

This chapter provides procedures for starting up the Application Server workstation and its processes. Use the procedures in this chapter if you are starting up the Application Server for the first time or if power to the Application Server has been interrupted.

Typically, the Application Server operates continuously until you stop it manually to upgrade it. If you are upgrading the Application Server, do not use the procedures in this chapter to restart the Application Server after the upgrade. Instead, use the procedures provided in the appropriate upgrade installation instructions for your system release.

### In This Chapter

# Power On the Application Server Workstation

Before you power on the Application Server workstation, the DNCS processes must be running and you must have your login password. If you do not know your login password, consult your system administrator.

Complete these steps to power on the Application Server workstation.

1   Go to the Application Server workstation and press the **Power** button. The login window opens with a welcome message after a few minutes.

   **Note:** If your system is not set up properly, the Application Server will not finish powering up. If your Application Server does not power on, contact Cisco Services.

2   Type the user name (typically **dncs**), and then press **Enter**. The password prompt appears.

3   Type the password, and then press **Enter**. The Application Server desktop appears. The Application Server workstation is now powered up.

4   Your next step is to start the Application Server processes. Go to *Start Application Server Processes* (on page 17).

# Start Application Server Processes

After you power on the Application Server workstation, you can start the Application Server processes. These processes are an integral part of the Application Server software. You cannot use the Application Server with the DNCS until you start these processes.

Complete these steps to start the Application Server processes.

1 Use the mouse to place the cursor anywhere on the SARA Server desktop, and then click the middle mouse button. A dropdown menu appears with a list of options.

2 Click **App Serv Start**. The workstation front-panel "busy" light blinks to indicate that the software startup is in process.

## Monitoring Application Server Processes

If you want to monitor each Application Server process as it starts, complete these steps.

1 On the DNCS Administrative Console Status window, click the **Control** button in the AppServer area. The AppServer Control window opens and shows all Application Server processes and their working states, similar to the following example. A green state indicates that a process is running. A red state indicates that a process is not running.



2 Wait until all processes show a status of running (green), similar to the following example.



3 Leave this window open and visible to help you monitor the system.

# What's Next?

After you have verified that all of the processes are running properly, your next step is to set up the applications that you offer to your subscribers. For assistance, see the following chapters:

- Chapters 3 through 7 contain procedures for defining the applications you offer subscribers and changing the way the applications are defined.

- Chapter 8 contains procedures for enabling and disabling tracing on the Application Server.

- Chapter 9 contains procedures for enabling Application Server software to support the DVD copying (burning) feature of Explorer set-top boxes that offer this feature.

# 3

# Setting Up Language Support

This chapter explains how to configure the DNCS to display PPV/IPPV event information menus and the Interactive Program Guide (IPG) in one of several languages.

**Important:** Configuring the DNCS for language support requires the following support from other vendors:

- To provide IPG in a different language, your data provider must provide programming information, such as titles in those languages.

- To provide PPV/IPPV titles in a different language, the billing system must provide this information as a part of the event definition.

## In This Chapter

# Set Up Supported Languages

To set up other languages for your IPG, use the Languages user interface located on the Server Applications tab of the DNCS Administrative Console. For each language that you set up, there must be an IPG server and an IPG collector to support the language. The DNCS allows one IPG server per active language. You must complete the following tasks when setting up supported languages.

1   Verify and select the appropriate languages your system supports.

2   Create a server and a collector for each language you select.

For procedures to create a server and a collector, see *Chapter 5_Defining PPV Services and Events* (see "Defining PPV Services and Events" on page 37).

## Verifying and Selecting the Appropriate Languages

Perform the following steps to verify that the DNCS recognizes the languages your DBDS supports.

1   On the DNCS Administrative Console, select the **Server Applications** tab.

2   Click **Languages**. The Supported Languages window opens, similar to the following example.

**Notes:**

■   Standard DHCT code supports English, French, and Spanish.

■   Special DHCT code is required to support Japanese.



3   If the languages your DBDS supports are not selected, select them.

**Note:**  In the example in step 2, only English is selected. However, if your system requires French or Spanish select those options as well, and then click **Save**.

4   Click **Close** to exit the Supported Languages window.

# One-For-All

One-For-All is a strategy to check more than one language for PPV event descriptions and avoid showing the text, **No description available**.

### Background

The IPG lists PPV events by title. Subscribers also want to see a PPV event summary called a description but unfortunately, service providers do not supply descriptions in all languages. When a description is not available in the IPG language, subscribers see the text, **No description available**.

### PPV Event Descriptions Without One-For-All

Without One-For-All, the Application Server populates the IPG with PPV event descriptions available in the preferred language.

**Note:** The language set on the Application Server is called the *preferred* language.

The following table shows that if the preferred language is English and the PPV event description is English then subscribers will see the English description. If the preferred language is English and the PPV event description is not English then subscribers will see the text, **No description available**.

Table 1:   PPV Event Descriptions Populated in the IPG Without One-for-All

| Preferred Language Set on the Application Server | PPV Event Description Available in Preferred Language? | This Description is Populated in an IPG without One-For-All |
|---|---|---|
| English | Yes | Description in English |
| French | Yes | Description in French |
| English | No | **No description available** in English |
| French | No | **No description available** in French |

### PPV Event Descriptions With One-For-All

One-For-All is a strategy to show PPV event descriptions, even if the description is not offered in the preferred language. To enable One-For-All, the operator sets a default language in the .profile file (for directions, see *Configuring One-For-All* (on page 23).

**Note:** The language set in the .profile is the *default* language. Since this is an alternate language to check for a description, the operator must set a language in the .profile that is different from the preferred language and which may have a description available.

Every time a description is not available in the preferred language, One-For-All triggers the Application Server to look for a description in the default language. If a description is available in the default language, then the Application Server will populate the IPG with a PPV event description in the default language.

For instance, the following table shows that sometimes the PPV event description is *not* available in the preferred language but the PPV event description *is* available in the default language. If, for example, English is the preferred language and French is the default language, and the PPV event description is *not* available in English but *is* available in French, then subscribers will see the PPV event description in French.

Finally, if the PPV event description is not available in either the preferred language or the default language then subscribers will see the text, **No description available**.

Table 2:   PPV Event Descriptions Populated in the IPG With One-for-All

| Preferred Language Set on the Application Server | PPV Event Description Available in Preferred Language? | Default Language Set in the .profile | PPV Event Description Available in Default Language? | This Description is Populated in an IPG with One-for-All |
|---|---|---|---|---|
| English | No | French | Yes | Description in French |
| French | No | English | Yes | Description in English |
| English | No | French | No | **No description available** in English |
| French | No | English | No | **No description available** in French |

**Note:** French and English have been used in these tables as arbitrary examples. IPG data is available in English, French, Spanish, and in Japanese for SR 4.0, 4.2 and later, and in Arabic for SR 4.3 and later.

## Configuring One-For-All

**1** Open an xterm window on the Application Server.

**2** Type **cd /export/home/dncs** and press **Enter**. The /export/home/dncs directory is now the working directory.

**3** Type **vi .profile** and press **Enter**. The vi editor opens the .profile file for editing.

**Note**: Be sure to type a period (.) before the word "profile."

**4** Use the arrow keys to move to the bottom of the file.

**5** Type **o**. A new line appears at the end of the file.

**6** Type the following lines at the end of the file and press **Enter** after each line.

**PPV_DEFAULT_LANGCODE="<language>";**

**export PPV_DEFAULT_LANGCODE;**

Examples (English, French, Spanish, Japanese and Arabic):

PPV_DEFAULT_LANGCODE="eng";

PPV_DEFAULT_LANGCODE="fra";

PPV_DEFAULT_LANGCODE="spa";

PPV_DEFAULT_LANGCODE="jpn";

PPV_DEFAULT_LANGCODE="ara";

**Important:** Ensure that the PPV_DEFAULT_LANGCODE you set is different from the Application Server default language, and one which is likely to be used for a PPV event description.

**Notes:**

■ Currently, five language options are available. In order to set the default language to English, type "eng". For French type "fra". For Spanish type "spa".

■ Japanese "jpn" is available for SR 4.0, 4.2 and later.

■ Arabic "ara" is available for SR 4.3 and later.

**7** Press **Esc.**

**8** Type **:wq** and press **Enter**. The vi editor saves and closes the .profile file.

**9** On the Application Server, run the appControl utility *Stopping and Restarting a Server Process* (on page 71), to stop and restart the PPV processes. This will activate these new values.

# 4

# Setting Up Described Video Services

Described Video Services (DVS) is an audio track feature that describes video to aid the visually-impaired. It provides visually impaired viewers with audio descriptions of key elements in a program, such as what is happening on the screen, during pauses in the dialogue.

This chapter explains how to configure the system to support DVS.

**Important:**

- DVS support is not enabled by default.
- The following versions of client software are required to support the features provided with this version of application server software.

| Application Server Platform | Client Software |
|---|---|
| 4250SD/HD | PowerKEY 5.3.1 |
| 8300SD/HD DVR | DVR 1.7.0 |
| 8500SD/HD DVR | DVR 1.7.0 |

- Follow these guidelines when you enable DVS support:
  - Do not enable this option unless you are familiar with DVS and your content is encoded with DVS audio streams.
  - Remember that obtaining and providing audio streams is the responsibility of the operator.
  - Check that DVS audio streams are encoded within an MPEG program.
  - Source definition and session configuration must be set up to carry the DVS PID (Program ID).

## In This Chapter

# Enable DVS Support

## Overview

Setting up DVS support is a two-step process:

**1** Enable DVS Support on the System

- **Global configuration:** Enable DVS support on the system

- **Hub configuration:** Enable or disable DVS support for specific hubs on the system

**2** Configure DVS Support on the Set-Top

- **Staging defaults configuration:** Configure DVS support during the staging process, so that all set-tops receive the same configuration when they are staged

- **Addressable configuration:** Configure DVS support on a single set-top, identified by MAC address

- **Subscriber configuration:** The subscriber can configure and enable or disable DVS support

For more information about configuring DNCS settings refer to *Enhancing Your Subscribers' Experience: SARA Configurable Options* (part number 4002178).

## Enabling Global DVS Support

The parameters that you set in the **Set Up Global DHCT Configuration** window affect the parameters that are available in the Addressable, Hub, and Staging Defaults windows.

When DVS support is globally enabled, the **Audio:Described** option is visible on the Addressable/Staging and on hub configurations. When DVS support is disabled, set-tops do not show the **Audio:Described** option in General Settings on the UI.

**Important:**

- Once DVS support has been enabled globally, support must be configured on the set-tops before subscribers can enjoy DVS.

- Global settings for DVS support override individual set-top settings.

Follow these steps to enable DVS support on all the set-tops in your network.

**1** On the DNCS Administrative Console, select the **Server Applications** tab.

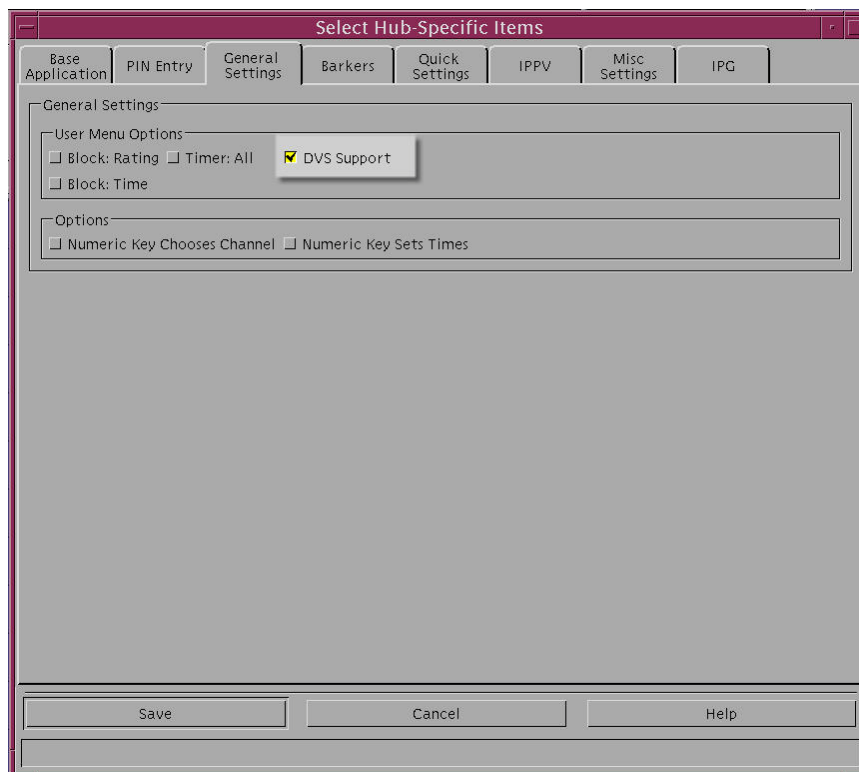**2** Click the **DHCT Config** button. The DHCT Configure window opens.
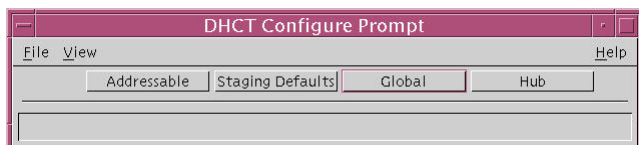


**3** Click the **Global** button. The Set Up Global DHCT Configuration window opens.

**4** Click the **General Settings** tab.

**5** Click the **DVS Support** check box found in User Menu Options area as shown in the following example:
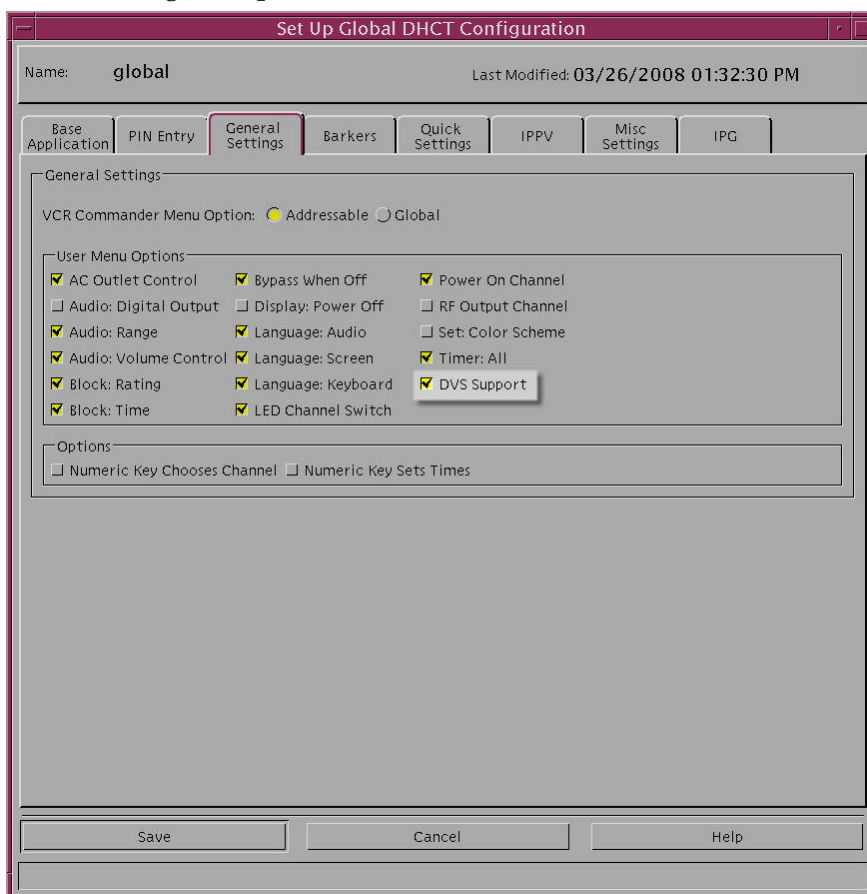


**6** Click the **Save** button. At the bottom of the screen, "DHCT Configuration successfully saved" will confirm the new setting.

**7** Click the **Cancel** button to close the Set Up Global DHCT Configuration window. Support for DVS has now been successfully activated on your DNCS.

# Enabling and Disabling DVS Support on a Hub

DVS can be selectively enabled or disabled on hubs. DVS support settings at the hub level will override the global configuration.

**Important:** DVS support must be enabled globally before the hub can be configured. If you have not enabled DVS support on the system, return to *Enabling Global DVS Support* (on page 27) before you attempt the following steps.

When setting Hub-level control of DVS support, you will first enable DVS support in the UI. Then you can choose to enable or disable DVS support on the hub.

## Enable the DVS Support in the UI

1   On the DNCS Administrative Console, select the **Server Applications** tab.

2   Click the **DHCT Config** button. When the DHCT Configure window opens, select **Hub.**
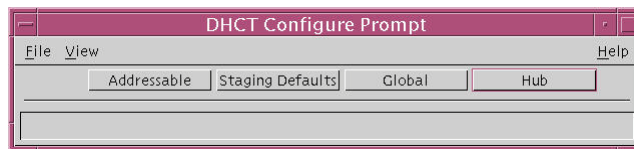


3   Click **File** and choose **Select Hub-Specific Items**.



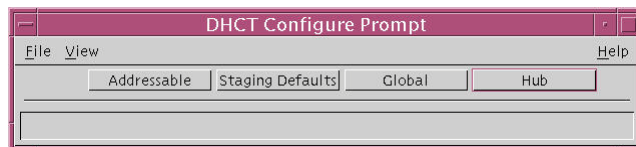4   In the Select Hub-Specific Items window Click the **General Settings** tab.

**5**    Click the DVS Support check box found in User Menu Options area to enable DVS support on the hub or ensure the check box is empty to disable DVR support on the hub, as shown in the following example:
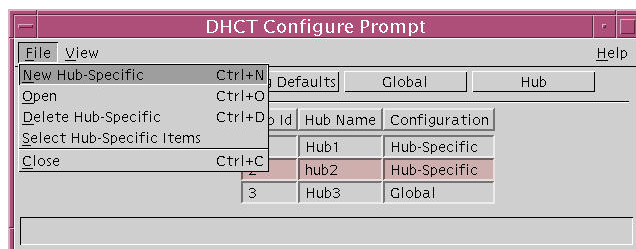


**6**    Click **Save** and then click the **Cancel** button to close the Select Hub-Specific Items window.

### Enable or Disable DVS Support on a Specific Hub

**1**    On the DNCS Administrative Console, select the **Server Applications** tab.

**2**    Click the **DHCT Config** button. When the DHCT Configure window opens, select **Hub.**



**3**    Click **File** and choose **New Hub-Specific**.

**4** In the New Hub-Specific Items window Click the **General Settings** tab.

**5** Click the **DVS Support** check box found in User Menu Options area to enable DVS support on the hub or ensure the check box is empty to disable DVR support on the hub, as shown in the following example:
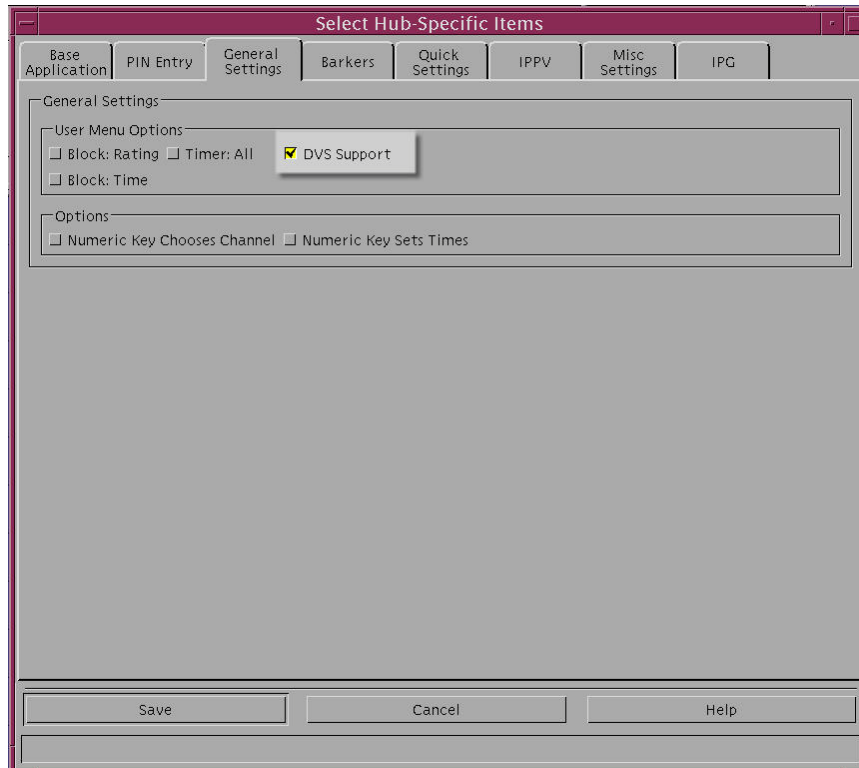


**6** Click the **Save** button. The Application Server sends the configuration to all the set-tops in the hub that you specified. Changes should be available on each set-top in a few minutes.

**Note:** After you send a hub-specific configuration, any changes that you make to the global configuration do not affect the hub-specific settings. From now on, if you need to change an option that affects all of the set-tops in your network, you will need to make this change in the global configuration **and** in the hub-specific configurations for any hubs that require this change.

**7** Click the **Cancel** button to close the Select New Hub-Specific window. Support for DVS has now been successfully enabled or disabled on the hub.

# Configure DVS Support

After enabling DVS support on the system, the set-tops must be configured.

## Configuring DVS Support During Staging

Set-tops (unless specifically configured) are configured for DVS support during staging.

**Note:** The staging value for DVS support (enabled or disabled) is used by the set-top when it first connects to the network or when `nvm clear` is performed on the set-top.

Follow these steps to configure DVS support on set-tops during the staging process.

**1**  On the DNCS Administrative Console, select the **Server Applications** tab.

**2**  Click the **DHCT Config** button. The DHCT Configure window opens.
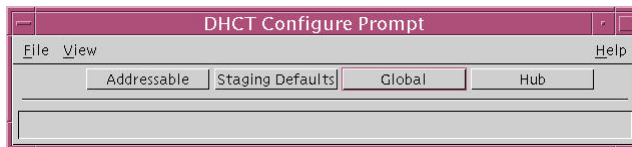


**3**  Click the **Staging Defaults** button. On the Set Up Staging Defaults window select the **Base Application** tab.

**4** Click to enable the **Audio: Described** button from the Options area as shown in the following example:
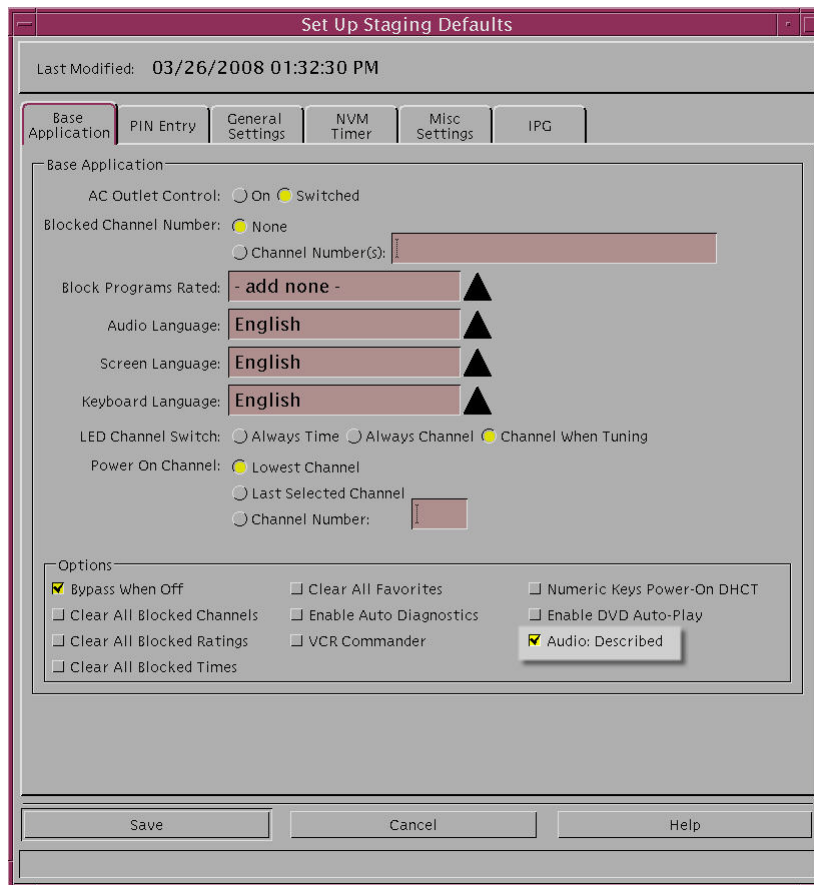


**5** Click the **Save** button. At the bottom of the screen, "DHCT Configuration successfully saved" will confirm the new setting.

**6** Click the **Cancel** button to close the Set Up Staging Defaults window. DVS support has now been successfully configured on your set-tops.

## Configuring DVS Support on a Single Set-Top

Set-tops can be configured individually for DVS support from the network headend. Once staged, a specific set-top identified by a MAC address can be enabled or disabled.

**Important:** Addressable configuration information is not stored on the Application Server. The set-top must be plugged in and functional to receive the addressable configuration message.

Follow these steps to configure DVS support on a single, addressable set-top.

**1** On the DNCS Administrative Console, select the **Server Applications** tab.

**2** Click the **DHCT Config** button. When the DHCT Configure window opens click the **Addressable** button.

**3** On the Set Up Staging Defaults window select the **Base Application** tab. Type the MAC address of the set-top that needs DVS enabled in the **DHCT MAC Address** field at the top of the page.

**Note:** You must provide the MAC address when configuring a single set-top.

**4** Click to enable the **Audio: Described** button from the Options area as shown in the following example:
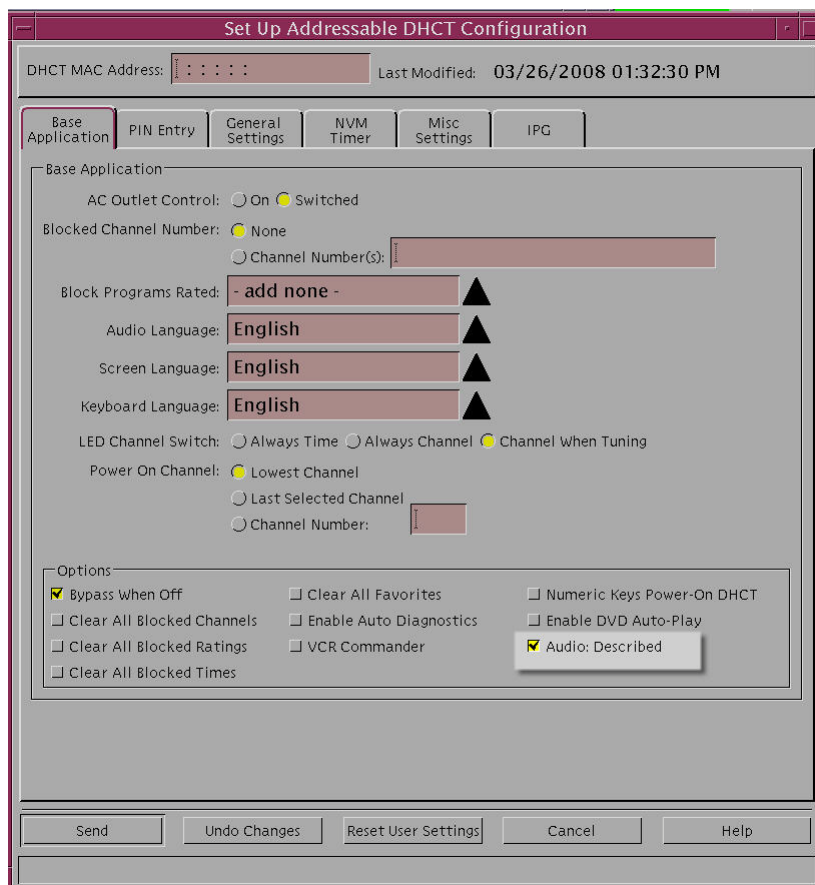


**5** Click the **Send** button. The status message, "Configuration sent" appears at the bottom of the window to confirm the new setting.

**6** Click the **Cancel** button to close the Set Up Staging Defaults window. Support for DVS has now been successfully configured on the set-top.

## Subscribers Configure DVS Support

Set-tops can be configured and enabled or disabled by subscribers from the set-top UI. Subscribers must follow these steps to enable DVS on their set-top.

**1** Navigate to the **General Settings** menu.

**2** Select **Audio:Described.**

**3** Use the arrows on the remote control to select **Enabled.**
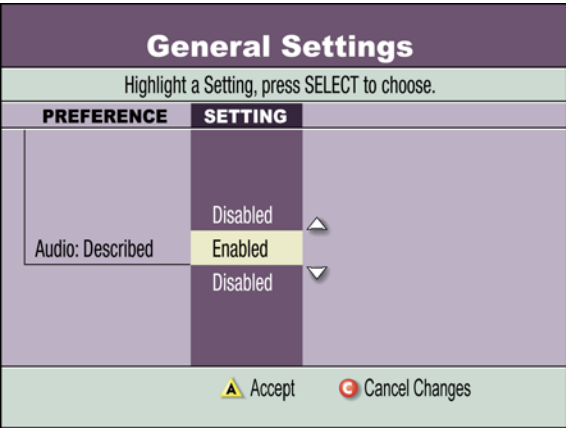


## Subscribers Quick Settings DVS Experience

When DVS support has been activated, subscribers will notice a change in the **Choose Language** option in their QuickSettings menu. Available languages will be identified with a "DVS" precursor (such as **DVS:English** in the following example).
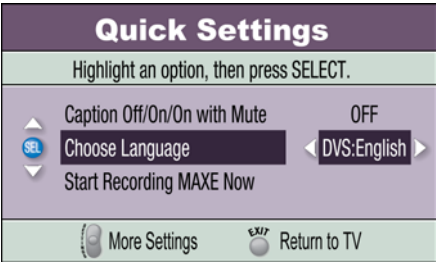


For more information about the user interface, see *Set Up the IPG* (on page 68).

# 5

# Defining PPV Services and Events

PPV services, like clear broadcasts, are always available to subscribers. Whenever subscribers tune to a PPV service channel, the channel displays a barker that advertises the PPV events that are available for purchase. For example, the Preview barker, which is shown in the example to the right, contains information about the event that is currently showing, along with its retail price.



There are no control package restrictions to prevent subscribers from accessing PPV service channels. Any subscriber can simply tune to a PPV service channel that advertises PPV events and order an event following the instructions in the on-screen barkers. However, to restrict viewing of content, subscribers can use Parental Control and Purchase PINs.

This chapter provides steps for creating, modifying, and deleting secure events and PPV events.

## In This Chapter

# Define PPV Services

This section describes the Set Up PPV Service window and explains how to create, modify, and delete PPV services (the applications that deliver PPV events).

## Before You Begin

Before you can define PPV events for subscribers to purchase, you must define the PPV services that will deliver these events. A PPV service is an application that allows subscribers to purchase and view movies, concerts, or sporting events to be viewed at a certain time on a certain channel. A PPV event is any program (such as movie, concert, or sporting event) that a subscriber can purchase through a PPV service. If a subscriber has purchased the event that is currently playing on the PPV service, then the PPV service displays that event.  If not, then the PPV service displays advertising, interstitials, or some other programming.

As with other services, you must complete the following tasks when defining a PPV service:

- **Add the service source to the DNCS.** This task specifies which digital or analog signal the DBDS will use to deliver the service to subscribers.

- **Define parameters for the service source.** This task defines the attributes that establish how the system will process service content. Also, this task includes building a session, which defines and allocates the resources that the source will use to deliver the service content.

- **Encrypt the content coming from the service source.** This task ensures that the content will only be available to authorized subscribers.

Before you can define PPV services, the service on which a PPV service is built must be registered with the Service Application Manager (SAM), Event Use Service, Subscription Service (if used), and Interstitial Service. These are described in more detail later in this section. The SAM is a table that identifies available services and their associated applications. The DNCS automatically registers the service with the SAM when you create the service, so you do not need to register an event's service with the SAM.

## Understanding the Set Up PPV Service Window

Use the Set Up PPV Service window to create or modify PPV services.



The fields on this window are as follows:

■ **Service Name:** A unique name for the service

**Note:** Service names are typically provided by the billing system.

■ **Short Description:** A useful descriptive short name, such as IPPV1 and IPPV2 for subscribers when they tune to the channel where this PPV service resides

■ **Long Description:** A longer description that provides a more complete definition of the service. This is for your benefit only. Subscribers never see the information entered here

■ **Logo Index** (Optional): A number that associates a graphic with the PPV service. You can obtain a list of logo numbers from your account representative

■ **Default Order Telephone Number:** Specifies the phone number for subscribers to call to order a reservation pay-per-view (RPPV) event advertised by this service. The number you enter here displays for subscribers unless the billing system provides another telephone number for the event. Type this phone number exactly as it should appear on the TV screen (including dashes and parenthesis, if appropriate)

■ **Default Cost** (Optional): Sets the default cost for events on the service if no cost is specified for the event. Type this amount exactly as it should appear on the TV screen (including a dollar sign and decimal point, if appropriate)

■ **Default Order Start Interval** (Optional): Specifies a default interval during which subscribers can call to order an event, if the event definition does not specify when subscribers can order the event. For example, suppose the Default Order Start Interval is 12 hours and 0 minutes. If an event does not specify an order start time, then subscribers can begin calling to order the event 12 hours before the event begins. Type this amount in hours and minutes

■ **Event Use Service:** The service that will be seen on this PPV service when PPV events are purchased. Click the arrow to display a list of all services available, and then select the appropriate service from the list

■ **Subscription Service** (Optional): Specifies whether this service will function as a subscription service in addition to a PPV service

  – If you want the service to function as a PPV service, click the arrow and select **none**

  – If you want the service to function as a subscription service (one that is always available to authorized subscribers), click the arrow and select the same service you selected in the **Event Use Service** field

■ **Interstitial Service** (Optional): A specific service that displays between events; this service could be general programming or an advertisement. Click the arrow and select from the list of existing services. If you do not specify an interstitial service, the PPV service channel will display a standard text barker between events

## Creating a PPV Service

After you have built the services, the next step is to create a service that advertises and sells the events: a PPV service.

Complete these steps to create a PPV service.

1　On the DNCS Administrative Console, select the **Server Applications** tab. The Server Applications tab moves to the forefront, similar to the following example.
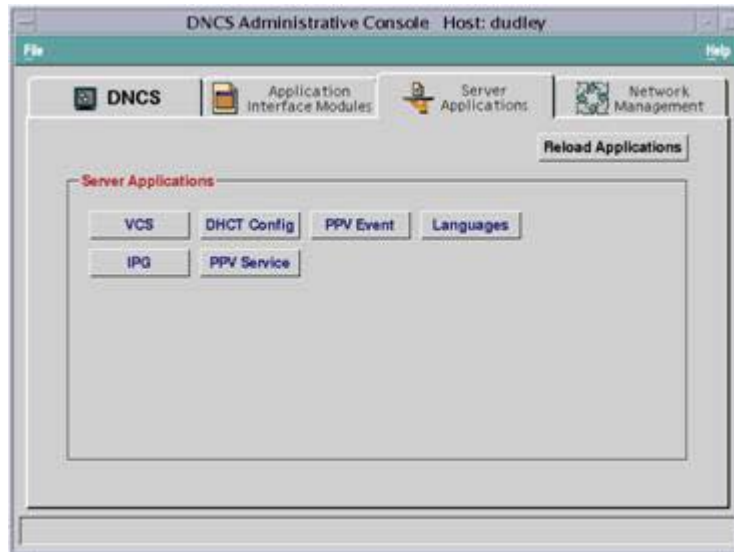


2　Click **PPV Service**. The PPV Service List window opens, similar to the following example.

**3** From the **File** menu, click **New**. The Set Up PPV Service window opens, similar to the following example.



**4** On the **Set Up PPV Service** window, complete all of the following required fields. Optional fields are labeled.

- Service Name
- Short Description
- Long Description
- Logo Index (Optional)
- Default Order Telephone Number
- Default Cost (Optional)
- Default Order Start Interval (Optional)
- Event Use Service
- Subscription Service (Optional)
- Interstitial Service (Optional)

**Notes:**

– See *Understanding the Set Up PPV Service Window* (on page 39) for descriptions of these fields.

– Be sure to make a note of the values in the Short Description field and the Event Use Service field. You will need these values when you set up this PPV service on the IPG.

**5** Click **Save**. The Application Server creates a PPV service for the source and automatically does the following:

- Registers the service with the SAM

- Assigns a URL of ippv to the service

- Makes the service available to the channel maps

- Creates an unlimited segment from the service, which you can view in the Segment List

**Note:** For each PPV service there are two SAM services: the PPV service and the Event Use service. You must map both the PPV service and the Event Use service to the IPG Service List to ensure that data about the events appears in the IPG and on the purchase barkers.

**6** Do you want to add another PPV service?

- If **yes**, go back to step 3 and add the next service.

- If **no**, go to step 7.

**7** Add all of the PPV services that you created and all of their Event Use services to the IPG Service List. For assistance, go to *Set Up the IPG* (on page 68) and follow the instructions.

**8** Add all of the PPV services that you created to the channel map. Refer to the *Digital Network Control System Online Help (UNIX)* version for your system release, for procedures to complete this task.

**9** Does your system support Explorer® 3100HD DHCTs?

- If **yes**, ensure that the SAM URL of any PPV service that contains high-definition (HD) content includes the HD flag. If this flag is absent in HD content, 3100HD DHCTs cannot display PPV barkers and other graphics over HD content. As a result, full-screen HD content displays over PPV preview graphics and enables subscribers to receive the entire HD event for free. For assistance adding the HD flag to the SAM URL of HD PPV services, refer to *Enhancing Your Subscribers' Experience: SARA Configurable Options* (part number 4002178).

  **Note:** The HD flag (;HD) must be attached to the end of the SAM Service URL (on the Set Up SAM Service window) as shown in this example: bfs://resapp/watchtv;HD.

- If **no**, you have completed defining PPV services. For a better understanding of how PPV events are offered to subscribers, see *Understand Windows and Barkers* (on page 46).
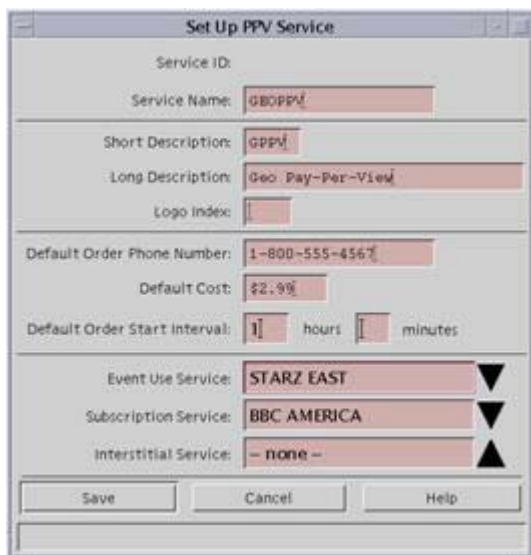
## Modifying PPV Services

Complete these steps to modify a PPV service.

**1**    On the PPV Service List window, highlight the row of the desired service, similar to the following example.



**2**    Click the **File** menu and select **Open**. The Set Up PPV Service window opens, similar to the following example.



**3**    Make necessary changes in the fields, and click **Save**.

## Deleting a PPV Service

Complete these steps to delete a PPV service.

**Important:** The system will not allow you to delete a service if events also use the service.

**1** Select the service you want to delete in the PPV Service list window.

**2** Click the **File** menu and select **Delete**. A Question window opens, prompting you to confirm that you want to delete the current item.
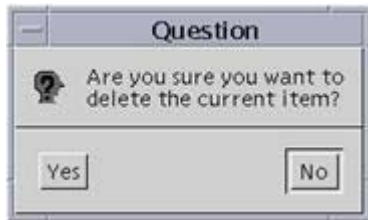


**3** Click **Yes** to confirm that you want to delete the PPV service.

# Understand Windows and Barkers

PPV events are available for viewing during a specified period of time. This period of time is called a window. The period of time that a window is present determines when the PPV service displays a specific type of advertisement or purchase option. These advertisements and purchase options are presented by screens called barkers.

This section describes the types of windows and barkers used in offering PPV events to subscribers. You must understand the relationship between windows and barkers in order to define PPV events successfully.

**Note:**  Remember a window is a period of time. A barker is a screen that advertises an event or allows a subscriber to order an event.

## Windows

PPV services use six different types of windows to offer events to subscribers. Some windows are used for both RPPV and impulse pay-per-view (IPPV) events, and some are used for IPPV events only. The following table describes the different windows and the associated PPV event.

| Type of Window | Purpose |
| --- | --- |
| Event Window | This window defines the period of time that video is shown on the PPV service channel. The event's start time and length determine this time period. |
| Marketing Window | This window defines the period of time that the PPV service can advertise the event. During the Marketing window, a Purchase Prompt barker appears when the subscriber sets a reminder or VCR timer for the event. This also allows subscribers to purchase an IPPV event from the IPG.<br><br>**Important:** The Marketing Window should be at least as long as the number of days of IPG data you provide (typically seven days). |
| Advertising Window | This window defines the period of time that the Purchase barker appears when the subscriber is tuned to the PPV service channel. Each PPV service may have only one Advertising window open at a time. |
| Preview Window | This window defines the period of time that a subscriber may view the IPPV event on the PPV service channel without purchasing the event. During this time, if the subscriber has not purchased the event, the Preview barker appears. When a subscriber purchases the event, the event appears. |

| Type of Window | Purpose |
|---|---|
| Buy (GBAM) Window | This window defines the period of time that the PPV service will attempt to verify IPPV event purchases. If the PPV service verifies the purchase, the subscriber will see the event. (The Buy window uses a Global Broadcast Authenticated Message [GBAM] to verify a purchase.) |
| Cancel Window | This window defines the period of time that a subscriber may cancel an IPPV event purchase. |

## Window Relationships

There are some timing requirements that you must follow when setting up PPV windows. If you do not follow these requirements, then subscribers may not be able to purchase PPV events successfully. For example, if you do not define an Advertising window correctly, then the Purchase barker will not appear when subscribers tune to the PPV service channel. In this case, subscribers are unable to purchase the event. Or, if you do not define the event itself correctly, then the event will not appear as expected.

In examining the window relationships in the following illustration, remember that the billing system defines these windows when it sends the event definition to the Application Server. Therefore, in most cases you should not need to define an event (although you can do so manually if necessary.) You can view the Set Up PPV Event window to view the window definitions for an event.

**Note:** For IPPV events, you must define the Marketing, Advertising, Buy (GBAM), and Event windows. For RPPV events, you only need to define three windows: the Marketing, Advertising, and Event windows.
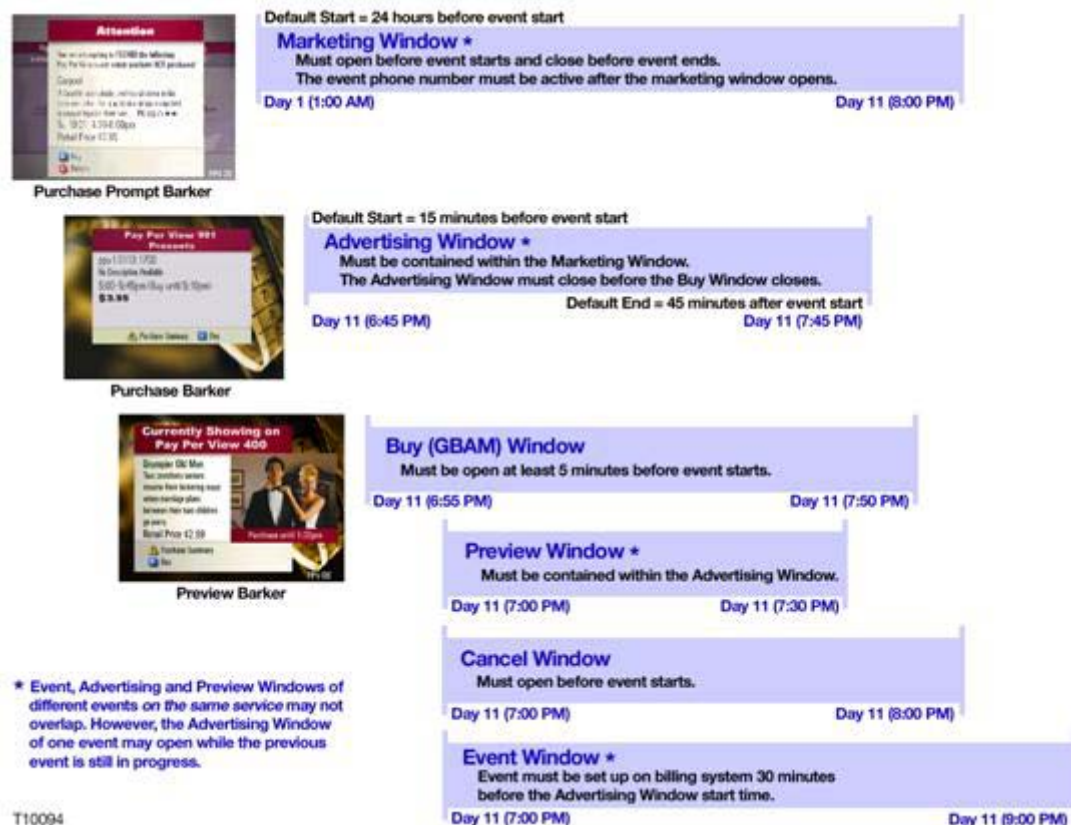
# Barkers

A barker is often associated with a specific window. PPV uses three kinds of barkers. These barker types are as follows:

■ **Purchase Prompt barker:** This barker prompts subscribers to buy an event when the subscriber performs one of the following actions:

– Sets the VCR timer to record an event that has not yet occurred

– Uses a reminder timer to notify the subscriber of an event to view in the future

Subscribers can dismiss this barker by pressing the C key on the remote control. This barker appears during the Marketing window.

■ **Purchase barker:** This barker advertises the next event available for purchase. This barker appears until the subscriber buys the event, selects a different channel, or views the Advertising window.

■ **Preview barker:** This barker is similar to the Purchase barker. In addition to displaying information about the event, the Preview barker also displays a portion of the event as part of the advertisement.

**Note:** The Purchase Prompt barker and the Purchase barker appear for both RPPV and IPPV events. The Preview barker appears only for IPPV events.

## PPV Advertising Window Defaults

By default, the advertising window starts 15 minutes before an event starts and ends 45 minutes after an event starts. These values are called the *start offset* and the *end offset*. We suggest that you adjust these values if you frequently have events that are less than 60 minutes long.

Before you adjust these offsets, you must identify the length of the shortest event that you will advertise.  The length of your shortest event is your minimum event interval. Use the minimum event interval and the following guidelines to determine the new default values for your offsets:

- The total offset time (start offset plus end offset) must not exceed your minimum event interval.  For example, if your shortest event is 30 minutes long, then the start offset plus the end offset must not exceed 30 minutes.

- For IPPV events, the purchase window cannot start before the advertising window starts.

- The advertising window must end at least 5 minutes before the end of the event.

The following table shows two examples of minimum event intervals and identifies acceptable default values for the start offset and the end offset:

| Minimum Event Interval | Advertising Window Start Offset | Advertising Window End Offset |
| --- | --- | --- |
| 30 minutes | 10 minutes | 15 minutes |
| 59 minutes | 15 minutes | 35 minutes |

## Modifying Default Values for PPV Advertising Windows

After you determine the default offset values for the Advertising Window, follow these steps to adjust those values:

**1** Open an xterm window on the Application Server.

**2** Type **cd /export/home/dncs** and press **Enter**. The /export/home/dncs directory is now the working directory.

**3** Type **vi .profile** and press **Enter**. The vi editor opens the .profile file for editing.

**Note**: Be sure to type a period (.) before the word "profile."

**4** Use the arrow keys to move to the bottom of the file.

**5** Type **o**. A new line appears at the end of the file.

**6** Type the following lines at the end of the file and press **Enter** after each line.

**export PPV_ADV_WIND_START_INTVL=[number of seconds for new default start offset]**

**export PPV_ADV_WIND_END_INTVL=[number of seconds for new default end offset]**

Examples:

PPV_ADV_WIND_START_INTVL=600

PPV_ADV_WIND_END_INTVL=900

**7** Press **Esc.**

**8** Type **:wq** and press **Enter**.The vi editor saves and closes the .profile file.

**9** On the Application Server, run the appControl utility *Stopping and Restarting a Server Process* (on page 71) to stop and restart the PPV process, which will activate these new values.

# Define PPV Events

This section describes how to define the following types of events as defined by the billing system:

- **RPPV event:** Subscribers can purchase an RPPV event by placing a telephone call. A cable service representative (or an automated service) may order the event for the subscriber.

- **IPPV event:** Subscribers can purchase an IPPV event by using the remote control keys to purchase the event.

**Note:** After you define an event, you should use a DHCT in the headend to confirm that the event is available for ordering.  By doing so, you can verify that the PPV service and the PPV event were defined correctly.

## Generating PPV Events Automatically

Typically, the billing system defines PPV events automatically. However, a solid understanding of how the billing system defines PPV events makes it easier for you to correct any errors that may occur.

Whether the billing system defines an event automatically, or you define one manually using the Application Server, either action generates an ECM (Entitlement Control Message). An ECM associates a package with the event and assigns an EID (Event ID) to the package. (Packages collect program segments into offerings that are meaningful to the subscriber and hold potential profitability for the MSO.)

**Note:**  If you are generating IPPV events for a test lab, you can use the genPpvFromIpg utility to create PPV events using existing IPG data. The utility works by reformatting existing IPG data in the database into PPV data. For details, refer to *Application Server Utilities* (part number 749639). However, this utility is designed for use in test labs only. Do not run this utility on a live system.

The billing system automatically generates PPV events as follows:

1   The billing system sends event definition to the Application Server.
2   The Application Server processes the definition and sends it to the DNCS for packaging.
3   Using the definition, the DNCS issues an ECM for the event. As part of issuing the ECM, the DNCS creates a package for the event and assigns the package an EID.
4   The DNCS transmits the ECM to a router, and the router forwards the ECM to the appropriate program QAM modulator.
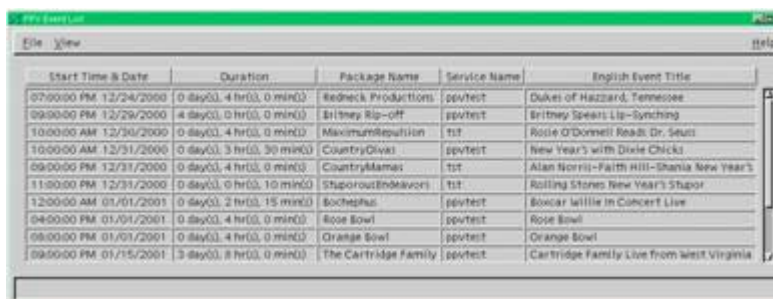
## Generating IPPV Events Manually

Setting up an IPPV event is similar to setting up an RPPV event. However, to set up an IPPV event you must present a method for subscribers to purchase the event on their own. The following procedure provides instructions to set up an IPPV event manually.

**Note:**  If you are generating IPPV events for a test lab, you can use the genPpvFromIpg utility to create PPV events using existing IPG data. The utility works by reformatting existing IPG data in the database into PPV data. For details, refer to *Application Server Utilities* (part number 749639). However, this utility is designed for use in test labs only. Do not run this utility on a live system.

Perform the following steps to create an IPPV event.

**1**    On the DNCS Administrative Console, select the **Server Applications** tab.

**2**    Click **PPV Event**. The PPV Event List window opens. Typically you would open an event from this list to examine one already defined by the billing system. However, because you are setting up events manually, create a new event by selecting **New** from the **File** menu.

**3**   Click the **File** menu and select **New**. The Set Up PPV Event window opens. The window has two tabs that allow the user to access different data entry fields: the Package Info and Event Info tabs. Start by entering information into the Package Info tab to define the package that contains the event.



**4**   Select the **Package Info** tab.

**5**   In the top section of the tab, type the following information into their respective fields:

- ▪  **Package Name:** A name for the package

- ▪  **Start Date:** The date when the package starts in MM/DD/YY format

- ▪  **Start Time:** The time when the package starts in HH:MM:SS format. Select AM or PM

- ▪  **Length:** The length of the package in days, hours, and minutes

**6** Select the **Impulse Pay Per View** option. The Preview, Buy Window, and Purchase Mode tabs become active.



**7** Complete the fields on these tabs with data that defines how the windows function. Follow the rules of window relationships as outlined in *Understand Windows and Barkers* (on page 46). Otherwise, the Application Server applies the defaults to the data in these fields when you save it.

**Notes:**

■ You can also set up a dual RPPV/IPPV event by selecting both Reservation Pay Per View and Impulse Pay Per View options. Then, complete the fields in the Set Up PPV Event window for both types of events.

■ When you set up a dual RPPV/IPPV event, DHCTs that can purchase IPPV events will display IPPV advertisements for the event, and subscribers will be able to use their remote controls to purchase the event. DHCTs that can purchase RPPV events will display a telephone number that prompts subscribers to phone in an order for an event.

**8**   Select the **Event Info** tab.



**9**   At the top type the following information in the fields:

- **Service Name:** Click the arrow and select the appropriate PPV service that advertises this event

- **Retail Price:** The price of the event. If entered, the price appears on the subscribers IPG

- **Event Title:** The title of the event. The title appears during the Advertising, Purchase, and Preview windows. Event titles are available in multiple languages if you have set up the languages on the DNCS

**10**   If you choose the **Specify Advertising Window** and **Specify Marketing Window** options, enter the data (Start Date, Start Time and Duration) defining how these windows function in their fields on the respective tabs. Otherwise, the Application Server applies the defaults to the data in these fields when save it.

**11**   Click **Save** when you finish entering all the data.

**12**   Check the PPV Service List to ensure the source you created is on the list, and to verify that the source information is correct.

**Note:**  The Application Server saves your changes.

# Generating RPPV Events Manually
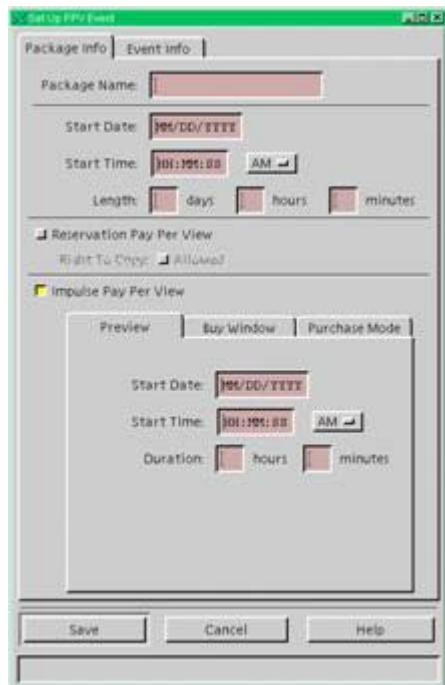
Perform the following steps to create an RPPV event.

1 On the DNCS Administrative Console, select the **Server Applications** tab.

2 Click **PPV Event**. The PPV Event List window opens, similar to the following example. Typically you would open an event from this list to examine one already defined by the billing system. However, because you are setting up events manually, create a new event by selecting New from the File menu.



3 Click the **File** menu and select **New**. The Set Up PPV Event window opens, similar to the following example. The window has two tabs that allow the user to access different data entry fields: the **Package Info** and **Event Info** tabs. Start by entering information into the **Package Info** tab to define the package that contains the event.

**4**    Select the **Package Info** tab.

**5**    In the top section of the tab, type the following information into their respective fields:

- **Package Name:** A name for the package

- **Start Date**: The date when the package starts in MM/DD/YY format

- **Start Time**: The time when the package starts in HH:MM:SS format. Select AM or PM

- **Length**: The length of the package in days, hours, and minutes

**6**    Select the **Reservation Pay Per View** option.

**7**    If you want subscribers to have the right to copy the event, select the **Allowed** option.

**8**    Select the **Event Info** tab.

**9** In the top section of the tab, type the following information into their respective fields:

- **Service Name:** Click the down arrow and select the appropriate PPV service that advertises this event

- **Retail Price:** The price of the event. If entered, the price appears on the subscriber's IPG. Type this price exactly as it should appear on the IPG, including dollar sign and decimal, if appropriate

- **English Event Title:** The title of the event. The title appears during the Advertising, Purchase, and Preview windows

- **Phone Number:** The telephone number subscribers can call to order the event. Type this number exactly as it should appear on the IPG, including parentheses and dashes, if appropriate

- **Start Date:** The date on which the event is to begin. Type this date in the format MMDDYY. Do not type slashes in this date. This date must be in the future

- **Start Time:** The time at which the event is to begin. Type this time in the format HHMM. Do not type colons in this time. Must be at least 15 minutes in the future. Select AM or PM

**10** If you choose the **Specify Advertising Window** and **Specify Marketing Window** options, then enter the data defining how these windows function in their fields on the respective tabs. Otherwise, the Application Server applies the defaults to the data in these fields when you save the changes.

**Note:** These windows let you specify the start date, start time, and duration for the advertising window or marketing window.

**11** Click **Save** when you finish entering all the data.

**Note:** The Set Up PPV Event window disappears and the Application Server saves your changes.

**12** Verify that the source you created now appears in the **PPV Service List** window and that the source information is correct.

**13** From the DNCS Administrative Console, click **Package** on the DNCS System Provisioning tab to access the Package List window. Verify that a segment exists for the package that contains the RPPV segment.
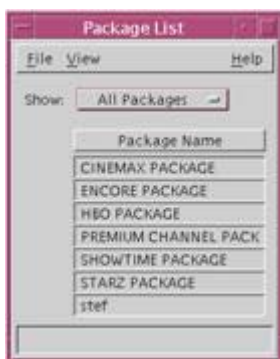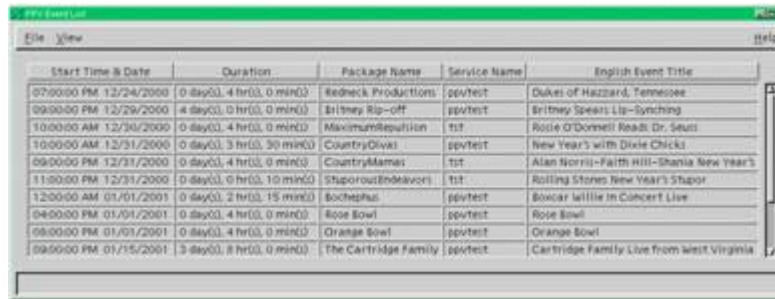


**14** Highlight the package and select **Provision** from the **File** menu. The Package Provision window opens and displays the segment for the RPPV event you just created.
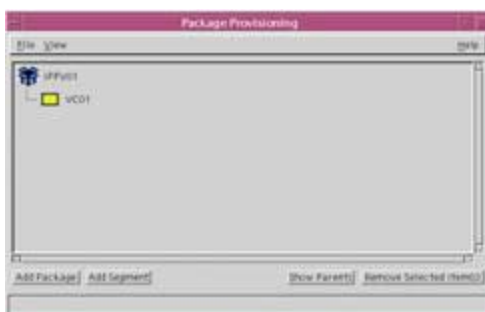
# Modifying a PPV Event
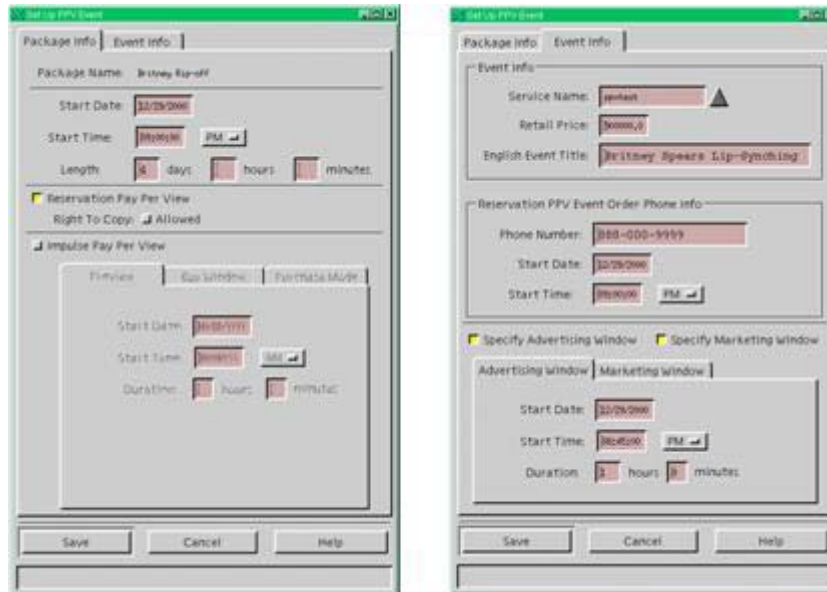
Use the following steps to modify a PPV service.

**1** On the PPV Event List window, highlight the row of the desired event.



**2** Click the **File** menu and select **Open**. The Set Up PPV Event window opens with completed fields. The following illustration shows the data for the Package Info tab and the Event Info tab.



**3** Make necessary changes in the fields, and then click **Save**.

## Deleting a PPV Event

Use the following steps to delete a PPV event.

**1**   Select the event you want to delete in the PPV Event list window.

**2**   Click the **File** menu and select **Delete**. A Question window opens, prompting you to confirm that you want to delete the current item.
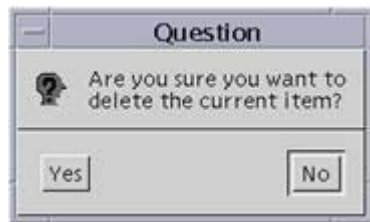


**3**   Click **Yes** to confirm.

# 6

# Setting Up the Interactive Program Guide

The IPG is an application that DHCTs use to display program information, such as the program name, start and end times, description, and rating. When you set up the IPG, the DNCS populates the IPG with data such as program listings and program descriptions. SARA provides other information on the IPG such as instructional text (for example, the words Browse By and Choose Date) and other General Settings menus. If you do not set up the IPG correctly, the IPG appears with no program information, even when a subscriber selects the Guide button.

IPG data is linked to a specific program service using the IPG service provider's designation and the SAM service ID number. This link ensures that information and program descriptions are matched to the correct services.

This chapter provides procedures for setting up the IPG.

**Important:** Enabling DVS support on the Application Server allows you to offer your subscribers audio streams designed for the visually impaired. Once enabled, DVS will cause new IPG options to be displayed in Quick Settings and General Settings. For details about enabling DVS see *Enable DVS Support* (on page 27).

**Notes**:

- Obtaining and providing audio streams is the responsibility of the operator.

- Audio streams must be encoded within an MPEG program.

- It is recommended that this option not be enabled unless you are familiar with DVS and your content is encoded with DVS audio streams.

## In This Chapter

# Before You Begin

The IPG is an application that DHCTs use to present program information, including the program name, start and end times, description, and rating. The subscriber can use the IPG to view and purchase programs. You can access the IPG by pressing the Guide button on the DHCT remote control, and then scrolling through the list. When you press the Guide button, the picture on the current channel reduces to fit one-quarter of the television screen and appears on the upper right corner of the screen, as shown in the following example.



## Areas of the IPG

The IPG can be divided into three areas

- **Top Left Quarter:** The top left corner includes the channel number (304), SAM short description (FLIX), and the channel logo of the highlighted program. This section contains detailed information about the current channel, including the full channel name, the start and end time of the current program, and a description of the program. The description may appear truncated due to screen limitations, but you can always access the full program description by pressing the **Info** button on the remote control.

  **Note:** Space in this section is also available for an optional Multiple System Operator (MSO) logo. For instructions on positioning your logo, see *Positioning Your Logo on the Main Screen of the IPG* (on page 84).

- **Top Right Quarter:** The top right corner shows the quarter-screen picture, channel number, date, and time.

- **Bottom Half:** The bottom half of the screen shows the listings for several channels arranged in chronological order. The strip along the bottom of the screen identifies the date for these listings and indicates the way these listings are arranged ("by time" in this example). Pressing the ▲ button lets you browse these listings alphabetically by title or by theme, and pressing the ■ button lets you view listings for a different date. In addition, if you press the Info button, this section of the screen displays more detailed information about the highlighted program.
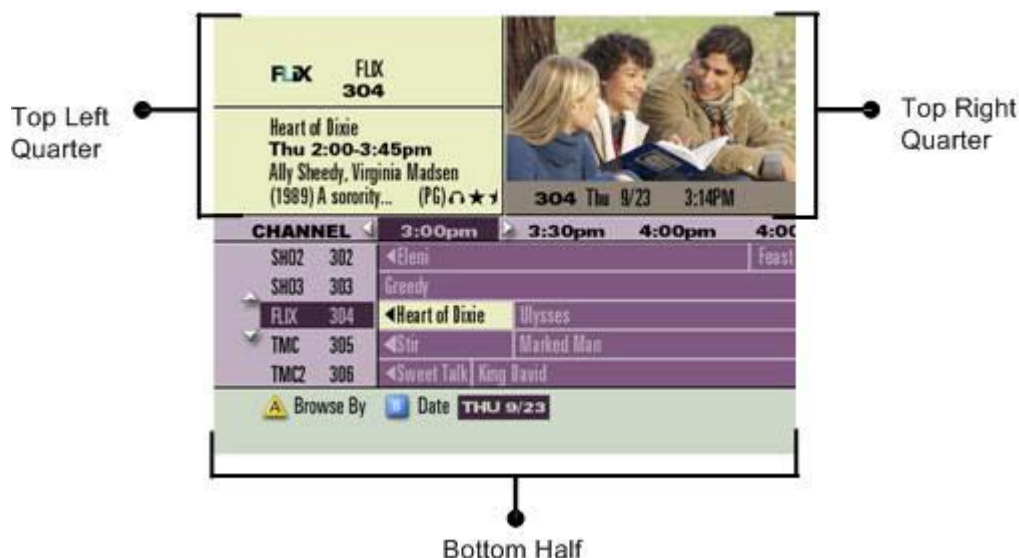


## Collecting the IPG Data

In order to provide IPG data you must set up IPG collectors and IPG servers, and you must map IPG data to SAM services. The IPG collectors receive IPG data through the data provider's File Transfer Protocol (FTP) website. This data is stored in a provider-neutral format in the Application Server database.

For each IPG collector, there must be an IPG server. The IPG servers pull data from the DNCS database and create files on the Broadcast File System (BFS). The DHCTs can then download data as needed.

The following table lists and describes the information you must have in order to set up each IPG collector.

| IPG Data Required | Description |
| --- | --- |
| The IPG service provider | Specifies the format in which to provide data to the subscriber. We support three formats: TV Data, On TV, and SA COMP (SA-Compatible) formats |

| IPG Data Required | Description |
| --- | --- |
| Host Name | Specifies the FTP site from which to retrieve the data. The host name can be a standard Web name, such as ftp.tvdata.com if the Application Server uses Domain Name Service (DNS), or a raw IP address such as 204.97.140.250 |
| User Name | Specifies your user name. The IPG data provider will give you this name. |
| Password | Specifies your password. The IPG data provider will give you this password |
| Pickup Directory or Data file location | Specifies the directory from which to retrieve data files. The IPG data provider will give you this directory. |
| File Template | Specifies the naming convention of the file to be retrieved |
| Collection Time | Specifies the time the IPG collector will collect new data from the data provider |
| Service Names | Specifies the service names used by the content provider. |
| Logo File | If using a logo, the logo file must be present on the DNCS. For more information, see *Adding a File Containing Your Company's Logo to the BFS* (on page 83). |

# Set Up the IPG

The process for setting up IPG services includes the following tasks:

- Selecting languages that subscribers can choose to display IPG data

- Setting up the IPG servers for each language

- Setting up IPG collectors for each language

- Setting up the IPG services

This section also includes procedures to modify and delete IPG Service names.

If you provide IPG data in foreign languages, you must set up the languages for the IPG data before you set up the IPG. When you first install your system, the IPG is available in at least one language. For the DNCS to allow you to create additional IPG servers and collectors, you must first select the languages that you offer.

SR 2.5 and later, SR 3.5 and later, and SR 4.0 and later provide support for IPG data in English, French, Spanish, and Japanese. For detailed instructions on setting up support for foreign languages, see *Set Up Supported Languages* (on page 20).

## Setting Up IPG Server

The IPG server is not a physical server. Instead, it is a process named ipgServer that resides on the Application Server. The IPG server uses the IPG information in the database to create IPG data files. The DBDS uses these IPG data files to display program information in the IPG.

Use the following steps to set up IPG servers.

1    On the Server Applications tab, click **IPG**. The IPG Server List window opens, similar to the following example.
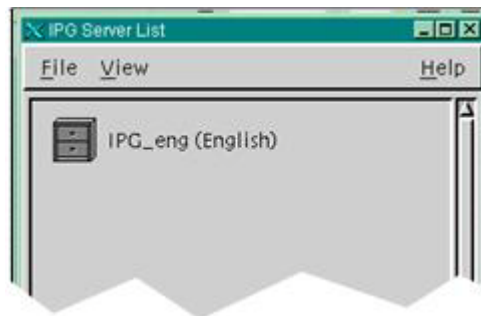
2   Click the **File** menu and select **New Server**. If you selected a language that does not yet have an IPG server, the Set Up IPG Server window opens, similar to the following example.
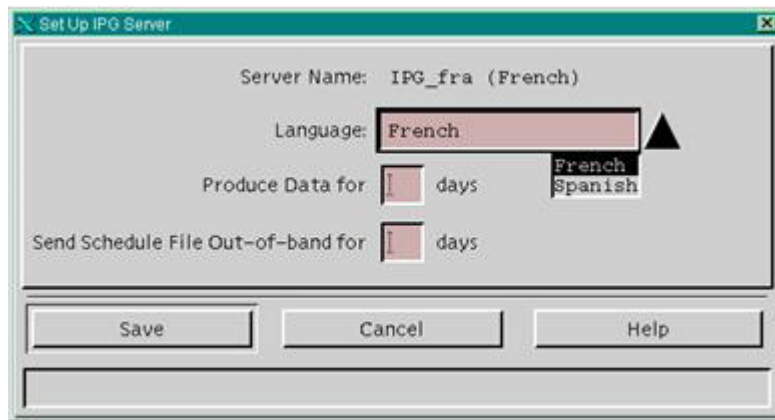


**Note:** If all languages already have IPG servers, the following message appears in the bottom pane of the IPG Server List window: No Languages found.

3   Click the **Language** arrow and select the language from the list.

**Note:** The Supported Languages that you selected earlier appear in the list.

4   Type the appropriate information for the following fields:

- Type **7** in the *Produce Data for* field.

- Type **2** in the *Send Schedule File Out-of-band for* field.

   ⚠ **CAUTION:**

   **The BFS requires a lot of bandwidth to send IPG data out of band. If you schedule out-of-band data for more than 2 days, you may cause the BFS Server to function incorrectly and disrupt service to subscribers.**

5   Click **Save**. The IPG Server List window opens again and lists the new IPG language server you just added.

## Editing IPG Servers

Use the following steps to edit an existing IPG server.

1   On the Server Applications tab, click **IPG**. The IPG Server List window opens.
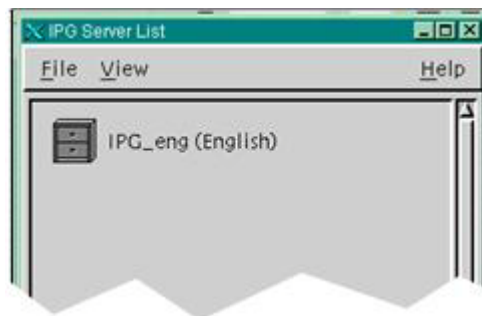
**2**    Select the IPG server whose settings you want to edit. Then click the **File** menu and select **Open**. The following message displays and reminds you that if you are editing the settings of an existing IPG server you must stop and restart the ipgServer process in order for the changes to take effect.
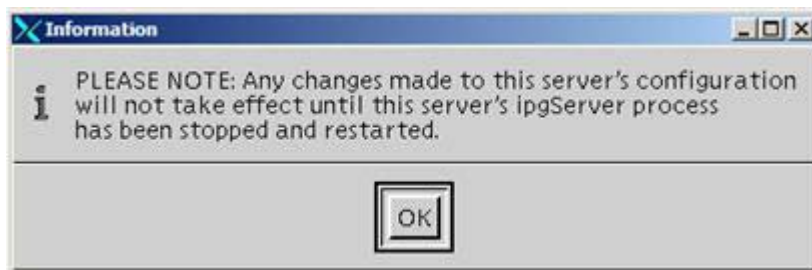


**3**    Click **OK**. The Information message closes and the Set Up IPG Server window opens for the server that you selected.



**4**    Edit either of the following settings by typing the appropriate information for the following fields:

- Produce Data for … days (typical choice is **7**)

- Send Schedule File Out-of-band for … days (typical choice is **2**)

    ⚠ **CAUTION:**

    **The BFS requires a lot of bandwidth to send IPG data out of band. If you schedule out-of-band data for more than 2 days, you may cause the BFS Server to function incorrectly and disrupt service to subscribers.**

**5**    Click **Save**.  The Set Up IPG Server window closes, and the status message "Save complete" appears at the bottom of the window.

**6**    Now that you have edited the settings for this server, stop and restart the ipgServer process in order for the changes to take effect. For assistance, go to *Stopping and Restarting a Server Process* (on page 71).

# Stopping and Restarting a Server Process

If you have changed the settings of an existing server process, you must stop and restart the server process in order for your changes to take effect.

Use the following steps to stop and restart the server process.

1   Open an xterm window on the Application Server and log in as dncs user.

2   Type **appControl**, and press **Enter**. The Applications Control window opens, similar to the following example.
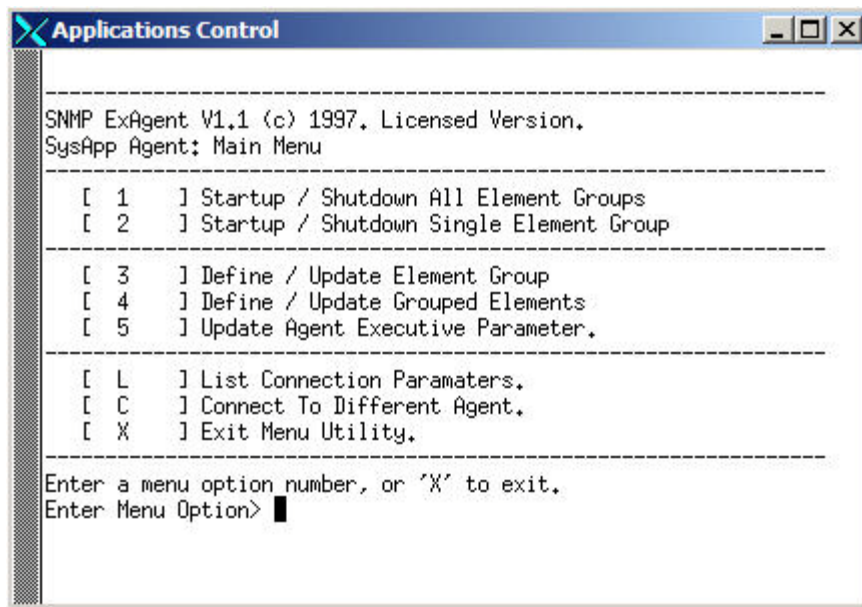


3   Type **2** (for Startup/Shutdown Single Element Group), and press **Enter**. The Applications Control window displays a numbered list of servers and processes, similar to the following example.
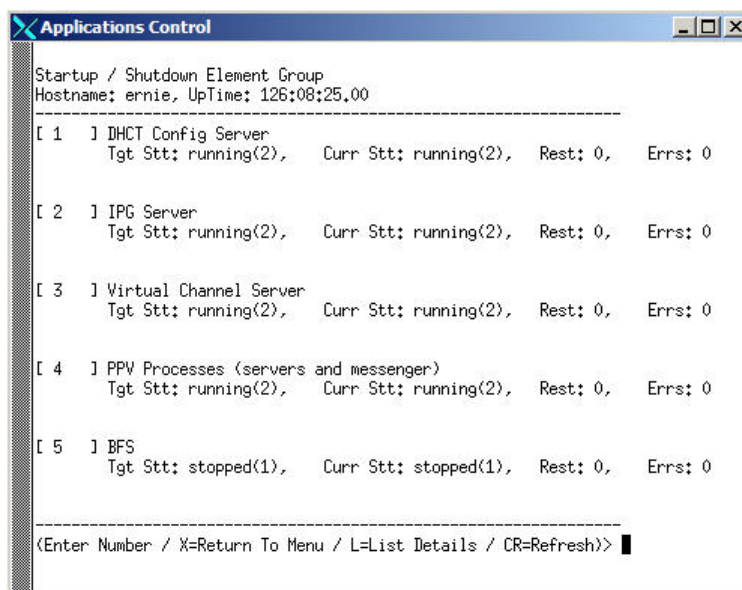
**4** Type the number associated with the server process, and press **Enter**. The Applications Control window prompts you to enter a target status for the selected element group, similar to the following example.
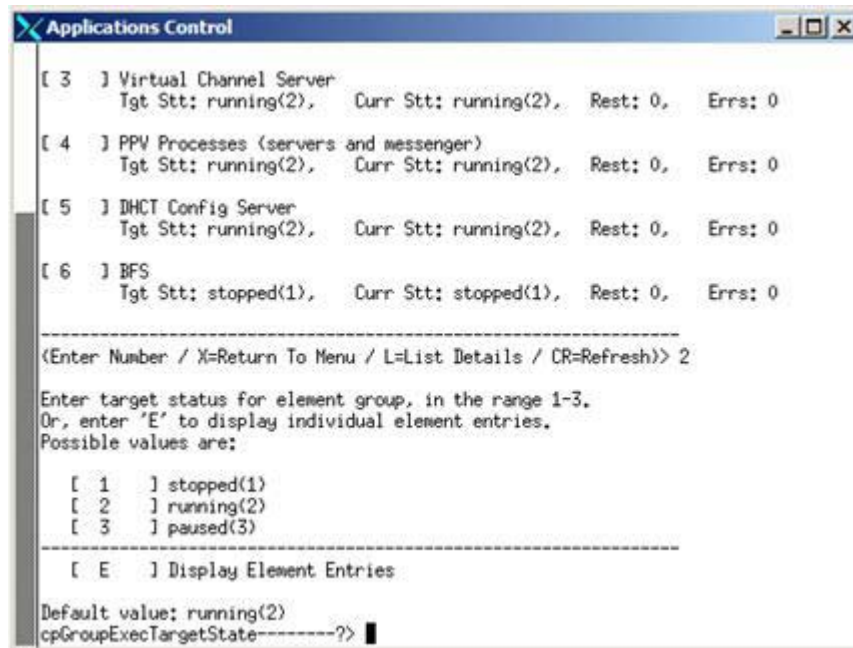


**5** Type **1** (for stopped) and press **Enter**. The Applications Control window displays a confirmation message.

**6** Type **y** (for yes) and press **Enter**. The Applications Control window refreshes.

**Note:** The Applications Control window refreshes in real time, or you can press Enter to force a refresh.

**7** Wait until Curr Stt (for current state) of the server process indicates stopped.

**8** Type the number associated with the server process and press **Enter.** The Applications Control window prompts you to enter a target status for the selected element group.

**9** Type **2** (for running) and press **Enter**. The Applications Control window displays a confirmation message.

**10** Type **y** (for yes), and press **Enter**. The Applications Control window refreshes.

**Note**: The Applications Control window refreshes in real time, or you can press Enter to force an immediate refresh.

**11** Wait until Curr Stt (for current state) of the server process indicates running.

**12** Follow the on-screen instructions to return to the main menu and exit from the appControl utility.

## Setting Up the IPG Collector

The IPG collector is a process that resides on the Application Server. The IPG collector automatically runs once a day to retrieve IPG data from the IPG data provider.

Use the following steps to set up IPG collectors.

1 On the IPG Server List window, highlight the desired language server.

2 Click the **File** menu and select **New Collector**. The Set Up IPG Collector window opens, similar to the following example.



3 Complete all the fields by typing the required information, and click **Save**.

**Important:** Leave the Max Long Description Length set to its default value of 240.

**Notes:**

■ The cable service provider and the IPG data provider supply all the information for these fields, for example, the user name and password, file template, and retrieval directory. The server updates data sent to DHCTs at midnight. Therefore, the collection time should be set as late as possible, but early enough for collection to finish before midnight.

■ When you set up the IPG collector, it is a good idea to ping the IPG provider's site to make sure that you can connect to the provider's site.

■ Occasionally, a ping may not work. In this instance, use the command **ftp <site IP address or site name>** to verify that the site can communicate with the IPG data provider.

4 On the Password Prompt window that opens, retype the password, and then click **Continue**. The system confirms the password, and then the IPG Server List window opens again.

## Setting Up IPG Services

After setting up the languages, IPG server, and IPG collector, you are ready to set up the IPG Service. Perform the following steps to set up IPG Services.

**Note:**  To set up IPG Services, you will use the service name list from your content provider and map the service names to SAM Service IDs.

1    On the IPG Server List window, click the **File** menu and select **Services**. The IPG Service List window opens.



2    Click the **File** menu and select **New**. The Set Up IPG Service window opens.



3    Type the IPG Provider Service Name and the SAM Service ID in their respective fields.

   **Notes:**

   ▪   The SAM Service ID is the ID number assigned by the DNCS when the service was registered with the SAM.  For more information on registering services with the SAM, refer to the *Digital Network Control System Online Help* for your system release.

   ▪   Service IDs for all services are shown in the SAM Services List window.

   ▪   For each PPV service that you set up, you must enter both the PPV service and the Event Use service into the IPG service list.  If you do not enter both services, information about the event will be missing in the IPG grid or in the PPV purchase barker. The PPV service ID displays event information in the IPG grid. The Event Use service ID displays event information in the PPV purchase barker.

4    Click **Save**.

5    Click the **File** menu and select **Close**.

## Modifying an IPG Service Name

Perform the following steps to modify an IPG service name.

**Important:** The IPG service names should match the names that your data provider uses in the IPG collector file.

1  Highlight the desired IPG server in the IPG Server List window.
2  Click the **File** menu and select **Services**.
3  On the IPG Service List window, highlight the row of the desired IPG service.
4  Make changes to the IPG Provider Service Name, and click **Save**.

   **Note**: You can only change the IPG Provider service name. You cannot change the SAM service ID.

## Deleting an IPG Service Name

Perform the following steps to delete an IPG service name.

1  Select the IPG server you want to delete in the IPG Server List window.
2  Click the **File** menu and select **Services**.
3  On the IPG Service List window, highlight the row of the desired IPG service.
4  Click the **File** menu and select **Delete**. A Question window opens, prompting you to confirm that you want to delete the current item.
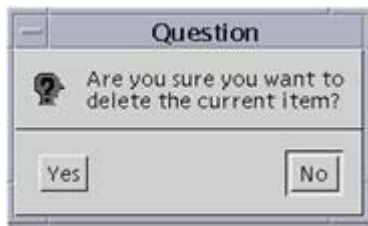


5  Click **Yes** to confirm that you want to delete the IPG service name.

# Add IPG Data Manually

Usually, your site receives program information from an IPG data provider and passes that data to the IPG without altering the information at all. However, in some cases, no data is provided. This is typically the case for local access channels. To provide subscribers with IPG data in these instances, add the IPG data manually by following the directions explained in this section.

## Overview of Adding IPG Data Manually

To provide subscribers with IPG data when no data has been provided by the IPG data provider, follow this process to manually add IPG data to the service.

1  Create an IPG service for the missing data

   **Note:**  For assistance, see *Creating an IPG Service from an Existing SAM Service* (on page 76).

2  Map the service to an appropriate SAM service.

   **Note:**  For assistance, see *Creating an IPG Service from an Existing SAM Service* (on page 76).

3  Add IPG data for the service you created.

   **Note:**  For assistance, see *Manually Adding Data to an IPG Service* (on page 77).

## Creating an IPG Service from an Existing SAM Service

Complete these steps to create an IPG service so that you can manually add data to the service.

1  From the DNCS Administrative Console, click the **Server Applications** tab.

2  Click **IPG**. The IPG Server List window opens.

3  Click **File** and **Select Services**. The IPG Services List window opens.

4  Click **File** and select **New**. The Set Up IPG Service window opens, similar to the following example.

**5** Complete these steps to enter data in the Set Up IPG Service window:

- In the IPG Provider Service Name field enter a name for the new service that is unique and does not match any of the names provided by your IPG service provider. For example, you might use "localdata1" to indicate that this is data for a local access channel.

  **Note:** You can enter up to 12 characters in this field.

- In the SAM Service ID field, enter the number of the SAM service that you want to map to this IPG data.

**6** Click **Save**. The IPG Service List window indicates "Save Complete" and adds the service you created to the window.

**7** Click **File** and select **Close** to close the IPG Service List window. A Question window opens and prompts you to indicate whether or not you want to update the IPG server with this new data.

**8** Click **No**. The Question window closes to show the IPG Server List window.

**9** Go to *Manually Adding Data to an IPG Service* (on page 77).

## Manually Adding Data to an IPG Service

Complete these steps to manually add new IPG data to the IPG service you have just created.

**1** From the IPG Server List window, select the server to which you want to add IPG data.

**2** Click **File** and select **Program Data**. The Program Data List window opens.

**3** Click the box for **Show only mapped services** and then click **Get Data from Database**. A message appears at the bottom of the Program Data List window letting you know that the DNCS is loading the data you selected.

  **Note**: It may take a few minutes for the program data to load.

**4** When a message appears at the bottom of the window to let you know that all of the data has loaded, click **File** and select **New**. The Set Up Program Data window opens.

**5** Enter data for the service by completing the fields of the Descriptions and Features tabs.

  **Note**: When selecting the Service Name, make certain to select the service that you created earlier in Creating an IPG Service.

**6** Click **Save**. A Question window opens to let you know that overlapping program data will be overwritten.

**7** Click **Yes**. A message appears at the bottom of the Set Up Program Data window letting you know that the program data has been saved.

**8** Click **Cancel** to close the Set Up Program Data window. The Program Data List window is now visible.

9   On the Program Data List window, click **View** and select **Refresh**. A message appears at the bottom of the Program Data List window letting you know that the program data is being loaded.

10  When the program data has loaded, the IPG data that you added appears in the Program Data List window.

11  Click **File** and Select **Close**. A Question window opens and prompts you to select whether or not you want to send an update to the server.

12  Click **Yes**. The Question window and the Program Data List window close.

13  To close the the IPG Server List window, click **File** and select **Close**.

# Edit Existing IPG Data

Complete these steps to edit existing IPG data.

**1** On the Server Applications Tab, click **IPG**. The IPG Server List window opens.

**2** Select the IPG server that contains the data you want to modify.

**3** Click the **File** menu and select **Program Data**. The Program Data List window opens.
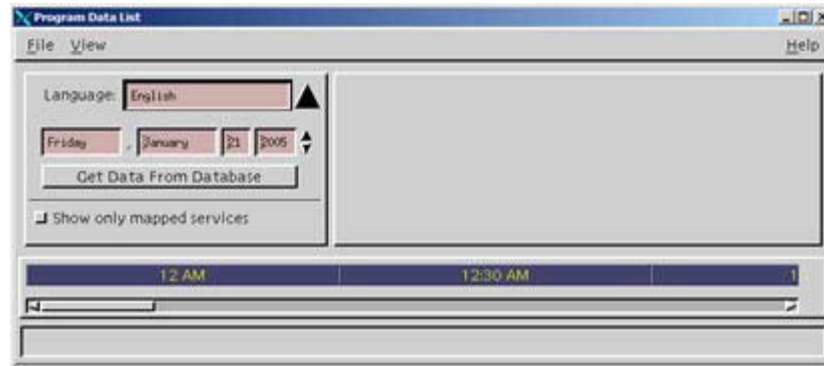


**4** Follow these instructions to select the data you want to display.

- To select program data in a specific language, click the **Language** arrow (▲) and select the language you want to display from the list that opens.

- To select program data for a particular date, click the **Reverse** (▲) or **Advance** (▼) arrow until the date you want appears.

**5** Click **Get Data From Database**. A message appears at the bottom of the Program Data List window letting you know that the DNCS is loading the data you selected. It may take a few minutes for the program data to load.
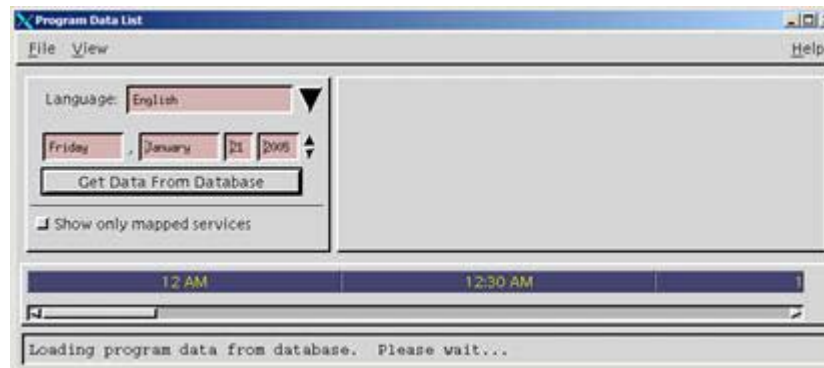


**Note:** To display only the services that have been placed on a channel map, click to enable **Show only mapped services**.

**6**   Use the scroll bars along the bottom and right sides of the window to locate the program whose data you want to edit. Then, select the program.
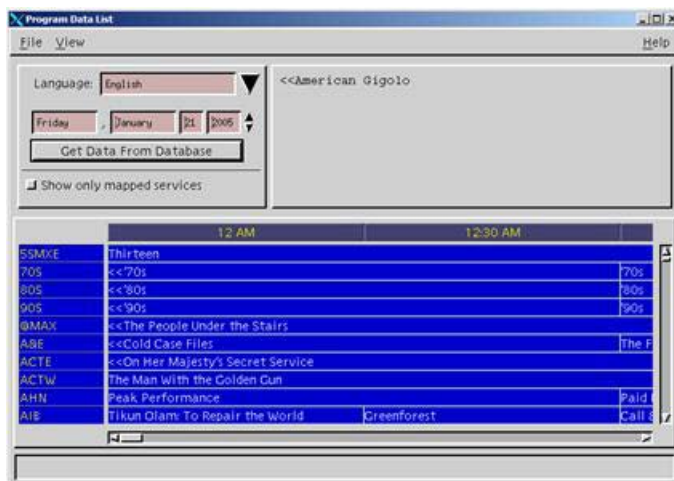


**7**   Click the **File** menu and select **Open**. The Set Up Program Data window opens and displays existing data for the program you selected.

**8**   Change the existing data in the Descriptions tab.



**Note:**  Only the following fields can be changed:

- Title
- Short title
- Description
- Primary Theme
- Secondary Theme

**9** Click the **Features** tab. The Features tab moves to the forefront.



**10** To change existing program data, select features that apply to the program or clear features that no longer apply.

**Important:** Not all feature tags listed can be displayed by all versions of the Application Server. For example, the High Definition feature only displays in Application Server 1.52 and later.

**11** Click **Save**. The Set Up Program Data window closes.

**12** To edit other program data, repeat steps 4 to 11.

**13** After you have completed editing program data, click the **File** menu in the IPG Server List window, and select **Send**. The IPG Server sends the updated information to the IPG collector.

# Add Your Company's Logo to the Main IPG Screen

Each time subscribers tune to the IPG, remind them who provides this service by placing your company's logo on the main screen of the IPG. Adding a file containing your company's logo to the BFS causes the logo to appear on the main screen of the IPG. You can also use the MSO Logo Position option to position the logo to either the left or right of the channel number.

This section describes how to add a file containing your company's logo to the BFS and how to position the logo on the main screen of the IPG.

## Logo Positions

The following screens show an example of the logo positions.
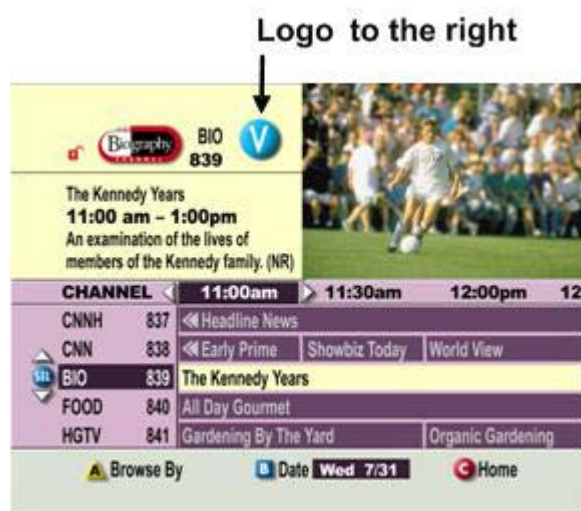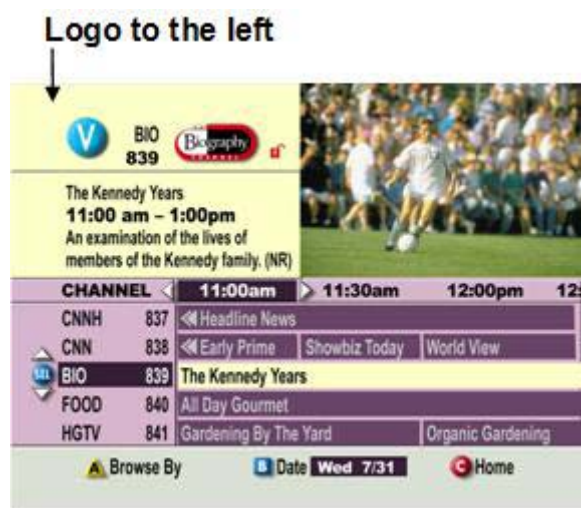
## Adding a File Containing Your Company's Logo to the BFS

To add a file containing your company's logo to the BFS, perform the following steps.

1  Has the cable service provider's logo been placed on the OSM data carousel?

   ■  If **yes**, go to step 6.

   ■  If **no**, go to step 2.

2  Open an xterm window on the DNCS.

3  Type **cd /dvs/resapp/logos** and press **Enter**. The system makes /dvs/resapp/logos the working directory.

4  Copy the file containing the logo from the directory where it is currently stored to /dvs/resapp/logos.

5  Type **exit** and press **Enter**. The xterm window closes.

6  Click the **DNCS** tab on the DNCS Administrative Console window.

7  Click the **Element Provisioning** tab.

8  Select **OS** in the **DHCT Provisioning** area.  The DHCT OS List window opens.

9  If there is an entry in the DHCT OS list named msologo.rle, select **msologo.rle** and delete it by clicking **File** and choosing **Delete**. Otherwise, go to step 10.

10  Click **File** and select **New**. The Set Up DHCT OS window opens.

11  Click **Browse** in the **Source File** field.  The Select OS File window opens.

12  In the Directories list on the left, click twice to select the **/dvs/resapp/logos** directory. The files contained in the /dvs/resapp/logos directory appear in the Files list on the right.

13  In the Files list, select the RLE file containing the logo that you want to appear in the Recorded List. The full path of the RLE file that you selected appears in the Selection field.

14  Click **OK**. The Select OS File window closes and the RLE file that you selected appears in the Source File field on the Set Up DHCT OS window.

15  In the Description field, type **IPG Logo**.

16  In the Destination field, type **bfs:///osm/msologo.rle**.

17  For Format, select **Out of Band**.

18  Click **Save** to save the logo file to the OSM data carousel. After the DVR cable box reboots, the Application Server client displays the logo in the Recorded List.



## Positioning Your Logo on the Main Screen of the IPG

To position your logo on the main screen of the Interactive Program Guide, perform the following steps.

1  On the DNCS Administrative Console, select the **Server Applications** tab.

2  Click **DHCT Config**. The DHCT Configure Prompt window opens.

3  Select **Global**. The Set Up Global DHCT Configuration window opens.

4  Select the **IPG** tab. The IPG tab appears in the forefront.

5  For the MSO Logo Position option, select either Left or Right to place your logo either to the left or to the right of the channel number on the Interactive Program Guide.

6  Click **Save**. The logo appears either to the left or right of the channel number on the Interactive Program Guide.

# Configurations That Enhance Your Subscribers' Experience

## Overview

Explorer DHCTs use a standard set of default parameters that define the way they operate and affect subscribers' experience with the Application Server.

## Creating DHCT Configurations

Explorer DHCTs use a standard set of default parameters that define the way they operate and affect subscribers' experience with the Application Server. You can create customized sets of these parameters (called DHCT configurations) and apply different DHCT configurations to all DHCTs in your network, to all DHCTs in a hub, or to a single DHCT.

For assistance configuring the Application Server refer to *Enhancing Your Subscribers' Experience: SARA Configurable Options* (part number 4002178).

For assistance configuring DVR or DVD features, refer to *DVR Configuration Guide* (part number 4011411).

# IPG Memory Usage Settings

## Overview

This section describes IPG Memory Usage settings, which allow you to fine tune how the IPG utilizes memory. These adjustments can be made on a site basis or (for testing purposes) on a hub basis. Adjusting these settings may enable you to maximize memory usage, especially on lower-memory DHCTs such as Explorer 2000s.

Usually, your site will receive program information from an IPG data provider and pass that data to the IPG without altering the information at all. However, you may occasionally need to change the program information. This section explains how to edit existing IPG data.

**Important:**

- The editor is ideally only used to provide data on channels where the provider does not provide data.

- Editing programs for services where the content provider sends information will only be effective until the collector runs again. You must work with the data provider to avoid having outdated or incorrect data they send overwrite the edits you make.

# IPG Memory Usage Settings

You'll find the settings for IPG Memory Usage on the bottom portion of the IPG tab, similar to the following example.



To adjust how the IPG utilizes memory, change these default settings.

These settings are also available on the hub-specific IPG tab. Using hub-specific settings allows a site to test settings on a hub in the headend before applying the settings to the entire site.

The **Information** area displays additional information about Memory Usage settings. The information shown here varies according to the setting that is selected.

The message to the right of the **Fixed Sized Grid** field provides information about the value currently entered. When this setting is enabled, the message provides the minimum value required based on the size of the largest grid data file on the SARA server's disk. Additionally, the message is highlighted in green (acceptable), red (unacceptable), or yellow (questionable) to provide a visual cue of the how close the current value is to the minimum required value.

The IPG Memory Usage fields display the following information about how the IPG utilizes memory.

| Field Name | Description and Possible Values |
| --- | --- |
| **Leave Largest Contiguous Free KB** | The value in this field indicates, in kilobytes, the minimum amount of contiguous free memory ("largest contiguous free block") that the IPG daemon in the set-tops must see available in order to download IPG files in the background.<br><br>**Note:** This field requires a minimum value of 50 KB.<br><br>**Default setting:** 512 KB |
| **Additional Total Free in Excess of Largest Contiguous KB** | The value in this field indicates, in kilobytes, the minimum amount of additional free memory above and beyond the largest contiguous block that the IPG daemon in the set-tops must see available in order to download IPG files in the background. For example, if **Leave Largest Contiguous Free KB** is set to 512 and **Additional Total Free in Excess of Largest Contiguous KB** is set to 256, then there must be at least 768 KB of total free memory.<br><br>**Default setting:** 256 KB |

**Notes:**

- These two settings are used in combination by the DHCT's IPG Daemon. If either the "largest contiguous free" block of memory or "total free" memory have fallen below the thresholds, additional files will not be downloaded in the background unless the available memory grows back above the threshold.

- These two thresholds do not restrict background loading of the grid nor description data files for the current or next day unless they are configured as "Automatic Priority-Based Purging".

- The above two thresholds do not restrict loading of files when requested by the IPG UI (user-initiated).

- The above thresholds are examined before downloading files, therefore if the desire is to ensure that the IPG always leaves a certain amount of memory free, then the thresholds need to be adjusted to accommodate the typical largest size of the site's IPG grid data files.  In other words, if the desire is to ensure there is at least 512 KB contiguous free after loading data, and the site's grid data files are at most 300 KB (for example), then the value needs to be set to 512+300, or 812 KB.

| Field Name | Description and Possible Values |
| --- | --- |
| **Use Fixed Size Grid File Data Allocations KB (0-variable)** | This setting affects only the grid data, not the long descriptions. The value entered in this field determines whether this setting is enabled or disabled. |
| | ■ **Disabled** - A zero in this field indicates that this setting is disabled. |
| | **Note:** Disabled is the default setting. |
| | ■ **Enabled** - When enabled, this field requires a value that is a minimum of 10% larger than the largest grid data file on the Application Server's disk. |
| | **Important:** When using this setting, we recommend that each week you verify the allocated size against the actual file sizes and, if needed, increase the allocated file size. |
| | **Notes:** |
| | – When using this setting, the Information bar indicates the range of values allowed based on the size of the largest grid data file, or displays that no grid data files have been found when this is the case. |
| | – Entering a value in this field also causes a message to appear to the right of the field that provides the minimum required value. |
| | – This fixed size allocation applies only to the grid data for days configured as "Never Purge." |
| | – When this value is changed, the Application Server will attempt to resize the memory allocations for "Never Purge" days when the new configuration data is received. However, under tight memory conditions, the resizing may not occur until much later (resizing is attempted periodically) and, if it has not been able to resize the allocated memory to the newly configured fixed size by midnight, when the days get changed, the existing allocations might be deleted, and then a new allocation to the proper size will be attempted. |

The following IPG Memory Usage settings define when grid data for the current day and next day will be purged.

- Never Purge

- Automatic Priority-Based Purging

- Purge Only When Asked By Another App

| Field Name | Default Setting |
|---|---|
| **Current Day** | |
| Data Grid | Never Purge |
| | **Important:** This setting must not be more purgeable than the setting for the Current Day Descriptions, the setting for Next Day Data Grid, or the setting for Next Day Descriptions. |
| Descriptions | Purge Only When Asked By Another App |
| | **Important:** This setting must not be more purgeable than the setting for the Next Day Data Descriptions. |
| **Next Day** | |
| Data Grid | Never Purge |
| | **Important:** This setting must not be more purgeable than the setting for the Next Day Descriptions. |
| Descriptions | Automatic Priority-Based Purging |
| | **Important:** This setting must not be more purgeable than the setting for the Current Day Data Grid. |

# Adjust How DHCTs Use IPG Memory

This section provides instructions for sending IPG Memory Usage settings to DHCTs. Sending these settings to DHCTs allows you to fine tune how DHCTs use IPG memory. You can using either of the following methods to send these settings to DHCTs:

■ Global: Sends the settings to all DHCTs in your network.

■ Hub-Specific: Sends the settings to DHCTs in a specific hub. This method allows you to test the settings on DHCTs in the headend before applying the settings to all DHCTs in your network.

This section also provides instructions for modifying settings for a hub and for changing hub settings to global settings.

## Sending IPG Memory Usage Settings to All DHCTs in a Specific Hub

Sending settings to all DHCTs in a hub requires that you first enable the settings for use on a hub-specific basis. Once hub-specific settings are enabled, you can configure each setting for any hub in your network. Until you enable these settings, they will be unavailable for you to configure and send to DHCTs in a specific hub.

### To Enable Hub-Specific Memory Usage Settings

Follow these instructions to enable hub-specific IPG Memory Usage settings.

1  On the DNCS Administrative Console, select the **Server Applications** tab.

2  Click **DHCT Config**. The DHCT Configure Prompt window opens.

3  Click **Hub**. The DHCT Configure Prompt window displays all of the hubs in your network along with their IDs and configurations.



4  Click **File** and choose **Select Hub Specific-Items**. The Select Hub-Specific Items window opens.

**5**    Click the **IPG** tab. The IPG tab moves to the forefront and displays the settings that are available for selection.

**6**    In the Memory Usage area of the tab, select each setting that you want to be able to configure at the hub level. The selection box for each setting that you select turns yellow to indicate that the setting is enabled and available for use in creating hub-specific configurations.



**7**    Click **Save**. These selections are made available to all hubs and the Select Hub-Specific Items window closes. You can now configure and send IPG Memory Usage settings to DHCTs in a hub. Go to *To Send IPG Memory Usage Settings to All DHCTs in a Hub* (on page 92).

### To Send IPG Memory Usage Settings to All DHCTs in a Hub

After you have enabled hub-specific IPG Memory Usage settings, follow these instructions to configure and send them to all DHCTs in a hub.

**1**    On the DNCS Administrative Console, select the Server Applications tab.

**2**    Click **DHCT Config**. The DHCT Configure Prompt window opens.

**3** Click **Hub**. The DHCT Configure Prompt window displays all of the hubs in your network along with their IDs and configurations.

**Note:** The Configuration field indicates whether the hub is set to the standard, Global configuration or whether it uses a Hub-Specific configuration.

**4** Select the hub whose IPG Memory Usage settings you want to configure. The hub you selected is highlighted.

**5** Click **File** and select **New Hub-Specific**. The Set Up Hub DHCT Configuration window appears.

**6** Click the **IPG** tab. The IPG tab moves to the forefront and displays the default Memory Usage settings.

**7** Are the Memory Usage settings available?

- If **yes**, continue with the next step in this procedure.

- If **no**, the settings are dimmed because they have not been enabled for hub-specific configurations. see *To Enable Hub-Specific Memory Usage Settings* (on page 91).

**8** Enter the settings appropriate for this hub.

**Note:** For an explanation of Memory Usage settings, see *IPG Memory Usage Settings* (on page 87).

**9** When finished, click **Save**. The Application Server sends the configuration to all of the DHCTs in the hub you specified. Changes should be made to DHCTs within a few minutes.

**10** Do you want to send this configuration to another hub in your network?

- If **yes**, repeat steps 4 to 9 for each hub that you want to change.

- If **no**, you have successfully sent IPG Memory Usage settings to DHCTs in all hubs that you require.

## Modifying IPG Memory Usage Settings for DHCTs in a Specific Hub

If for any reason you need to change memory usage settings for DHCTs in a specific hub, follow these instructions.

**1** On the DNCS Administrative Console, select the **Server Applications** tab.

**2** Click **DHCT Config**. The DHCT Configure Prompt window opens.

**3** Click **Hub**. The DHCT Configure Prompt window displays all of the hubs in your network along with their IDs and configurations.

**4** Select the hub whose IPG Memory Usage settings you want to change. The hub you selected is highlighted.

**5** From the **File** menu, select **Open**. The Set Up DHCT Configuration window for the hub you selected opens.

**6** Click the IPG tab. The IPG tab moves to the forefront.

**7** Change the Memory Usage settings you desire.

8    When finished, click **Save**. The Application Server sends the configuration to all of the DHCTs in the hub you specified. Changes should be made to DHCTs within a few minutes.

## Sending IPG Memory Usage Settings to All DHCTs in Your Network

Once you have completed testing the Memory Usage settings on the DHCTs in your headend, follow these instructions to send these settings globally to all DHCTs in your network that do not receive hub-specific settings. After these settings are applied globally, you will be able to change any hub-specific settings to those of the global settings if you wish.

1    On the DNCS Administrative Console, select the **Server Applications** tab.

2    Click **DHCT Config**. The DHCT Configure Prompt window opens.

3    Select **Global**. The Set Up Global DHCT Configuration window opens.

4    Click the **IPG** tab. The IPG tab moves to the forefront and displays the default Memory Usage settings.

5    Enter the settings appropriate to your network.

   **Note:** For an explanation of Memory Usage settings, see *IPG Memory Usage Settings* (on page 87).

6    When finished, click **Save**. The Application Server sends these settings to all DHCTs in your network that do not receive hub-specific settings. Changes should be made within a few minutes.

   **Note:** These changes do not affect DHCTs that receive hub-specific configurations.

## Changing a Hub-Specific Configuration to a Global Configuration

Once you have completed testing the Memory Usage settings on the DHCTs in your headend, follow these instructions to send these settings globally to all DHCTs in your network that do not receive hub-specific settings. After these settings are applied globally, you will be able to change any hub-specific settings to those of the global settings if you wish.
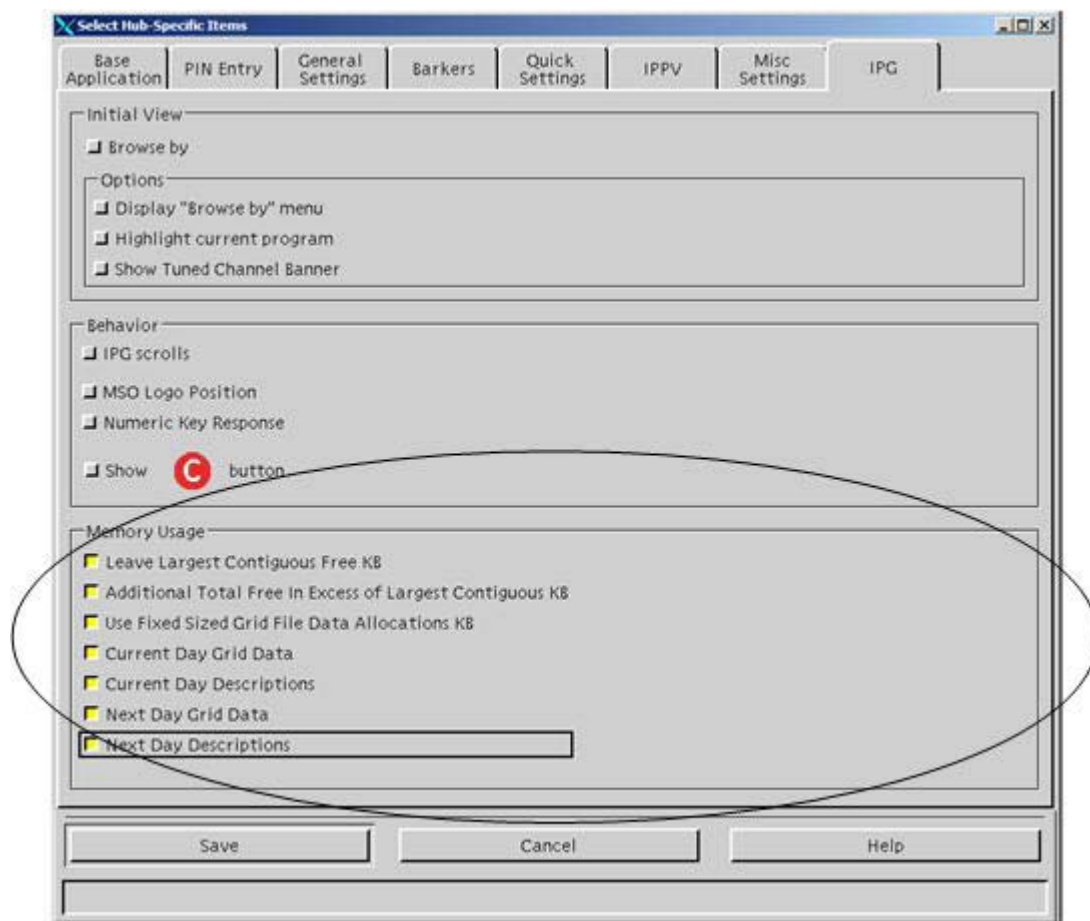
1    On the DNCS Administrative Console, select the **Server Applications** tab.

2    Click **DHCT Config**. The DHCT Configure Prompt window opens.

3    Select **Global**. The Set Up Global DHCT Configuration window opens.

4    Click the **IPG** tab. The IPG tab moves to the forefront and displays the default Memory Usage settings.

5    Enter the settings appropriate to your network.

   **Note:** For an explanation of Memory Usage settings, see *IPG Memory Usage Settings* (on page 87).

**6** When finished, click **Save**. The Application Server sends these settings to all DHCTs in your network that do not receive hub-specific settings. Changes should be made within a few minutes.

**Note:** These changes do not affect DHCTs that receive hub-specific configurations.

# 7

# Setting Up a Virtual Channel Service

Virtual channels are channels that display text (using a special limited HTML command set) when a subscriber tunes to them. The file that contains the information must be on the Application Server. This information may include announcements of civic organizations, community organizations, or local businesses.

Cable service providers use this service to provide a variety of information to subscribers. Virtual channels are typically available to all subscribers. These are not "real" RF channels. They allow the cable operators to create text channels (usually information channels) without using RF spectrum.

The Virtual Channel Server (VCS) interacts with the BFS, SAM, and Channel Map to provide services to the DHCTs that display text information. This section describes how to configure the VCS BFS, how to build or edit a virtual channel source file, and how to set up virtual channels and register them with the SAM and BFS to make the service available to subscribers.

**Important:** Building and editing a virtual channel source file requires a thorough knowledge of HTML. The instructions provided in this chapter are no substitute for a thorough knowledge of HTML.

## In This Chapter

# Configure the VCS Broadcast File System (BFS)

Typically during a system upgrade, the installer configures the BFS by adding a virtual channel server to the BFS. However, if this procedure was not performed at the time of upgrade, use the following procedures to check or configure a BFS server for the virtual channel service.

In earlier releases of the Application Server, virtual channel files could only exist on BFS Source ID 2 (inband) with other OSM files such as PowerTV® and SARA ROM. With recent modifications to the arrangement of alternating BFS files, small virtual channel server files now circulate very slowly, and leave the virtual channels practically useless. To resolve this issue, you must move the virtual channel files to a new source. Doing so allows the BFS to update the information it sends to the DHCTs and the virtual channels can then appear faster.

**Important Note for Multiple-Site (RCS-Enabled) Systems:** Manually setting up any BFS server or source for the Application Server's use must be done for the "AllSites" site only, and not for any other individual sites in your system. Otherwise, the server and source will fail.

## Procedure at a Glance

To configure the BFS for the virtual channel server, complete the following tasks.

**Note:**  For detailed instructions on adding a VCS application to the BFS, refer to *Adding and Removing Applications on the BFS for SR 2.5/3.5*.

1   Create a new digital source with the following characteristics in the Source List window:

   ■   **Source Name:** You can enter any name that helps you to remember the service this source provides. For example, you might use "VCS BFS Source."

   ■   **Source ID:** An unused even number that is greater than 200.

   **Note:**  To define these characteristics, display the Set Up Source window by following this quick path: DNCS Administrative Console > DNCS tab > System Provisioning tab > Source > File > New.

2   Create a new source definition with the following characteristics in the Source Definition List window:

   ■   **Session ID:** 00:00:00:00:00:00 plus the number used for the Source ID

   ■   **Session Definition:** BFS

   **Note:**  To define these characteristics, display the Set Up Digital Source Definition window, by following this quick path: DNCS Administrative Console > DNCS tab > System Provisioning tab > Source > [Select Source] > File > Source Definitions > File > New Digital.

**3**  Add a source with the following characteristics to the Sources tab of the BFS Administration window:

**Important:** Multi-site (RCS-enabled) systems should use the All Sites tool to add a source to the Sources tab on the Site AllSites BFS Administration window.

- **Source Name:** Use the same name that you used for the Source Name in step 1

- **Source ID:** Use the same number that you used for the Source ID in step 1

- **Source Type:** BFS

- **Transport Type:** ASI In-band or In-band

- **Data Rate:** 0.5 Mbps or less

    **Note:**  You may also use a value as low as 0.1 Mbps. The maximum rate you can enter for inband data is 2.00 Mbps. For assistance, refer to *Recommendations for Data Carousel Rate Management Technical Bulletin* (part number 716377).

- **Block Size and Indication Interval:** Use the default values

- **Selected Hosts:** Select the host according to your system configuration:

    –  For single-site systems, select **dncsatm**

    –  For multiple-site (RCS-enabled) systems, select **AllSitesHost**

    **Note:**  To define these characteristics, display the Set Up BFS Source window by following the quick path for your system configuration:

    –  **Single-Site System:** DNCS Administrative Console > Application Interface Modules tab > BFS Admin > Sources tab > File > New

    –  **Multi-Site System:** DNCS Administrative Console > Application Interface Modules tab > BFS Admin > File > All Sites > Sources tab > File > New

**4**  Add a server with the following characteristics to the Servers tab in the BFS Administration window:

**Important:** Multi-site (RCS-enabled) systems should use the All Sites tool to add the server with the following characteristics to the Servers tab in the Site AllSites BFS Administration window.

- **Server Name:** VCS

- **Selected Sources List:** VCS Source

**Note:**  To define these characteristics, display the Authorize BFS Server window by following the quick path for your system configuration:

- **Single-Site System:** DNCS Administrative Console > Application Interface Modules tab > BFS Admin > Servers tab > File > New

- **Multi-Site System:** DNCS Administrative Console > Application Interface Modules tab > BFS Admin > File > All Sites > Servers tab > File > New

5   Register the server with the BFS Client by adding a server with the following characteristics to the Broadcast File Server List window:

- **Server Name:** VCS
- **Mode:** One-way
- **Selected Sources:** VCS

**Note:**  To define these characteristics, display the Set Up Server window by following the quick path for your system configuration:

- **Single-Site Systems:** DNCS Administrative Console > Application Interface Modules tab > BFS Client > File > New Server
- **Multi-Site Systems:** DNCS Administrative Console > Application Interface Modules tab > BFS Client > File > All Sites > File > New Server

6   Configure the new BFS server source ID on the virtual channel server. For assistance go to *Configuring the New BFS Server Source ID* (on page 100).

## Configuring the New BFS Server Source ID

The final step in configuring the BFS source ID is to configure the new BFS server source ID on the server. Perform the following steps to configure the BFS server source ID.

1   On the DNCS Administrative Console, select the **Server Applications** tab.

2   Click **VCS**. The VCS List window opens.
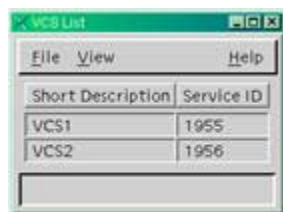
3   Click the **File** menu and select **Configure**. The Configure VCS window opens.
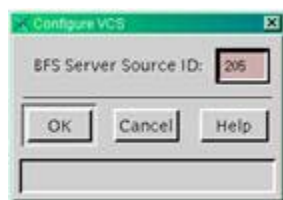
4   Verify that the number that appears in the BFS Server Source ID field matches the BFS server source ID you created earlier, then click **OK** to return to the VCS List window.

5   Click the **File** menu and select **Close** to exit the VCS List window.

6   On the Application Server, run appControl.

**7** In the appControl window, stop and restart the VC server group.
Approximately 1 minute after the server restarts, the BFS sends the updated information to the DHCTs.  This update means that the virtual channels take less time to display when a subscriber tunes to the channel.

**8** Verify that the virtual channels operate correctly.

# Build a Virtual Channel Source File

When building a virtual channel source file, you must first complete the following tasks.

1  Create the source HTML files for the virtual channel client to use.

2  Save the source HTML files to the appropriate directory on the Application Server.

Although this section provides procedures for building a source file for a virtual channel, a thorough knowledge of HTML is required to perform these procedures successfully. The instructions provided in this section are no substitute for a thorough knowledge of HTML.

## Creating the Source HTML Files

These files provide the content for a virtual channel in the same way that a local studio or satellite feed provides content for a clear broadcast. Therefore, by creating the HTML file, you create a source for the virtual channel service.

You can use any HTML editor to create a document that contains the information you want the subscriber to see. However, when formatting the text you can only use the tags in the following table.

**Important:** The behavior of the Virtual Channel client is unpredictable if you use any tags that do not appear in the following table to create an HTML document. Only these tags are supported because the Application Server client uses the Virtual Channel application (not a standard, full-featured browser) to read the source file.

| Tag | Meaning |
|---|---|
| <b></b> | Display text between tags as bold text |
| <big></big> | Display text between tags as large text |
| <br> | Insert blank rule (line break) |
| <br1.5> | Insert 1.5 blank rules (1.5 line break) |
| <center></center> | Display text and images between tags as horizontally centered on the line |
| <img scr="ok.img"> | Display the SELECT button |
| <img scr="a.img"> | Display the A button |
| <img scr="b.img"> | Display the B button |
| <img scr="c.img"> | Display the C button |
| <img scr="settings.img"> | Display the SETTINGS button |
| <font color="white"> | Change the font color to white |

| Tag | Meaning |
|---|---|
| <font color="black"> | Change the font color to black |
| <font color="yellow"> | Change the font color to yellow |
| <table bgcolor="alert"></table> | Applies a standard 3-row alert-banner background to the table |
| <table bgcolor="swirl"></table> | Applies a purple swirl graphic to the background of the table |
| <table bgcolor="none"></table> | Applies a transparent background to the table |
| <tr> | Define a table row. (For alert banner background, there must be at least three rows per table) |

**Example:** The following is a sample HTML document with the recommended tags for a Virtual Channel client.



## Saving the Source HTML Files

After creating the source HTML files using the appropriate tags, you must save the files in the /dvs/appFiles/html directory on the DNCS. Use the parse utility in the /dvs/appserv/bin directory to verify that the Virtual Channel client can display your files.

Perform the following steps to run the parse utility.

1   Create two directories.

2   Name one **good** and the other **bad**.

**3** Save them in the /dvs/appFiles/html directory. The following three directories appear for HTML files:

- /dvs/appFiles/html

- /dvs/appFiles/html/good

- /dvs/appFiles/html/bad

**4** In an xterm window, type **parse goqam** to run the parse utility. One of the following results occurs:

- If the Virtual Channel can use your HTML file, the parse utility displays the following:

  **Parsed file <file.html>, no errors found.**

  **Moved the file to <good/file.html>.**

- If the Virtual Channel cannot use your HTML file, the parse utility displays the following:

  **Parsed file <file.html>, errors found.**

  **Moved the file to <bad/file.html>.**

  **Please look at <bad/file.err> for details**

  **Note:** File.err lists line numbers of any lines of text that use HTML tags not recognized by the Virtual Channel client.

# Set Up a Virtual Channel Service

## Overview

When setting up a virtual channel service, you must first complete the following tasks.

1   Set up the virtual channel service.

2   Place the virtual channel service on the Channel Map.

This section provides procedures for completing these tasks, as well as for modifying a virtual channel configuration, editing a source file, and deleting a virtual channel.

## Setting Up the Virtual Channel Service

Now that you have created your source HTML file and saved it on your DNCS for your virtual channels, you are ready to set up your virtual channel service.

Use the following steps to set up virtual channels.

1   On the DNCS Administrative Console, click the **Server Applications** tab.

2   Click **VCS**. The VCS List window opens.
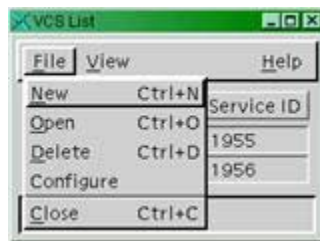


3   Click the **File** menu and select **New**. The Set Up VCS window opens.

4   Type the service name, short description, and long description in their respective fields.

5   In the Data File field, click **Select**. The Source URL Selection window opens.

Note:  As part of setting up the virtual channel service, you must define the source that the service uses by linking the new service with an HTML file that you created earlier.

6   Browse to the directory and select the HTML file to display on the virtual channel.

Note:  The recommended place to save the html files is in /dvs/appFiles/html/good or in one of its subdirectories.

7   Click **OK** to return to the Set Up VCS window.

8   Type the logo index in the Logo Index field.

9   Click **Save**.

## Placing the Virtual Channel on the Channel Map

After you set up a virtual channel service, you must place the virtual channel on a channel map. Refer to the version of *Digital Network Control System Online Help (UNIX)* document that is written for your system release.

## Modifying a Virtual Channel Configuration

Use the following steps to modify a virtual channel configuration.

1   On the VCS List window, select the row of the desired service.

2   Click the **File** menu and select **Open**.

3   Make desired changes on the Set Up VCS window, and click **Save**.

## Editing a Source File

The source files for virtual channels are links. As a result of editing, the source automatically forces the channel to update on the DHCTs.

Use the following steps to edit a source file.

1   Open the source file in the editor and make the changes you require.

2   Use the parse utility to verify your changes.

3   Check for updated information.

## Deleting a Virtual Channel

Use the following steps to delete a virtual channel.

1  Select the virtual channel you want to delete in the VCS List window.

2  Click the **File** menu and select **Delete**. A Question window opens, prompting you to confirm that you want to delete the current item.
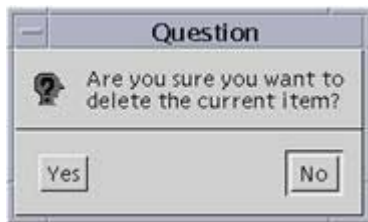


3  Click **Yes** to confirm that you want to delete the virtual channel.

# 8 Chapter 8

# Enabling Tracing on the Application Server

The Application Server can track the flow of data messages between the Application Server and other network elements and store those messages in a log file. The process of tracking those data messages is called tracing.

This chapter provides procedures to enable and disable the tracing function and to specify the level of detail that you want to include in the log file.

## In This Chapter

# Enable Tracing

The tracing function tracks the flow of information through Application Server processes. In order to capture this information to a log file, you must enable tracing.

**Important:**  Cisco Services may request that you enable tracing so you can capture this information for diagnostic purposes.

## Understanding Trace Levels

You can choose to trace varying information with varying degrees of detail. You do this through the use of trace levels.  Trace levels let you specify how much information you want to include in the log file. The following table provides valid trace levels:

| Trace Level | Definition |
| --- | --- |
| 0 | Reports only errors.  This level is always turned on by default whenever tracing is enabled. |
| 1 | Reports errors and debug information. |
| 2 | Reports errors, debug information, and flow information. |

## The trace.cfg File

The Application Server contains a file called /dvs/appserv/tmp/trace.cfg. This file contains commands that let you specify the following options:

- Whether to enable or disable tracing for a specific process

- The amount of detail that you want to capture to a log file

In order to enable or disable tracing or to change the trace levels for a process, you must edit the trace.cfg file.

After you make changes to the trace.cfg file, you can run the /dvs/appserv/bin/tools/showTracing utility to put the changes into effect. If you do not run the showTracing utility, any changes that you made to the trace.cfg file may not take effect immediately. It is not necessary to restart any Application Server processes for changes to take effect.

## Viewing Tracing Options

Complete these steps to view the tracing options contained in the trace.cfg file.

1  In an xterm window on the Application Server, type **more trace.cfg** and press **Enter**. A list of tracing options displays on the screen.

2  Examine the list of tracing options to determine which functions you want to enable.

3  Type the **Ctrl** and **C** keys simultaneously to exit the more utility.

4  Go to Syntax for the trace.cfg File.

## Syntax for the trace.cfg File

You must enter the trace.cfg entries using the following syntax:

**tracename programcontext tracelevel**

The following table explains each component of the trace.cfg entry. Use the components to build entries for the trace.cfg file.

**Important:** To enable the tracing function, go to *Enabling the Tracing Function* (on page 112).

| Part | Description |
|---|---|
| tracename | Identifies the subset of code within an executable file that you want to trace.  The **tracename** component can be the trace name that was registered in the executable code, or it can be the library file name without the lib and .* extensions. |
| | The tracename component is optional.  You can include tracename to turn on tracing for a given subset of code, such as a library. If it is omitted, tracing is turned on in all contexts for the tracename. |
| programcontext | Identifies the process that you want to trace.  The **programcontext** component can be the name of the executable file or the trace name that was registered in the executable code. |
| tracelevel | Identifies the level of detail that you want to capture for this process. |
| **Examples:** | |
| **_ipgui  2** | The programcontext is _ipgui, and the tracelevel is 2. This entry starts a level 2 trace on the _ipgui process. |
| **gui  _ipgui  1** | The tracename is gui, the programcontext is _ipgui, and the tracelevel is 1. This entry starts a level 1 trace on code labeled gui in the _ipgui process. (This code may be in the gui library) |
| **All  _ipgui  1** | The tracename is all, the programcontext is _ipgui, and the tracelevel is 1. This entry starts a level 1 trace on all code in the _ipgui process. |

## Enabling the Tracing Function

In order to enable or disable tracing for an Application Server process, you must edit the /dvs/appserv/tmp/trace.cfg file. Each line in this file represents a trace command for an Application Server process.

Lines that begin with a pound sign (#) are comments. The tracing function ignores these lines. Therefore, in order to disable tracing, you can simply add a pound sign to the beginning of the corresponding line.

Also, some of these comment lines may contain trace commands that have been disabled. To enable tracing, you can simply remove the pound sign from the beginning of those lines.

Follow these steps to enable the tracing function for an Application Server process:

1   In an xterm window on the Application Server, type **cd  /dvs/appserv/tmp** and press **Enter**. The /dvs/appserv/tmp directory becomes the working directory.

2   Type **vi  trace.cfg** and press **Enter**. The trace.cfg file opens.

3   Does the file contain any comment lines that correspond with the tracing function you want to enable?

   - If **yes**, remove the # from the beginning of that line and go to step 5.

   - If **no**, go to step 4.

4   Use the arrow keys to scroll to the bottom of the file and add the appropriate entry for the tracing function you want to enable.  See *The trace.cfg File* (on page 110) for more information on writing trace.cfg entries.

5   Type **:wq** to save and close the file.

6   Type **dvs/appserv/bin/tools/showTracing** to put the changes into effect.

   **Important:** If you do not perform this step, the changes that you made will not be put into effect.

## Disabling the Tracing Function

Follow these steps to disable the tracing function for an Application Server process:

1   In an xterm window on the Application Server, type **cd  /dvs/appserv/tmp** and press **Enter**. The /dvs/appserv/tmp directory becomes the working directory.

2   Type **vi  trace.cfg** and press **Enter**. The trace.cfg file opens.

3   Find the entry that corresponds with the tracing function you want to disable.

4   Place the cursor at the beginning of the line you want to disable and type **#**.

   **Note:**  It is a good idea to comment out the entry instead of deleting it; you can enable the command later, if necessary.  To comment out an entry, add a # to the beginning of the line containing the entry.

5   Type **:wq** to save and close the file.

6   Type **dvs/appserv/bin/tools/showTracing** to put the changes into effect.

# View the Log Files

The Application Server captures various kinds of trace information to various log files. Those log files are stored in two directories: /var/log/dncsLog and /dvs/appserv/tmp.

- The files in /var/log/dncsLog only contain error message and process start/stop messages. The Application Server automatically deletes these log files after three days.

- The files in /dvs/appserv/tmp contain all of the process output that is captured. The Application Server automatically deletes these log files after seven days.

## The Logger Utility

The Application Server includes a utility called Logger that manages the size, name, and placement of the log files in the/dvs/appserv/tmp directory. Logger stores these files for seven days. Logger creates a new log file for each traced process every day or when the previous log file reaches a pre-determined size. When Logger creates a new log file, it closes the old file and compresses it using the gzip utility. A compressed file is renamed to include a .gz extension.

## Viewing the Log File

To view the data in a zipped log file, type **gzip -dc goqam.gz** and press **Enter**. In this command, goqam is the name of the file you want to view. When you enter this command, the Application Server creates an unzipped file without the .gz extension.

For example, to view the data in vcServer.101.gz, type gzip -dc vcServer.101.gz and press Enter. The Application Server creates an unzipped file called vcServer.101.

## Log File Naming Conventions

Log files for individual processes are stored in the /dvs/appserv/tmp directory. These files are named after the process that they traced, and the filename contains a three-character extension. For example, **ppvfileserver.201** contains trace information for the ppvfileserver process.

The first character of the three-character extension identifies the day of the week that the information was captured:

| Character | Day of the Week |
|---|---|
| 0 | Sunday |
| 1 | Monday |
| 2 | Tuesday |

| Character | Day of the Week |
|-----------|-----------------|
| 3 | Wednesday |
| 4 | Thursday |
| 5 | Friday |
| 6 | Saturday |

The second and third characters number the files that were created for a specific process during a specific day, beginning with 00 and going through 99.

Examples:

- The **vcServer.400** file contains the first section of trace information for last Thursday for the vcServer process.

- The **bfsRemote.003** file contains the fourth section of trace information for last Sunday for the bfsRemote process.

If any processes are running multiple instances, such as the ipgServer, the log files will be named after the programContext instead the programName.  For example, **ipgServer-eng.201** contains the second section of trace information for last Tuesday for the ipgServer-eng process.

# 9

# Adding and Updating a dvd Server on the BFS

This chapter provides procedures for adding a dvd server to the BFS and updating the dvd server with DVD files. These files enable Application Server software to support the DVD copying (burning) feature of Explorer set-top boxes that offer this feature.

During a system upgrade, the installer may have configured the BFS for a dvd server and added DVD files to the server. However, if this procedure was not performed at the time of the upgrade, use the information in this chapter to add a BFS dvd server and to add files to the dvd server for the first time. Also use the information in this chapter to update a dvd server with new files when necessary.

**Important:** The instructions in this chapter provide data required to add a dvd server to the BFS. For step-by-step instructions on adding a server to the BFS, refer to *Adding and Removing Applications on the BFS* for the appropriate system release.

## In This Chapter

# Add a dvd Server to the BFS

## Overview

This section describes how to add a BFS dvd server to your system. A BFS dvd server is required to fully support the DVD burning capability of DVR-DVD set-top boxes.

**Important Note for Multiple-Site (RCS-Enabled) Systems:** Setting up any BFS server or source for the Application Server's use must be done for the "AllSites" site only, and not for any other individual sites in your system. Otherwise, the server and source will fail.

# Update a dvd Server With New Files

This section describes how to update a dvd server with new files to ensure that set-top boxes receive needed data.

To support the Application Server's DVD burning capability, the dvd server places the following files on the BFS:

■ **dvdImage.bin**, which is sent over an inband data path

■ **dvdIndex.dat**, which is sent over an out-of-band data path

Whenever these files are revised, the dvd server must be updated with the new files. Otherwise, the new files will not be placed on the BFS and DHCTs will not receive the new data. As a result, DVR-DVD set-top boxes are unable to fully support the DVD burning feature.

## Why Are These Files Needed?

As the following definitions explain, the Application Server client uses the dvdImage.bin and dvdIndex.dat files to inform subscribers that copy-protected content on the disc can be played back by only the authorized device.

■ **dvdImage.bin** -A DVD ISO disc image file that the Application Server client writes to the first border of a SA Trusted Domain Format (TDF) disc. Because content on the TDF disc is encrypted and can be played back by only a specific DVR-DVD set-top box, this image serves to warn the subscriber that the DVD cannot be played when it is inserted into a commercial DVD

*This DVD is not compatible with your DVD player.*

player or an Explorer DVR-DVD set-top box other than the one that burned the program. The image displayed is similar to the example shown above.

Content that is tagged as "copy freely" is burned using standard DVD-Video format. These discs will not have this image because they can be played back on any commercial DVD player as well as on other Explorer DVR-DVD set-top boxes.

**Note:** Cable service providers may use any DVD authoring product to customize the dvdImage.bin file that we provide. When customizing the image, cable service providers must ensure that the file size is less than 1 MB.

■ **dvdIndex.dat** - A text file that tells the Application Server client where to look on the BFS to find the ISO image file, which the client uses when burning TDF discs.

## Updating the dvd Server

Follow these instructions to place DVD files on a newly created dvd server or to update an existing dvd server with new DVD files.

**Note:** Update a dvd server with DVD files immediately after adding a dvd server to the BFS and from that point on, whenever DVD files are changed or updated.

1   From the DNCS Administrative Console, click the **Server Applications** tab. The Server Applications tab moves to the forefront.

2   Click **DVD**. The DVD V-IMAGE window opens as shown in the following example.
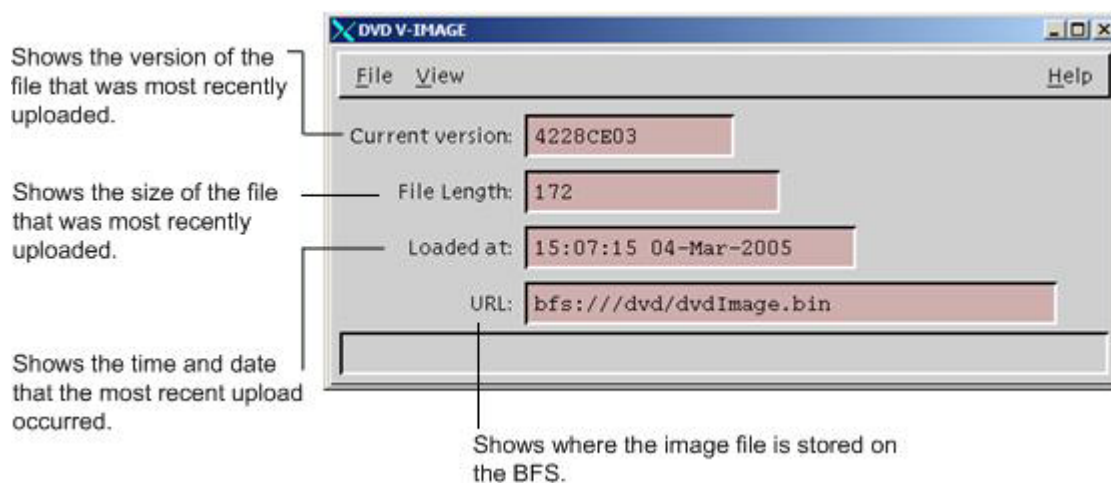


3   Click **File** and select **Update**.  The Select DVD V-Image File window opens as shown in the following example.

**4** In the Directories list, select the directory where the file is stored by double-clicking the directory. The Select DVD V-Image File window updates as shown in the following example.



When you select a directory in the Directories list, the following fields update:

- The Filter field updates and shows the directory you selected.

- The Directories list updates and shows the directories contained in the directory you selected.

- The Files list updates and shows any files contained in the directory you selected.

- The Selection field updates and shows the directory you selected.
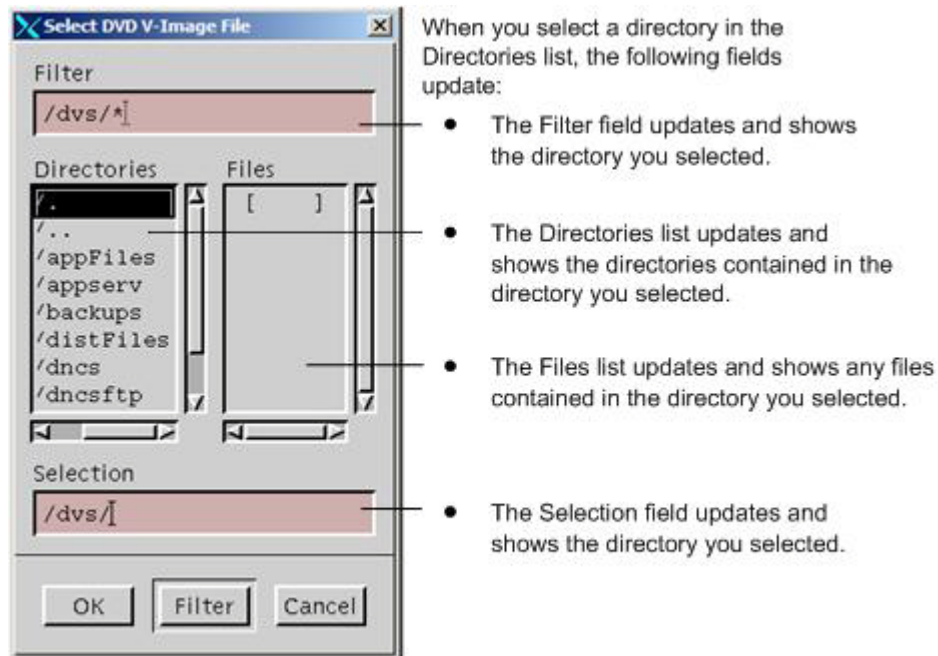
**5** Continue selecting directories in the Directories list until the file you want to update (dvdImage.bin or dvdIndex.dat) appears in the Files list.

**6** When the source file you want to use appears in the Files list, double-click the file in the Files list.The Select DVD V-Image File window updates and shows the full path of the file you selected, as shown in the following example.



- When you double-click a file in the Files list, the Selection field updates and shows the full path of the file.
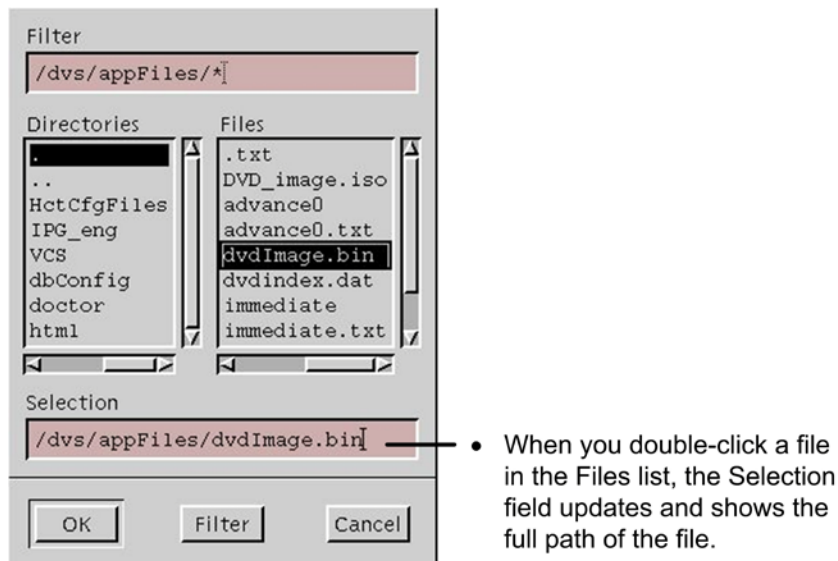
**7**    Click **OK** to upload this file to the dvd server. The Select DVD V-Image File window closes and the DVD V-IMAGE window updates as shown in the following example.

**Tip:** The File Length field provides extra assurance that a new file was placed on the BFS. Generally a change in the size of the file indicates that the new file was placed on the BFS. On the other hand, no change in the size of the file may indicate that the dvd server uploaded the BFS with the existing file.

When you update the DVD server with a new DVD-V Image file, these fields update and show information about the new file.

When the file is completely uploaded to the dvd server, the Status field indicates that the upload was successful.

| DVD V-IMAGE | |
| --- | --- |
| File  View | Help |
| Current version: | 42264741 |
| Timestamp: | 17:07:45 02-Mar-2005 |
| URL: | bfs:///dvd/dvdImage.bin |
| Update succeeded. | |
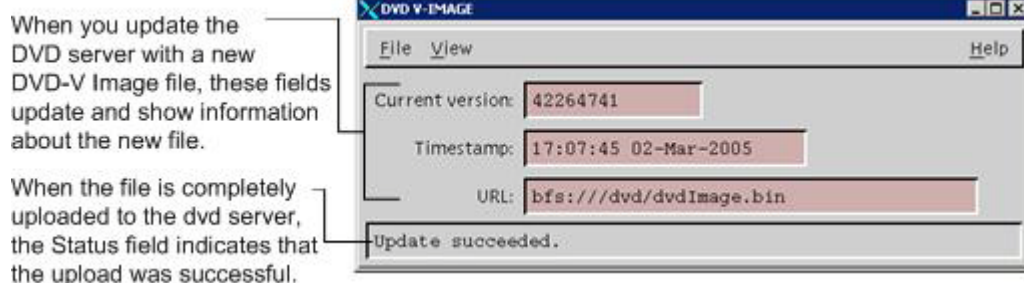
**8**    Does the Status field show Update succeeded?

- If **yes**, go to step 9.

- If **no**, contact Cisco Services for assistance.

**9**    Do you need to upload another DVD V-Image file to the dvd server?

- If **yes**, repeat steps 3 to 8 to upload the other file.

- If **no**, you have successfully updated all dvd servers in your system. To close the DVD V IMAGE window, click **File** and select **Close**.

# 10

## Customer Information

### If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

Access your company's extranet site to view or order additional technical publications. For accessing instructions, contact the representative who handles your account. Check your extranet site often as the information is updated frequently

# Glossary

**Application Server**

A computer workstation and server used to execute the application programs, which provide an interface for downloading application data to the DHCTs. The AppServer works in conjunction with the DNCS and the two computers share a common database.

**AppServer**

*See* Application Server.

**ASI**

Application Services Interface. A DVB standard for the transfer of MPEG transport streams.

**ATM**

Asynchronous Transfer Mode. A network protocol designed to handle all aspects of multimedia: video, audio, and data.

**ATM Switch**

A device that receives digital data from the DNCS and AppServer using two separate PVCs. The switch uses classical IP over ATM to send digital data to a router on the forward data channel.

**BFS**

Broadcast File System. The primary interface (means of communication) between the AppServer and the DHCTs that are connected to the network.

**BFS BIG**

Broadcast File System Broadband Integrated Gateway. A device that processes the data it receives and sends it to the data QAM modulator.

**BIG**

Broadband Integrated Gateway. A device that provides a data pipeline from the DNCS to the DHCTs.

**brick mode**

A state in which the DHCT is not authorized to receive services. Provided by a package which stops all functions of the DHCT, including the ability for it to turn on. Also called *service disconnect*.

**Burn**

To write data from the hard drive of the cable box to the DVD drive.

**CA**

*See* Conditional Access.

**CableCARD**

A device that plugs into a digital cable-ready TV or DHCT and allows the receipt of encrypted services.

**CAM**

Conditional Access Manager. Network encryption control, entitlement definition and management, and authorization control (see PowerKEY).

**CAQAM**

Conditional access quadrature amplitude modulator. *See also* QAM, GQAM, MQAM.

**carousel**

Transports data modules and application server processes from the BFS server to the DHCT. For each new application server process that registers with the BFS, a new data carousel is created and the ID information is updated in the BFS directory structure. *Also known as* Data Carousel or Data Pump.

**CATV**

cable television.

**Certification Revocation List**

*See* CRL.

**CF session**

Continuous Feed Session. Defines and allocates resources that the network uses to deliver a particular service to subscribers. A CF Session will remain intact until the DNCS operator manually tears it down.

## Channel

A signal space of a specified bandwidth. The 6 MHz band space used for the video, audio, and game data carriers. Also used to identify the service provided on a particular channel.

## Channel Map

A set of channels that specific subscribers are authorized to receive through their DHCTs.

## Channel Mapping

Placing an available television channel signal to appear at any desired channel marking on a customer's HCT.

## Comment out

To add a # (pound sign) to the beginning of a line in a UNIX file. UNIX Servers ignore any lines within a file that begins with a #.

## copy-protected content

Video and/or audio content that is coded to prevent it from being copied by recording devices, such as digital video recorders or personal computers.

## CRL

Certification Revocation List. A list of host devices that are not authorized to duplicate copy-protected content.

## data carousel

*See* carousel.

## data pump

*See* carousel.

## DBDS

Digital Broadband Delivery System. The entire network architecture of our digital system that ultimately provides signal to and from a subscriber's DHCT. The DBDS consists of five areas: sources, headend, transport network, hub, and access network.

## demodulator

Receives information such as billing and performance monitoring data in a reverse path from the DHCT and returns it to the DNCS for processing.

**DHCT**

Digital Home Communications Terminal. Our digital set-top that is two-way capable for interactive services. *See also* Explorer.

**DNCS**

Digital Network Control System. A computer server that monitors and controls the DBDS network elements; located at the DBDS headend or at a remote site.

**DVR**

digital video recorder. A device that records television programs without the use of videotape and saves them to a hard drive located inside the recorder. The programs can then be deleted, saved to a tape, or left on the hard drive. A DVR allows you to pause live broadcast for interruption, such as creating your own instant replays. *Also known* as PVR.

**ECM**

Entitlement Control Message. System-wide information that "unlocks" an encrypted service by transmitting control words. Each ECM is unique for each service. An ECM enables cryptographic partitioning so that different Entitlement Agents (EAs) can selectively grant access to their own services.

**Element**

Refers to DBDS devices, groups of devices, and software components that must be "provisioned" from the DNCS. Also known as system components.

**Explorer®**

Our registered trademark name for the Digital Home Communications Terminal (DHCT). Also known as a set-top box.

**FAT Channel**

*See* BFS.

**FTP**

File Transfer Protocol. A method used to exchange files between computers on a network or the Internet using the TCP/IP protocol.

**GQAM**

gigabit quadrature amplitude modulation. A QAM that provides up to sixteen 6 MHz outputs while occupying only one unit of rack space. *See also* QAM, MQAM.

**headend**

The location of the network elements that processes the signal by receiving and preparing the source signals and making them ready for the transport network. *See also* network elements.

**HFC**

hybrid fiber coax. Consists of fiber optic transmission systems extending from a hub to HFC nodes, and a coax bus network extending from the HFC nodes to the DHCTs within the subscriber's home.

**hub**

Physical locations designed to serve a specific number of subscribers, usually 50 to 15,000. May be co-located with the headend or miles away from the headend. Hubs receive, modulate, and boost the signal prior to sending it to the network of HFC nodes for distribution to the subscriber. Hubs usually contain QPSK modulalators/demodulators that establish the two-way communications with the DHCTs.

**interstitial**

Programming that appears on PPV channels between events, such as general programming or an advertisement.

**IPG**

Interactive Program Guide. Our name for the on-screen program guide provided by the Explorer DHCT.

**IPPV**

impulse pay-per-view. Service for which cable subscribers can electronically order program events using two-way (or reverse path) methods. Subscribers are charged a user fee for individual program events. *See also* PPV.

**IPPV Event**

A segment offered as an IPPV package; a boxing match could be an event offered as an IPPV packet. One IPPV event=one IPPV package.

**IPPV Package**

A package created to contain only one IPPV event and offered to subscribers.

**LED**

light-emitting diode. Semiconductor device that converts electrical energy into light. Status lights on hardware devices are typically LEDs.

## Logger

A utility on the Application Server that manages the size, name, and placement of the log files in the /dvs/appserv/tmp directory.

## MAC address

Media Access Control address. A unique physical address embedded into a network device. Similar to a serial number.

## MIB

Management Information Base (SNMP data structure).

## modulator

A device that sends control and authorization information from the DNCS to the DHCT.

## MPEG

Moving Picture Experts Group. An international video compression standards-setting group working under the supervision of the International Standards Organization (ISO) and the International Electrotechnical Commission (IEC). MPEG's mission is to develop standards for compressed full-motion video, still image, audio and other associated information.

## MPEG-2

Intended for higher quality video-on-demand applications and runs at data rates between 4 and 9 Mbps.

## MSO

multiple system operator. A cable company that operates more than one cable system.

## Narrowcast

Narrowcast is a term that describes a cable TV signal that is available to only a subset of the subscriber base. Narrowcasting allows cable operators to reuse the same frequency for different content. Narrowcasting is accomplished by placing QAM modulators in the plant closest to the subscribers' homes. For example, operators can offer popular cable TV shows, such as Animal Planet and HGTV, on frequency A in one part of the plant, and offer local programming on the same frequency in another part of the plant.

## network elements

Devices typically located at the headend, which include satellite receivers (IRT, IRD), Real-Time Encoder (RTE), BIG, QAM modulator, DNCS, and the application server. *Also known as* system components.

**on-demand session**

A tangible service, such a movies, that the on-demand network delivers to the subscriber. As the on-demand network matures, the on-demand sessions or MPEG programs routed through the network will broaden to offer services such as music, video teleconferencing, Internet information, and time-shifted TV, including HDTV.

**PIN**

personal identification number. A password used for identification.

**POD Module**

Point-of-Deployment module. Approximately the size of a credit card and inserts into a host device (either a DHCT or cable-ready television) to provide conditional access to secure digital content. *See also* CableCARD, M-CARD.

**PowerKEY® Conditional Access system**

Our registered trademark name for the hardware and software encryption and decryption of digital signal. Uses secret key, public key, and private key data to secure the digital signal.

**PowerTV®**

Our registered trademark name for the operating system software and integrated circuits created for high-speed processing and presentation of interactive graphics and audio for the DHCT.

**PPV**

pay-per-view. Service for which subscribers are charged a user fee for individual program events. *See also* IPPV.

**PPV Barker**

A screen that the DHCT displays to advertise an event or let a subscriber order a PPV event.

**PPV window**

A period of time during which a PPV action occurs. The period of time that a window is present often determines when the PPV service displays a specific type of advertisement or purchase option.

**provision**

The process of preparing a device or service so that the DNCS/ISDS recognizes the device, which allows the device to operate properly.

**PSI**

program-specific information. Associated with MPEG-2 digital configuration; system data comprised of PAT, PMT, CAT, and NIT.

**PVR**

*See* DVR.

**QAM**

quadrature amplitude modulation. A frequency modulation technique primarily used for program audio and video. QAM supports data rates from 27 Mbps to 36 Mbps.

**QAM modulator**

A device that uses QAM techniques to modulate a digital signal onto an HFC network to deliver voice, video, and data to a DHCT.

**QPSK**

Quadrature Phase-Shift Keying. Digital modulation scheme that send data by modulating the phase of a reference signal (the carrier wave).

**QPSK modulator/demodulator**

The QPSK modulator works with the QPSK demodulator and the DHCT to provide forward signaling and a reverse communications path for interactive video and data services. The QPSK modulator and demodulator convert digital bit streams to RF format and RF signals to digital bits, respectively.

**RF**

radio frequency. The range of electromagnetic frequencies above the audio range and below infrared light. Most wireless transmission uses RF, including radio, TV, satellites, portable phones, cellular phones, and wireless networks.

**RMA**

Return material authorization.

**RPPV**

reservation pay-per-view. Requires the subscriber to use the telephone to reserve a PPV event.

**SAM**

Service Application Manager. Associates a specific service with an application that defines the medium to be used for that service, such as the World Wide Web. The SAM maintains the application in a specific directory to be used when needed by the DHCTs.

SAP

> Second audio program. This feature allows cable service providers to offer subscribers a second audio option for their programming. The other option may be a different language or another audio track, such as the weather or a sports event.

SARA

> SA Resident Application. The set of operating programs that is "permanently" loaded into the DHCT. These programs are immediately available to the subscriber upon activation of the DHCT.

SARA Server

> SA Resident Application (SARA) Server. Also called the "Application Server". A computer workstation and server used to execute our application programs. These programs provide an interface for downloading application data to DHCTs. The SARA Server works in conjunction with the DNCS and the two computers share a common database.

service gateway

> Front-end gateway for the delivery of service through the DBDS. Provides DSM-CC signaling as required to establish network resource for service delivery.

service group

> A QAM modulator (or a cluster of QAMs) that is installed for delivering on-demand services to an associated population of DHCTs. The association of a DHCT to a specific service group is determined by first identifying the QAM modulator (or a cluster of QAMs) that a DHCT can receive.

Session

> *See* CF session.

shared key authentication

> A type of authentication that assumes each station has received a secret shared key through a secure channel independent from an 802.11 network. Stations authenticate through shared knowledge of the secret key. Use of Shared Key authentication requires implementation of the 802.11 Wireless Equivalent Privacy algorithm.

SI

> System information. A standard set of tables providing the data necessary for a navigation device to discover and access services.

**source**

> In the DBDS, a source is the actual program or data that is made available to the DHCT as a service to the subscriber. Sources can include: MPEG-2 digital broadcast services that are non-secure, non-encrypted, audio/video programs; Internet connections from an Internet service provider (ISP); Digital PPVs that are secure, encrypted, digital MPEG-2 programs; Digital music services; Analog programs that are modulated in the traditional format or converted into MPEG-2 format.

**SR**

> System Release. Our software release package for components of the DBDS.

**staging**

> The process of loading the necessary software and security information into the Explorer DHCT prior to deployment in subscriber's homes.

**TED**

> Transaction Encryption Device. Provides Conditional Access control for the PowerKEY software within the DNCS and works directly with the DNCS/ISDS to maintain security throughout the network.

**TED FX**

> A TED that provides faster transactions. See TED.

**Tracing**

> The process of tracking the flow of data messages between the Application Server and other network elements.

**transport network**

> Provides the communication link enabling audio, video, and data to be transported from the headend to the hub. It involves a network of switching and transmission equipment and can include AM fiber and SONET technologies.

**transport stream**

> A data communications signal that is formatted in accordance with the protocol defined in the MPEG-2 specification ISO IEC 13818. An MPEG transport stream can carry voice, video, or data information. The MPEG data transmission protocol transports real-time data.

**UN-Config**

> User-to-network configuration. A message sent from the DNCS that configures the DHCT.

**UNIX**

An operating system that is less computer/server-specific than other operating systems. UNIX is widely used in the telecommunications industry and by the Internet.

**USB**

universal serial bus. A port on a PC or other device that provides connection to peripherals, such as CD-ROM drives, printers, modems, and keyboards.

**VCR**

videocassette recorder.

**Virtual Channel**

A channel that displays text (using a special limited HTML command set) when a subscriber tunes to that channel.

**VOD**

video-on-demand. The ability of a subscriber to select a program event and watch it within moments of selection. VOD allows pausing and rewinding of the event.

**VPN**

Virtual Private Network. A group of two or more computer systems typically connected to a private network (a network built and maintained by an organization solely for its own use) with limited public-network access that communicates "securely" over a public network.