



SARA Application Server 3.4.1

User's 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.

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About This Guide

Introduction

The Cisco Resident Application (SARA) Server works with the Digital Network Control System (DNCS) to deliver digital applications to subscribers. The SARA 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 SARA Server.

Important: 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 SARA Server 3.4.1. You will learn how to set up, or provision, each of the applications that reside on the SARA Server.

Audience

This guide is intended for system operators who are using SARA Server 3.4.1 with one of the system releases listed earlier.

Scope

This guide provides procedures for system operators who are using SARA Server software version 3.4.1 only.

Document Version

This is the ~~gWbX~~ release of this guide.

Chapter 1

Introducing the SARA Server

Overview

Introduction

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

In This Chapter

This chapter contains the following topics.

Topic	See Page
Understand the DBDS Network	1-2
View DNCS Monitor Windows	1-4
Online Help	1-9

Understand the DBDS Network

Introduction

The SARA Server is a workstation that transfers data to the DNCS. The SARA 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:

- Virtual Channel Service (VCS)
- Interactive Program Guide (IPG)
- Foreign language support
- DHCT Configuration
- Pay-Per-View (PPV)
- Digital Video Disc (DVD)

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 SARA Server uses that must be set up in this manner. Chapter 6 and Chapter 8 provide more information on setting up applications for RCS-enabled systems.

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

- DNCS Administrative Console Status
- DNCS Administrative Console

The **View DNCS Monitor Windows** section, later in this chapter, describes these windows and explains how they relate to the SARA Server.

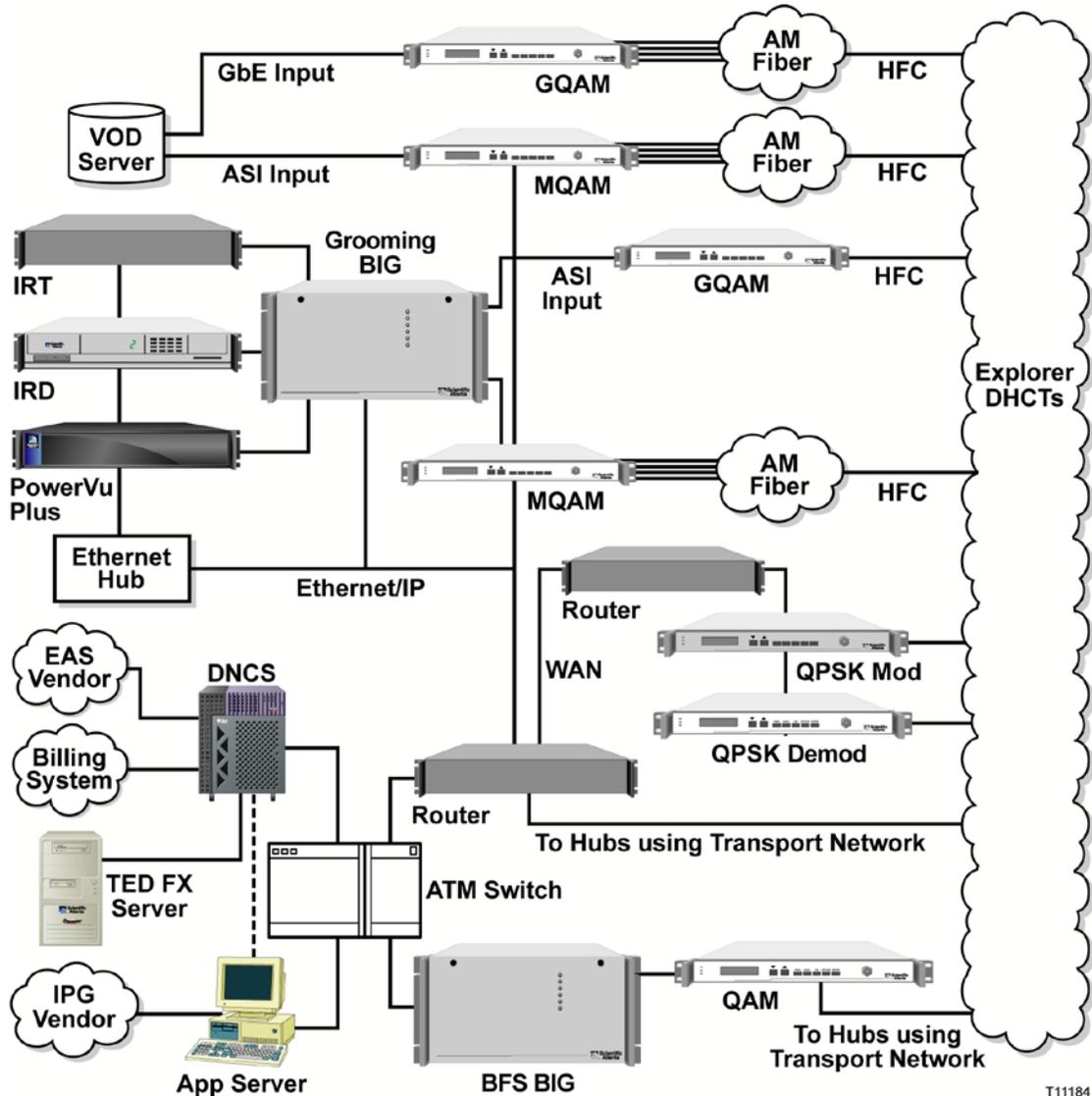
Understand the DBDS Network, Continued

The DBDS

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

The DBDS is a network of hardware and software elements, including the SARA 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 SARA Server processes, see **AppServer Control Window**, 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), Cisco offers a separate product called the DBDS Alarm Management System to help you monitor your network elements. For more information, contact Cisco Services.

The following illustration indicates that the DNCS; SARA 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.



View DNCS Monitor Windows, Continued

AppServer Control Window

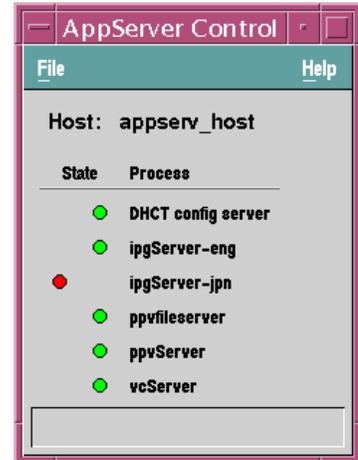
If you click the **Control** button in the AppServer area of the DNCS Administrative Console Status window, the AppServer Control window appears. The AppServer Control window provides a list of all the processes on the SARA Server workstation, along with the working state of each.

Cisco recommends 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 SARA 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.



View DNCS Monitor Windows, Continued

SARA Server Processes Description

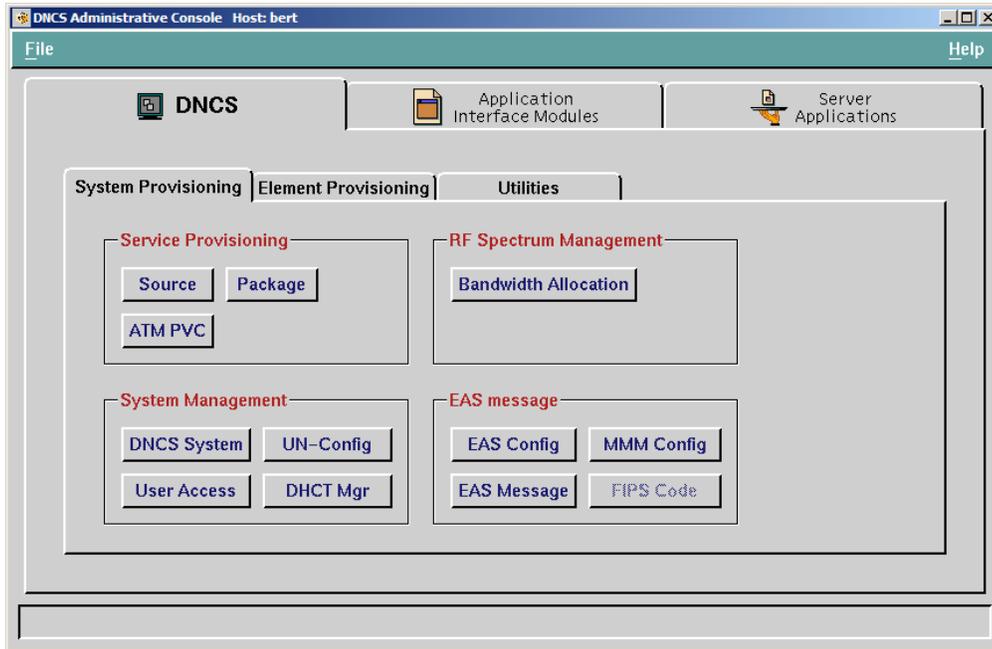
The following table provides a description of the processes on the SARA Server that display in the AppServer Control window.

Process	Description
DHCT config server	DHCT Configuration Server - Generates the files containing the global, hub-specific global, and staging configuration values for SARA; places the files on the BFS
IPGServer- <i>xxx</i>	Interactive Program Guide Server - Generates the IPG files for language <i>xxx</i> , for example "eng" for English, and places that file on the BFS Note: The languages available are English, French, Spanish, and Japanese.
ppvfileserver	Pay-per-view File Server - Generates PPV files for SARA 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

View DNCS Monitor Windows, Continued

DNCS Administrative Console Window

Frequently called the Admin Console, the DNCS Administrative Console is the window you use most often as you operate the SARA Server.



View DNCS Monitor Windows, Continued

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 SARA Server 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 SARA Server so that you can enable DHCTs to offer services associated with those applications to subscribers Note: 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

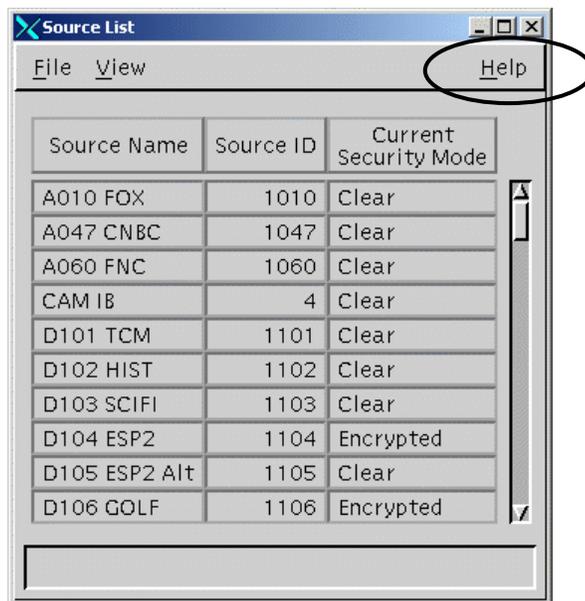
Online Help

Introduction

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.



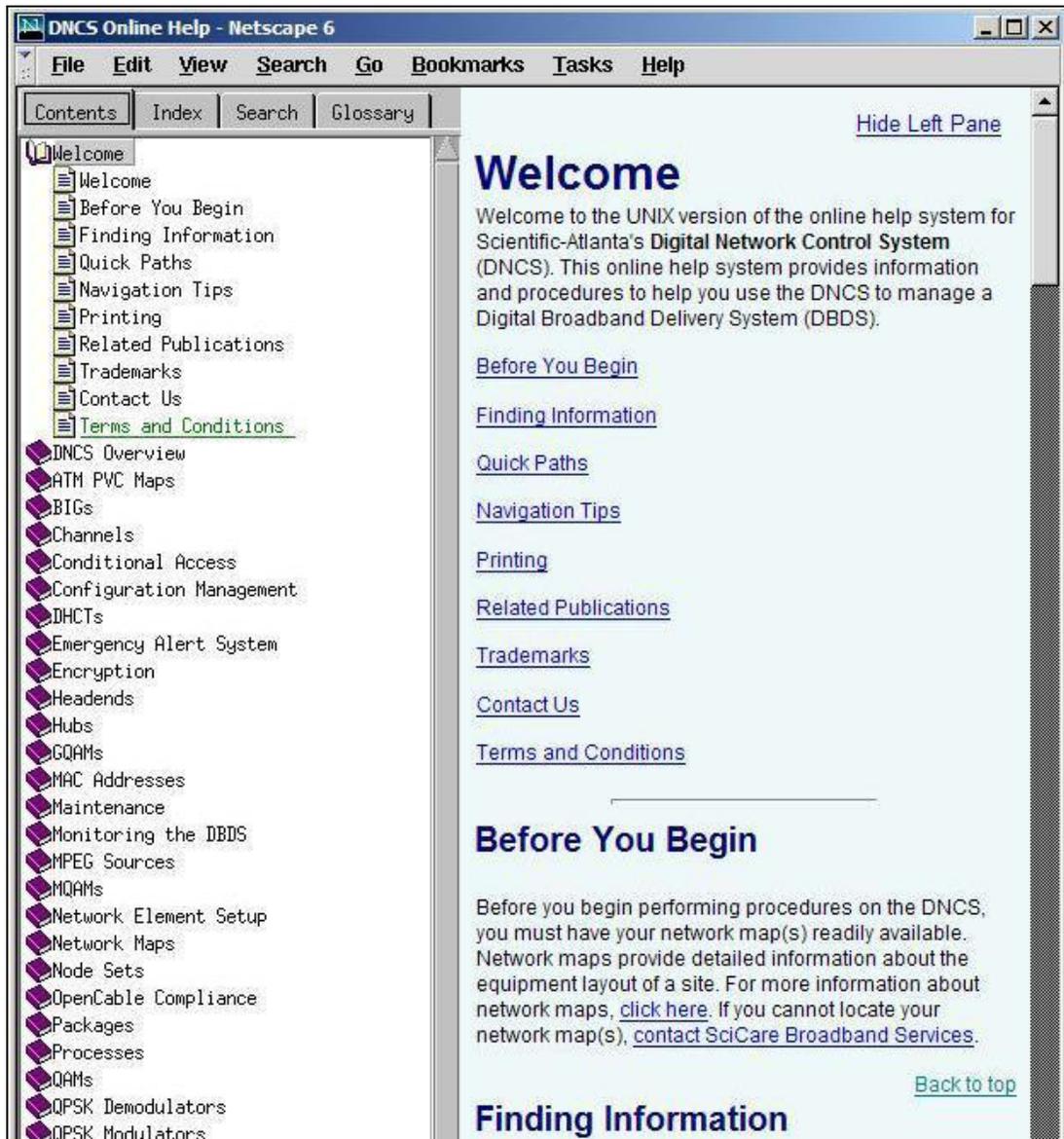
A drop-down list appears with the following options:

- Version
- Online Help

Online Help, Continued

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

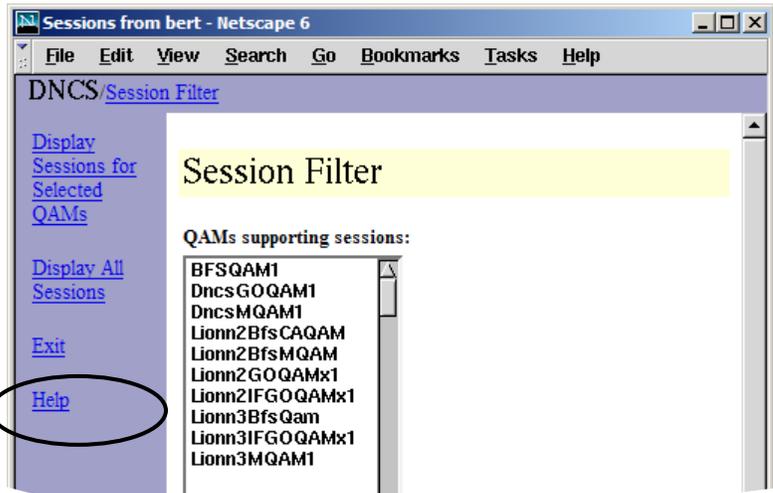
If you click **Online Help**, the system opens the DNCS Online Help in the Netscape Internet browser.



Online Help, Continued

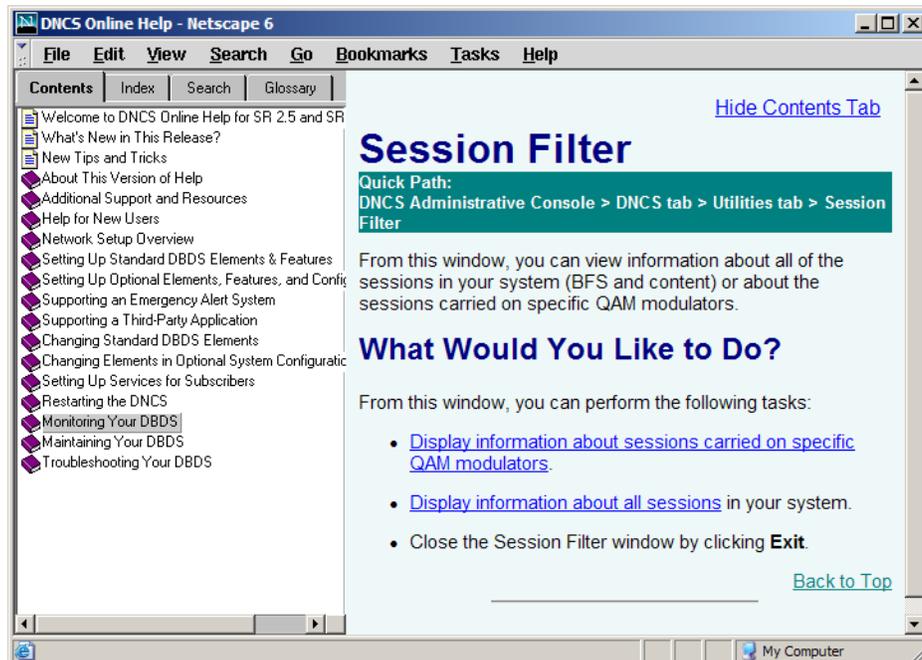
WUI Windows Provide Targeted Help

Web-based User Interface (WUI) windows were introduced in SR 2.2 and 3.2. These windows display using a Web browser, such as Netscape. 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.

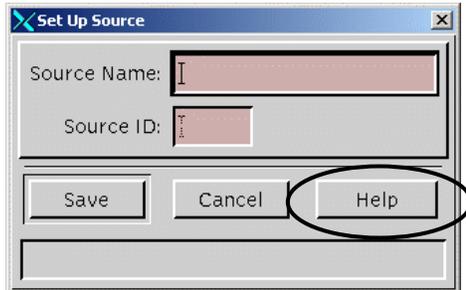
The system opens a targeted page of the DNCS Online Help in the Netscape Internet browser, similar to the example shown here.



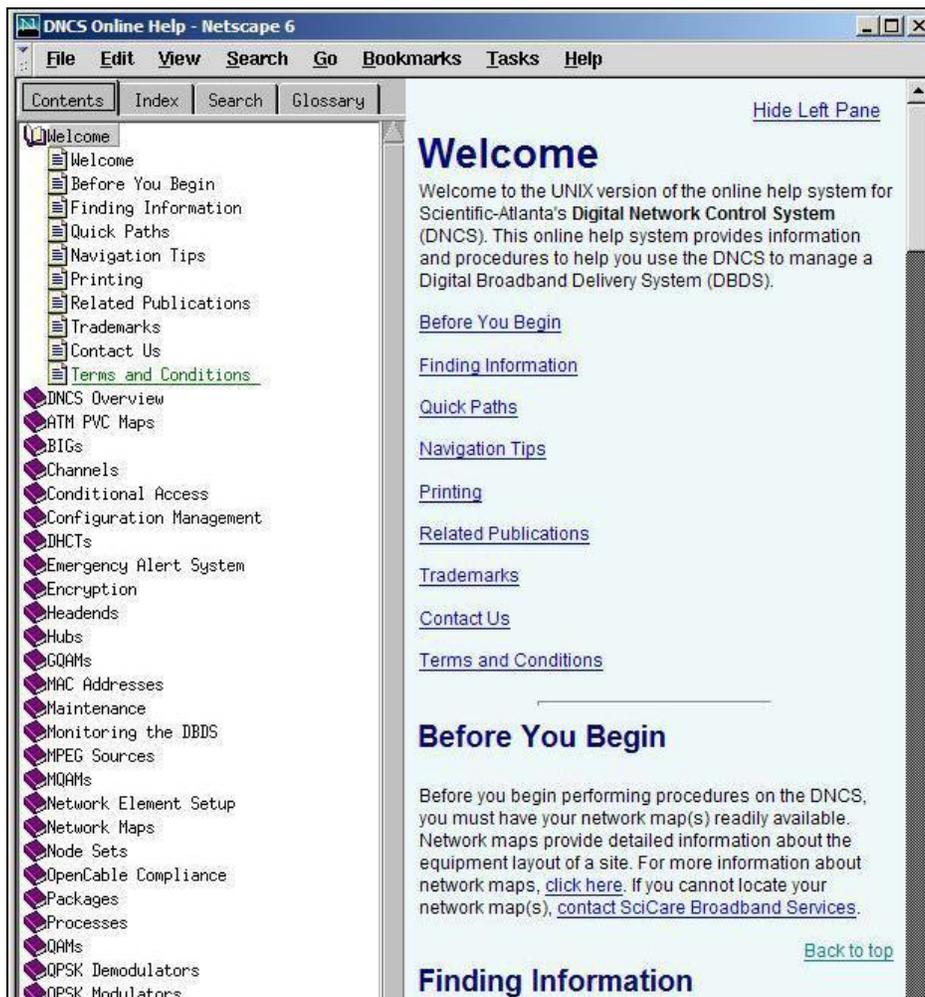
Online Help, Continued

Setup Windows Provide General Help

If you are viewing a window that allows you to set up a network element, access the Online Help by clicking the **Help** button located at the bottom of the window as indicated in the following illustration.



The system opens the Welcome page of the DNCS Online Help in the Netscape 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.

Result: 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**.

Result: 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.

Chapter 2

Getting Started

Overview

Introduction

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

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

In This Chapter

This chapter contains the following topics.

Topic	See Page
Power On the SARA Server Workstation	2-2
Start SARA Server Processes	2-3

Power On the SARA Server Workstation

Before You Begin

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

Powering Up the SARA Server Workstation

Complete these steps to power on the SARA Server workstation.

1. Go to the SARA Server workstation and press the **Power** button.
Result: The login window opens with a welcome message after a few minutes.
Note: If your system is not set up properly, the SARA Server will not finish powering up. If your SARA Server does not power on, contact Cisco Services.
2. Type the user name (typically **dncs**), and then press **Enter**.
Result: The password prompt appears.
3. Type the password, and then press **Enter**.
Result: The SARA Server desktop appears. The SARA Server workstation is now powered up.
4. Your next step is to start the SARA Server processes. Go to **Start SARA Server Processes**, next in this chapter.

Start SARA Server Processes

Introduction

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

Starting SARA Server Processes

Complete these steps to start the SARA Server processes.

1. Use the mouse to place the cursor anywhere on the SARA Server desktop, and then click the middle mouse button.

Result: A dropdown menu appears with a list of options.

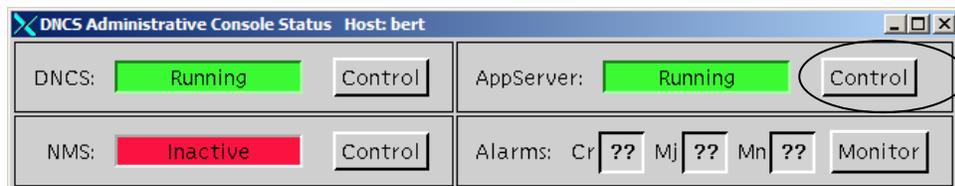
2. Click **App Serv Start**.

Result: The workstation front-panel “busy” light blinks to indicate that the software startup is in process.

Monitoring SARA Server Processes

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

1. On the DNCS Administrative Console Status window, click the **Control** button in the AppServer area.



Result: The AppServer Control window opens and shows all SARA server processes and their working states. 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).



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

Start SARA Server Processes, Continued

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 6 contain procedures for defining the applications you offer subscribers and changing the way the applications are defined.
- Chapter 7 contains procedures for enabling and disabling tracing on the SARA Server.
- Chapter 8 contains procedures for enabling SARA server software to support the DVD copying (burning) feature of Explorer set-top boxes that offer this feature.

Chapter 3

Setting Up Language Support

Overview

Introduction

The DBDS allows you to display PPV/IPPV event information menus and the Interactive Program Guide (IPG) in one of several languages. However, to provide this feature to subscribers, you must first set up the languages on the DNCS.

Important:

- 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.

This chapter explains how to set up those languages.

In This Chapter

This chapter contains the following topics.

Topic	See Page
Set Up Supported Languages	3-2

Set Up Supported Languages

Introduction

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 **Set Up the IPG** in Chapter 5 of this guide.

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**.

Result: The **Supported Languages** window opens.

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.

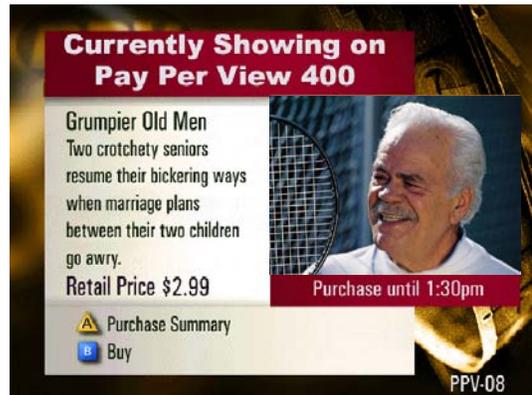
Chapter 4

Defining PPV Services and Events

Overview

Introduction

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

This chapter contains the following topics.

Topic	See Page
Define PPV Services	4-2
Understand Windows and Barkers	4-10
Define PPV Events	4-16

Define PPV Services

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.

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).

Define PPV Services, Continued

Understanding the Set Up PPV Service Window

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

The screenshot shows a window titled "Set Up PPV Service" with the following fields and values:

- Service ID: (empty)
- Service Name: GBOPPV
- Short Description: GPPV
- Long Description: Geo Pay-Per-View
- Logo Index: 1
- Default Order Phone Number: 1-800-555-4567
- Default Cost: \$2.99
- Default Order Start Interval: 1 hours, 1 minutes
- Event Use Service: STARZ EAST
- Subscription Service: BBC AMERICA
- Interstitial Service: - none -

Buttons at the bottom: Save, Cancel, Help.

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 Cisco Services.
- **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)

Define PPV Services, Continued

- **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

Define PPV Services, Continued

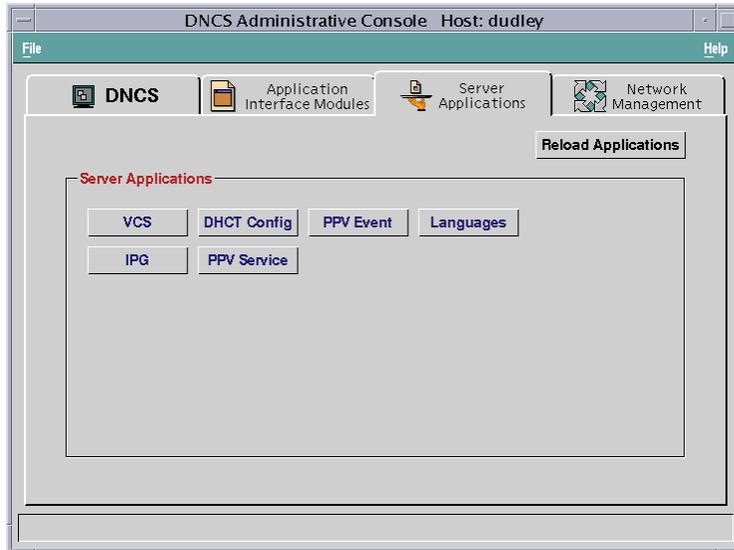
Creating a PPV Service

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.

Result: The Server Applications tab moves to the forefront.



2. Click **PPV Service**.

Result: The **PPV Service List** window opens.



Define PPV Services, Continued

3. From the **File** menu, click **New**.

Result: The **Set Up PPV Service** window opens.

The screenshot shows the 'Set Up PPV Service' dialog box with the following fields and values:

- Service ID: (empty)
- Service Name: GEOPPV
- Short Description: GPPV
- Long Description: Geo Pay-Per-View
- Logo Index: 1
- Default Order Phone Number: 1-800-555-4567
- Default Cost: \$2.99
- Default Order Start Interval: 1 hours, 1 minutes
- Event Use Service: STARZ EAST
- Subscription Service: BBC AMERICA
- Interstitial Service: - none -

Buttons at the bottom: Save, Cancel, Help.

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 4-3 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.

Define PPV Services, Continued

5. Click **Save**.

Result: The SARA 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**

Result: 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** in Chapter 5 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, User's Guide*.

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.

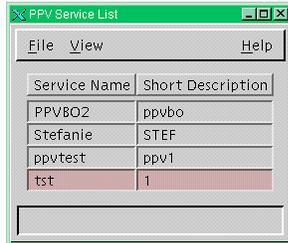
- If **no**, you have completed defining PPV services. For a better understanding of how PPV events are offered to subscribers, see **Understand Windows and Barkers**.

Define PPV Services, Continued

Modifying PPV Services

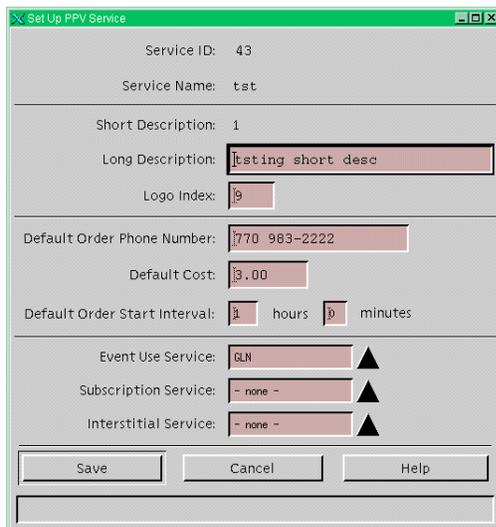
Complete these steps to modify a PPV service.

1. On the **PPV Service List** window, highlight the row of the desired service.



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

Result: The **Set Up PPV Service** window opens.



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

Define PPV Services, Continued

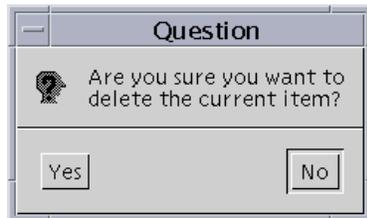
Deleting a PPV Service

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**.

Result: 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

Introduction

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.

Understand Windows and Barkers, Continued

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 associating 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. 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.
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.

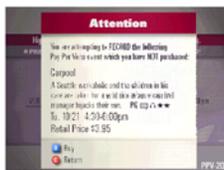
Understand Windows and Barkers, Continued

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 SARA 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.



Purchase Prompt Barker

Default Start = 24 hours before event start

Marketing Window *

Must open before event starts and close before event ends.
The event phone number must be active after the marketing window opens.

Day 1 (1:00 AM)

Day 11 (8:00 PM)



Purchase Barker

Default Start = 15 minutes before event start

Advertising Window *

Must be contained within the Marketing Window.
The Advertising Window must close before the Buy Window closes.

Day 11 (6:45 PM)

Default End = 45 minutes after event start

Day 11 (7:45 PM)



Preview Barker

Buy (GBAM) Window

Must be open at least 5 minutes before event starts.

Day 11 (6:55 PM)

Day 11 (7:50 PM)

Preview Window *

Must be contained within the Advertising Window.

Day 11 (7:00 PM)

Day 11 (7:30 PM)

Cancel Window

Must open before event starts.

Day 11 (7:00 PM)

Day 11 (8:00 PM)

Event Window *

Event must be set up on billing system 30 minutes before the Advertising Window start time.

Day 11 (7:00 PM)

Day 11 (9:00 PM)

* Event, Advertising and Preview Windows of different events on the same service may not overlap. However, the Advertising Window of one event may open while the previous event is still in progress.

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Continued on next page

Understand Windows and Barkers, Continued

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 futureSubscribers 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.

Understand Windows and Barkers, Continued

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*. Cisco suggests 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

Understand Windows and Barkers, Continued

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 **SARA Server**.
2. Type `cd /export/home/dnccs` and press **Enter**.
Result: The /export/home/dnccs directory is now the working directory.
3. Type `vi .profile` and press **Enter**.
Note: Be sure to type a period (.) before the word “profile.”
Result: The vi editor opens the .profile file for editing.
4. Use the arrow keys to move to the bottom of the file.
5. Type `o`.
Result: 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. Type `:wq` and press **Enter**.
Result: The vi editor saves and closes the .profile file.
8. On the **SARA Server**, run the **appControl** utility, and then stop and restart the PPV processes to activate these new values.

Define PPV Events

Types Of Events (RPPV vs. IPPV)

The billing system defines the following two types of events based on how subscribers purchase them:

- 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 SARA 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 the *Application Server Utilities User's Guide*. 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 SARA Server.
2. The SARA 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.

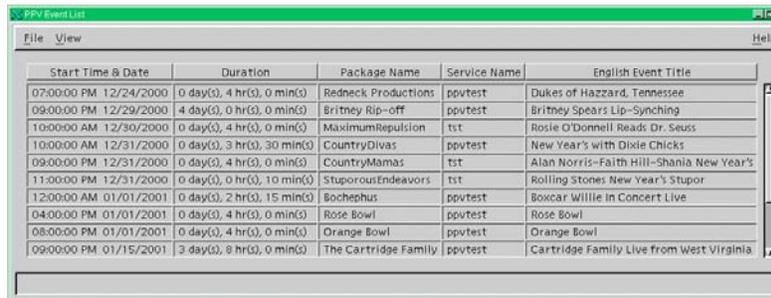
Define PPV Events, Continued

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**.

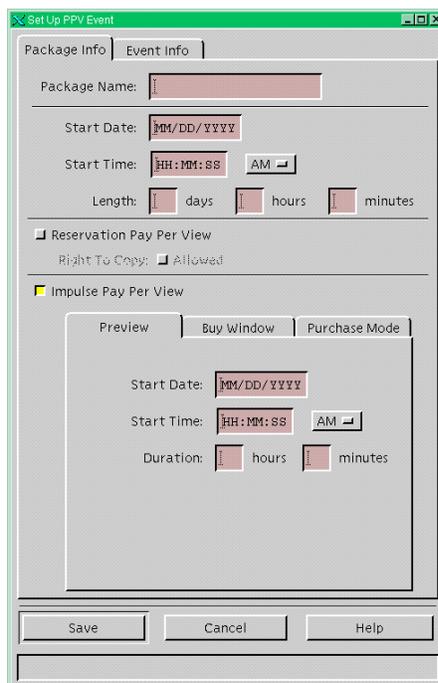
Result: The **PPV Event List** window opens. Typically you would open an event from this list to examine one already defined by the billing system. However, because you are setting up events manually, create a new event by selecting **New** from the **File** menu.



Start Time & Date	Duration	Package Name	Service Name	English Event Title
07:00:00 PM 12/24/2000	0 day(s), 4 hr(s), 0 min(s)	Redneck Productions	ppvtest	Dukes of Hazzard, Tennessee
09:00:00 PM 12/29/2000	4 day(s), 0 hr(s), 0 min(s)	Britney Rip-off	ppvtest	Britney Spears Lip-Synching
10:00:00 AM 12/30/2000	0 day(s), 4 hr(s), 0 min(s)	MaximumRepulsion	tst	Rosie O'Donnell Reads Dr. Seuss
10:00:00 AM 12/31/2000	0 day(s), 3 hr(s), 30 min(s)	CountryDivas	ppvtest	New Year's with Dixie Chicks
09:00:00 PM 12/31/2000	0 day(s), 4 hr(s), 0 min(s)	CountryMamas	tst	Alan Norris-Falch Hill-Shania: New Year's
11:00:00 PM 12/31/2000	0 day(s), 0 hr(s), 0 min(s)	StuporousEndeavors	tst	Rolling Stones New Year's Stupor
12:00:00 AM 01/01/2001	0 day(s), 2 hr(s), 15 min(s)	Bocephus	ppvtest	Boxcar Willie In Concert Live
04:00:00 PM 01/01/2001	0 day(s), 4 hr(s), 0 min(s)	Rose Bowl	ppvtest	Rose Bowl
08:00:00 PM 01/01/2001	0 day(s), 4 hr(s), 0 min(s)	Orange Bowl	ppvtest	Orange Bowl
09:00:00 PM 01/15/2001	3 day(s), 8 hr(s), 0 min(s)	The Cartridge Family	ppvtest	Cartridge Family Live from West Virginia

3. Click the **File** menu and select **New**.

Result: 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.



The screenshot shows the 'Set Up PPV Event' dialog box with the 'Package Info' tab selected. The fields are as follows:

- Package Name: [Redacted]
- Start Date: MM/DD/YYYY
- Start Time: HH:MM:SS AM
- Length: [Redacted] days [Redacted] hours [Redacted] minutes
- Reservation Pay Per View
- Right To Copy: Allowed
- Impulse Pay Per View
- Preview tab selected
- Start Date: MM/DD/YYYY
- Start Time: HH:MM:SS AM
- Duration: [Redacted] hours [Redacted] minutes

Buttons at the bottom: Save, Cancel, Help.

Define PPV Events, Continued

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.

The screenshot shows the 'Set Up PPV Event' dialog box with the 'Event Info' tab selected. The 'Event Info' section contains the following fields:

- Service Name: PPV Max
- Retail Price: 5.99
- English Event Title: American Beauty
- French Event Title: [Empty]
- Spanish Event Title: [Empty]
- Japanese Event Title: [Empty]

The 'Reservation PPV Event Order Phone Info' section contains:

- Phone Number: 1-800-555-1234
- Start Date: 06/30/2002
- Start Time: 07:00:00 PM

There are checkboxes for 'Specify Advertising Window' (checked) and 'Specify Marketing Window' (unchecked).

The 'Advertising Window' and 'Marketing Window' sections are shown below. The 'Marketing Window' section is highlighted with a black box and has a callout box. The callout box shows the 'Marketing Window' section with the following fields:

- Start Date: 06/30/2002
- Start Time: 07:00:00 PM
- Duration: 24 hours, 0 minutes

At the bottom of the dialog are 'Save', 'Cancel', and 'Help' buttons.

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Define PPV Events, Continued

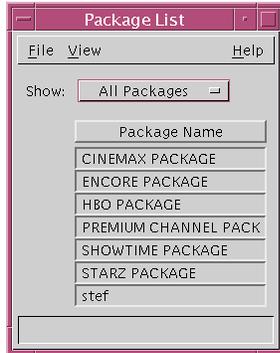
9. In the top section of the tab, type the following information into their respective fields:
 - **Service Name** - Click the down arrow and select the appropriate PPV service that advertises this event.
 - **Retail Price** - The price of the event. If entered, the price appears on the subscriber's 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 SARA 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 SARA 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.

Define PPV Events, Continued

- 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.



- Highlight the package and select **Provision** from the **File** menu.

Result: The **Package Provision** window opens and displays the segment for the RPPV event you just created.



Define PPV Events, Continued

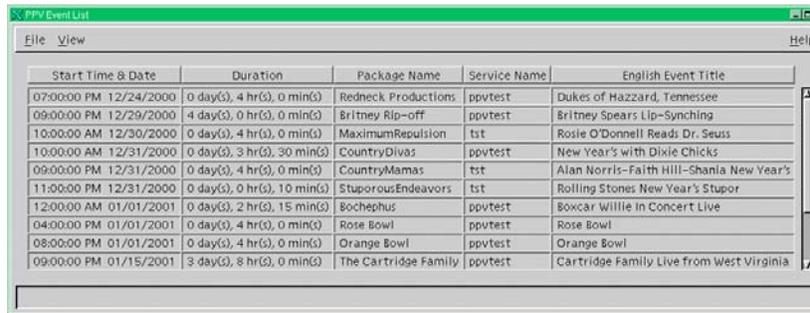
Generating IPPV Events Manually

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.

Perform the following steps to create an IPPV event.

1. On the **DNCS Administrative Console**, select the **Server Applications** tab.
2. Click **PPV Event**.

Result: 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.



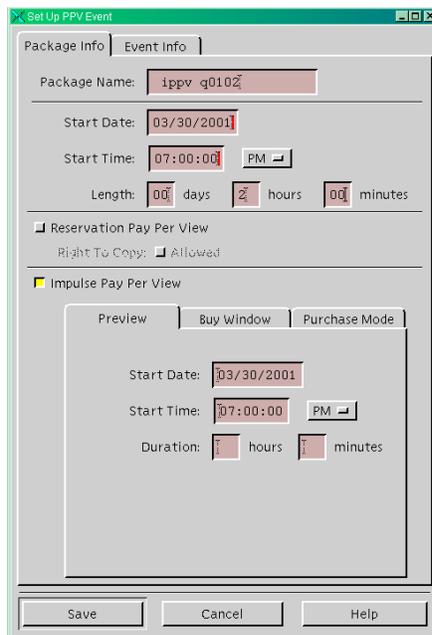
The screenshot shows a window titled "PPV Event List" with a menu bar containing "File", "View", and "Help". The main area contains a table with the following columns: "Start Time & Date", "Duration", "Package Name", "Service Name", and "English Event Title". The table lists several events, including "Dukes of Hazzard, Tennessee", "Britney Spears Lip-Synching", "Rosie O'Donnell Reads Dr. Seuss", "New Year's with Dixie Chicks", "Alan Norris-Faith Hill-Shania New Year's", "Rolling Stones New Year's Stupor", "Boxcar Willie in Concert Live", "Rose Bowl", "Orange Bowl", and "Cartridge Family Live from West Virginia".

Start Time & Date	Duration	Package Name	Service Name	English Event Title
07:00:00 PM 12/24/2000	0 day(s), 4 hr(s), 0 min(s)	Redneck Productions	ppvtest	Dukes of Hazzard, Tennessee
09:00:00 PM 12/29/2000	4 day(s), 0 hr(s), 0 min(s)	Britney Rip-off	ppvtest	Britney Spears Lip-Synching
10:00:00 AM 12/30/2000	0 day(s), 4 hr(s), 0 min(s)	MaximumRepulsion	tst	Rosie O'Donnell Reads Dr. Seuss
10:00:00 AM 12/31/2000	0 day(s), 3 hr(s), 30 min(s)	CountryDivas	ppvtest	New Year's with Dixie Chicks
09:00:00 PM 12/31/2000	0 day(s), 4 hr(s), 0 min(s)	CountryMamas	tst	Alan Norris-Faith Hill-Shania New Year's
11:00:00 PM 12/31/2000	0 day(s), 0 hr(s), 10 min(s)	StuporousEndeavors	tst	Rolling Stones New Year's Stupor
12:00:00 AM 01/01/2001	0 day(s), 2 hr(s), 15 min(s)	Bocephus	ppvtest	Boxcar Willie in Concert Live
04:00:00 PM 01/01/2001	0 day(s), 4 hr(s), 0 min(s)	Rose Bowl	ppvtest	Rose Bowl
08:00:00 PM 01/01/2001	0 day(s), 4 hr(s), 0 min(s)	Orange Bowl	ppvtest	Orange Bowl
09:00:00 PM 01/15/2001	3 day(s), 8 hr(s), 0 min(s)	The Cartridge Family	ppvtest	Cartridge Family Live from West Virginia

Define PPV Events, Continued

3. Click the **File** menu and select **New**.

Result: 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.



The screenshot shows the 'Set Up PPV Event' dialog box with the 'Package Info' tab selected. The fields are filled with the following values: Package Name: '1ppv q0102', Start Date: '03/30/2001', Start Time: '07:00:00' with 'PM' selected, and Length: '00' days, '2' hours, and '00' minutes. There are two checkboxes: 'Reservation Pay Per View' (checked) and 'Impulse Pay Per View' (unchecked). Below these is a 'Preview' window with its own 'Buy Window' and 'Purchase Mode' tabs. The 'Preview' window shows the same Start Date and Start Time, but with a Duration of '1' hour and '1' minute. At the bottom of the dialog are 'Save', 'Cancel', and 'Help' buttons.

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

Define PPV Events, Continued

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

Result: The **Preview**, **Buy Window**, and **Purchase Mode** tabs become active.

The image shows three sequential screenshots of a software interface for defining PPV events. Each screenshot has three tabs: 'Preview', 'Buy Window', and 'Purchase Mode'.
1. The first screenshot shows the 'Preview' tab active. It contains fields for 'Start Date' (03/30/2001), 'Start Time' (07:00:00 PM), and 'Duration' (hours and minutes).
2. The second screenshot shows the 'Buy Window' tab active. It contains the same 'Start Date' and 'Start Time' fields, a 'Duration' field, and two checkboxes: 'Allow Immediate Cancel' and 'Allow Windowed Cancel'. Below these is a 'Cancel Duration' field.
3. The third screenshot shows the 'Purchase Mode' tab active. It features a table with three columns: 'Length (min)', 'Cost', and 'Right To Copy'. The first row of data shows '120', '1', and 'Allowed'.

7. Complete the fields on these tabs with data that defines how the windows function. Follow the rules of window relationships as outlined in the **Understand Windows and Barkers** section, earlier in this chapter. Otherwise, the SARA 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.

Define PPV Events, Continued

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

The screenshot shows the 'Set Up PPV Event' dialog box with the 'Event Info' tab selected. The 'Event Info' section includes fields for Service Name (PPV Max), Retail Price (5.99), and English Event Title (American Beauty). Below this is the 'Reservation PPV Event Order Phone Info' section with fields for Phone Number (1-800-555-1234), Start Date (06/30/2002), and Start Time (07:00:00 PM). There are checkboxes for 'Specify Advertising Window' (checked) and 'Specify Marketing Window'. Below these are two sub-sections: 'Advertising Window' and 'Marketing Window'. The 'Advertising Window' section has fields for Start Date (06/30/2002), Start Time (07:00:00 PM), and Duration (45 minutes). The 'Marketing Window' section has fields for Start Date (06/30/2002), Start Time (07:00:00 PM), and Duration (24 hours). At the bottom are 'Save', 'Cancel', and 'Help' buttons. A callout box highlights the 'Marketing Window' section.

T10138

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 SARA Server applies the defaults to the data in these fields when save it.

Define PPV Events, Continued

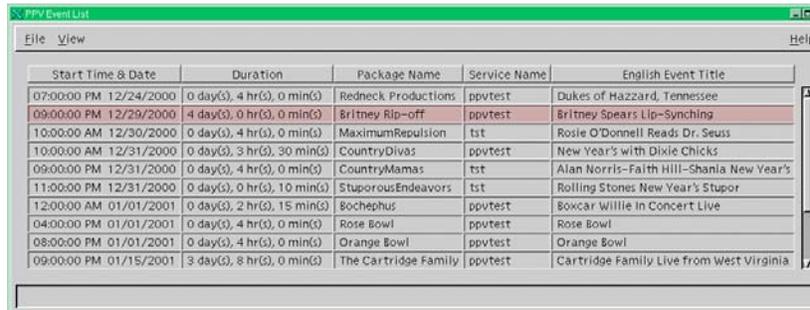
11. Click **Save** when you finish entering all the data.
12. Check the **PPV Service List** to ensure the source you created is on the list, and to verify that the source information is correct.

Note: The SARA Server saves your changes.

Modifying A PPV Event

Use the following steps to modify a PPV service.

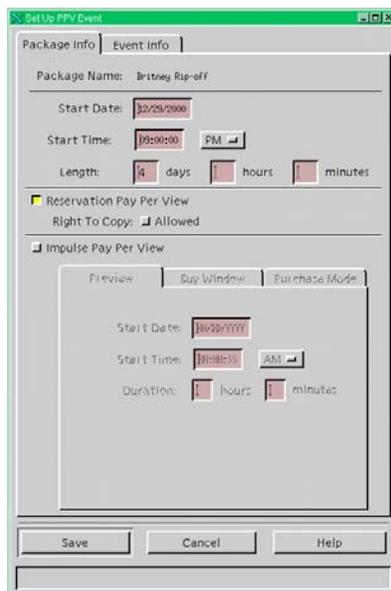
1. On the **PPV Event list** window, highlight the row of the desired event.



Start Time & Date	Duration	Package Name	Service Name	English Event Title
07:00:00 PM 12/24/2000	0 day(s), 4 hr(s), 0 min(s)	Redneck Productions	ppvtest	Dukes of Hazzard, Tennessee
09:00:00 PM 12/29/2000	4 day(s), 0 hr(s), 0 min(s)	Britney Rip-off	ppvtest	Britney Spears Lip-Synching
10:00:00 AM 12/30/2000	0 day(s), 4 hr(s), 0 min(s)	MaximumRepublion	tst	Rosie O'Donnell Reads Dr. Seuss
10:00:00 AM 12/31/2000	0 day(s), 3 hr(s), 30 min(s)	CountryDivas	ppvtest	New Year's with Dixie Chicks
09:00:00 PM 12/31/2000	0 day(s), 4 hr(s), 0 min(s)	CountryMamas	tst	Alan Norris-Faith Hill-Shania New Year's
11:00:00 PM 12/31/2000	0 day(s), 0 hr(s), 10 min(s)	StuporousEndeavors	tst	Rolling Stones New Year's Stupor
12:00:00 AM 01/01/2001	0 day(s), 2 hr(s), 15 min(s)	Bocephus	ppvtest	Boxcar Willie in Concert Live
04:00:00 PM 01/01/2001	0 day(s), 4 hr(s), 0 min(s)	Rose Bowl	ppvtest	Rose Bowl
08:00:00 PM 01/01/2001	0 day(s), 4 hr(s), 0 min(s)	Orange Bowl	ppvtest	Orange Bowl
09:00:00 PM 01/15/2001	3 day(s), 8 hr(s), 0 min(s)	The Cartridge Family	ppvtest	Cartridge Family Live from West Virginia

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

Result: 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.



Package Name: Britney Rip-off

Start Date: 12/29/2000

Start Time: 09:00:00 PM

Length: 4 days 1 hour 1 minutes

Reservation Pay Per View
Right To Copy: Allowed

Impulse Pay Per View

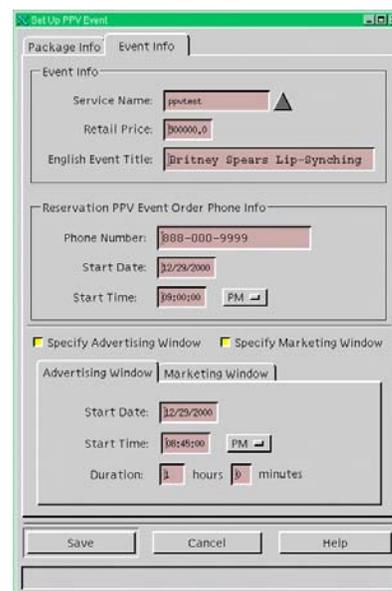
Preview | Day Window | Purchase Mode

Start Date: 12/29/2000

Start Time: 09:00:00 AM

Duration: 1 hour 1 minutes

Save Cancel Help



Service Name: ppvtest

Retail Price: 99999.0

English Event Title: Britney Spears Lip-Synching

Reservation PPV Event Order Phone Info

Phone Number: 888-000-9999

Start Date: 12/29/2000

Start Time: 09:00:00 PM

Specify Advertising Window Specify Marketing Window

Advertising Window | Marketing Window

Start Date: 12/29/2000

Start Time: 08:45:00 PM

Duration: 1 hour 9 minutes

Save Cancel Help

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

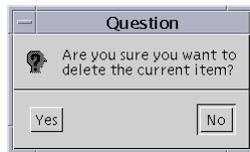
Define PPV Events, Continued

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**.

Result: A Question window opens, prompting you to confirm that you want to delete the current item.



3. Click **Yes** to confirm.

Chapter 5

Setting Up the Interactive Program Guide

Overview

Introduction

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.

In This Chapter

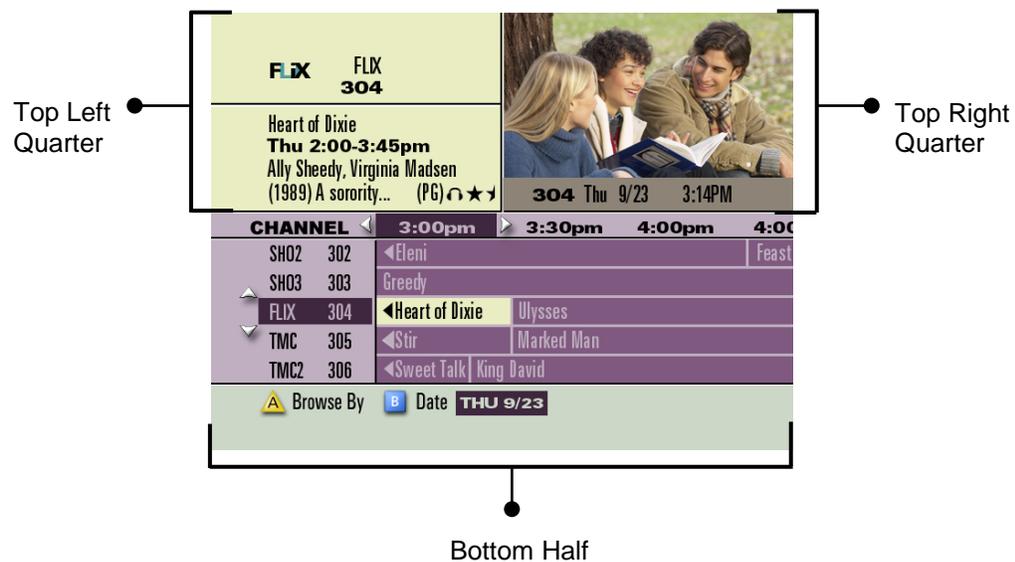
This chapter contains the following topics.

Topic	See Page
Before You Begin	5-2
Set Up the IPG	5-5
Add IPG Data Manually	5-15
Edit Existing IPG Data	5-18
Add Your Company's Logo to the Main IPG Screen	5-22
Configure SARA to Enhance Your Subscribers' Experience	5-26
IPG Memory Usage Settings	5-27
Adjust How DHCTs Use IPG Memory	5-31

Before You Begin

Introduction

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.



The IPG can be divided into three sections:

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

Before You Begin, Continued

- **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) Web site. This data is stored in a provider-neutral format in the SARA 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.

Before You Begin, Continued

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. Cisco supports three formats: TV Data, On TV, and CISCO COMP (Cisco Compatible) formats
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 SARA 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 Add a File Containing Your Company's Logo to the BFS , later in this section.

Set Up the IPG

Introduction

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** in Chapter 3 of this guide.

Set Up the IPG, Continued

Setting Up IPG Servers

The IPG server is not a physical server. Instead, it is a process named *ipgServer* that resides on the SARA 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.

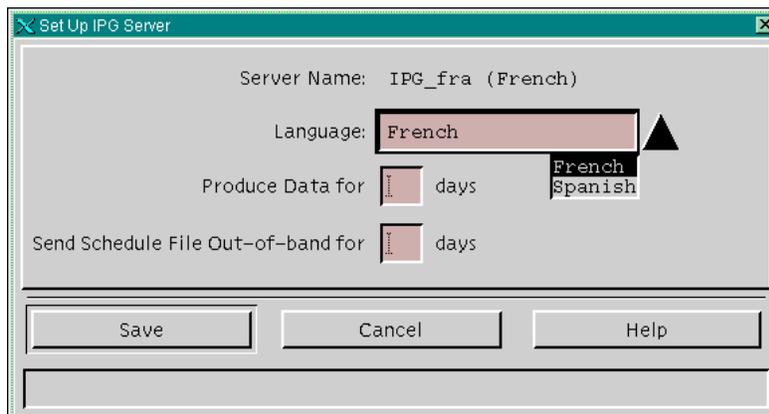
1. On the **Server Applications** tab, click **IPG**.

Result: The IPG Server List window opens.



2. Click the **File** menu and select **New Server**.

Result: If you selected a language that does not yet have an IPG server, the following **Set Up IPG Server** window opens.



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.

Set Up the IPG, Continued

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**.

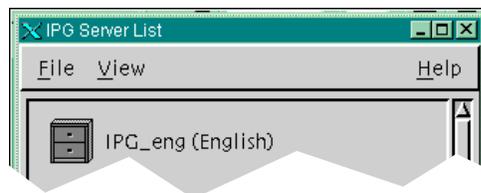
Result: The **IPG Server List** window opens again and lists the new IPG language server you just added.

Editing IPG Servers

Use the following steps to edit an existing IPG server.

1. On the **Server Applications** tab, click **IPG**.

Result: 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**.

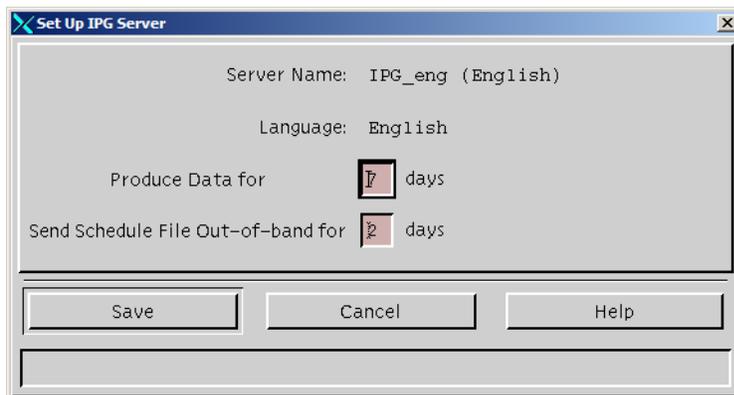
Result: The following message displays and reminds you that if you are editing the settings of an *existing* IPG server you must stop and restart the ipgServer process in order for the changes to take effect.



Set Up the IPG, Continued

3. Click **OK**.

Result: 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**.

Result: 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 the ipgServer Process**, next in this section.

Set Up the IPG, Continued

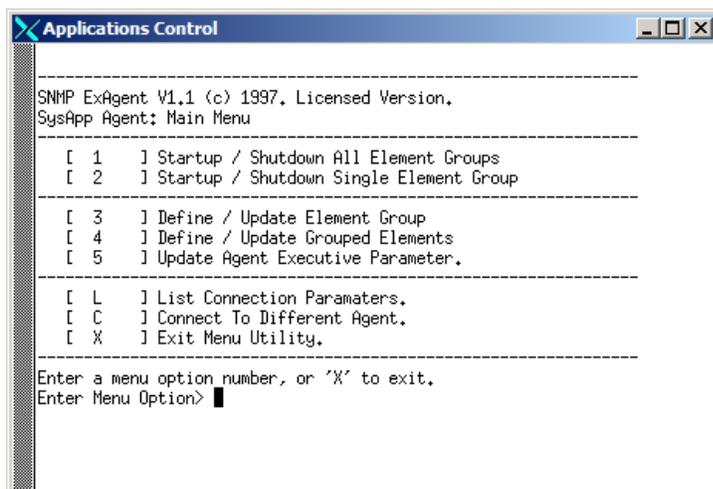
Stopping and Restarting the ipgServer Process

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

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

1. Open an xterm window on the SARA server and log in as **dncs** user.
2. Type **appControl**, and press **Enter**.

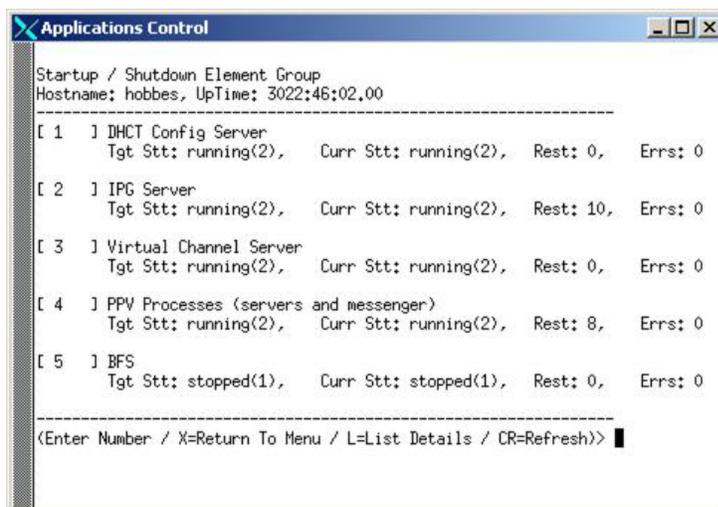
Result: The Applications Control window opens.



```
Applications Control
-----
SNMP ExAgent V1.1 (c) 1997, Licensed Version.
SysApp Agent: Main Menu
-----
[ 1 ] Startup / Shutdown All Element Groups
[ 2 ] Startup / Shutdown Single Element Group
-----
[ 3 ] Define / Update Element Group
[ 4 ] Define / Update Grouped Elements
[ 5 ] Update Agent Executive Parameter.
-----
[ L ] List Connection Parameters.
[ C ] Connect To Different Agent.
[ X ] Exit Menu Utility.
-----
Enter a menu option number, or 'X' to exit.
Enter Menu Option> █
```

3. Type **2** (for Startup/Shutdown Single Element Group), and press **Enter**.

Result: The Applications Control window displays a numbered list of SARA server servers and processes.

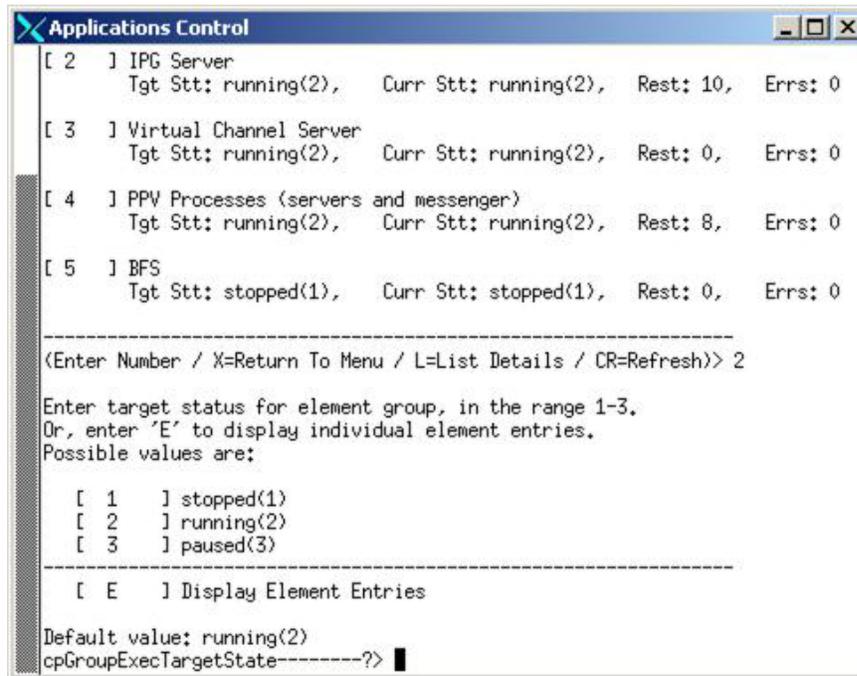


```
Applications Control
-----
Startup / Shutdown Element Group
Hostname: hobbes, UpTime: 3022:46:02.00
-----
[ 1 ] DHCT Config Server
      Tgt Stt: running(2), Curr Stt: running(2), Rest: 0, Errs: 0
[ 2 ] IPG Server
      Tgt Stt: running(2), Curr Stt: running(2), Rest: 10, Errs: 0
[ 3 ] Virtual Channel Server
      Tgt Stt: running(2), Curr Stt: running(2), Rest: 0, Errs: 0
[ 4 ] PPV Processes (servers and messenger)
      Tgt Stt: running(2), Curr Stt: running(2), Rest: 8, Errs: 0
[ 5 ] BFS
      Tgt Stt: stopped(1), Curr Stt: stopped(1), Rest: 0, Errs: 0
-----
<Enter Number / X=Return To Menu / L=List Details / CR=Refresh> █
```

Set Up the IPG, Continued

4. Type the number associated with the IPG Server, and press **Enter**.

Result: The Applications Control window prompts you to enter a target status for the selected element group.



5. Type **1** (for stopped) and press **Enter**.

Result: The Applications Control window displays a confirmation message.

6. Type **y** (for yes) and press **Enter**.

Result: 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 IPG Server indicates stopped.
8. Type the number associated with the IPG Server, and press **Enter**.

Result: The Applications Control window prompts you to enter a target status for the selected element group.

9. Type **2** (for running) and press **Enter**.

Result: The Applications Control window displays a confirmation message.

Set Up the IPG, Continued

10. Type **y** (for yes), and press **Enter**.
Result: 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 IPG Server 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 SARA 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**.

Result: The following **Set Up IPG Collector** window opens.

The screenshot shows a dialog box titled "Set Up IPG Collector". The fields are as follows:

- Language: English
- ID: [Empty text box]
- Service Provider: ONTV (dropdown menu)
- Description: [Empty text box]
- Host Name: [Empty text box]
- User Name: [Empty text box]
- Password: [Empty text box]
- Directory: [Empty text box]
- File Template: [Empty text box]
- Max Long Description Length: [Empty text box]
- Daily Collection Time: HH:MM AM (time picker)

Buttons at the bottom: Save, Cancel, Help.

Set Up the IPG, Continued

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**.

Result: The system confirms the password, and then the **IPG Server List** window opens again.

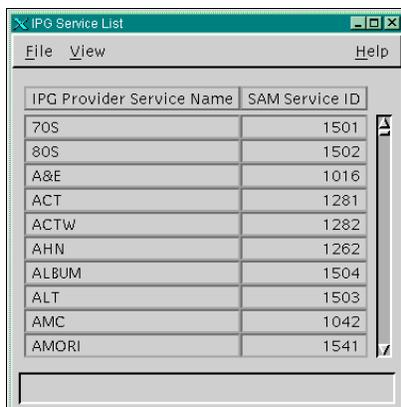
Setting Up IPG Services

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**.

Result: The **IPG Service List** window opens.

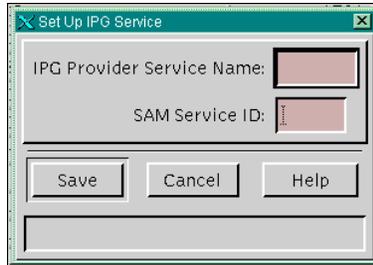


IPG Provider Service Name	SAM Service ID
70S	1501
80S	1502
A&E	1016
ACT	1281
ACTW	1282
AHN	1262
ALBUM	1504
ALT	1503
AMC	1042
AMORI	1541

Set Up the IPG, Continued

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

Result: 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**.

Set Up the IPG, Continued

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**.

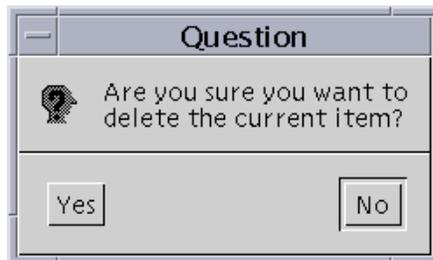
Note: You can only change the IPG Provider service name. You cannot change the SAM service ID.

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**.

Result: 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

Introduction

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, manually add the IPG data. This section explains how to add IPG data manually.

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.

1. Create an IPG service for the missing data

Note: For assistance, see **Creating an IPG Service from an Existing SAM Service**, next in this section.

2. Map the service to an appropriate SAM service.

Note: For assistance, see **Creating an IPG Service from an Existing SAM Service**, next in this section.

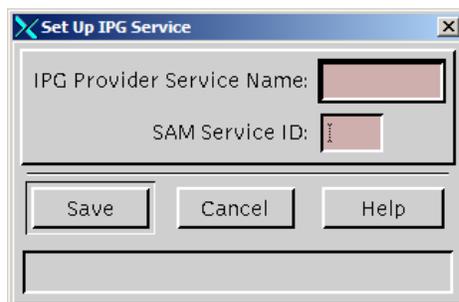
3. Add IPG data for the service you created.

Note: For assistance, see **Manually Adding Data to an IPG Service**, later in this section.

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.



Add IPG Data Manually, Continued

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 data is 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**, next in this section.

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.

Add IPG Data Manually, Continued

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 this section in **Creating an IPG Service from an Existing SAM 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 IPG Server List window, click **File** and select **Close**.

Edit Existing IPG Data

Introduction

The IPG editor is ideally used to add IPG data for channels that have no IPG data. However, on occasion, you may need to use the IPG editor to modify IPG data received from your IPG data provider. This section explains how to edit data received from your IPG data provider.

Important:

- The editor is ideally only used to provide data on channels where the IPG data provider does *not* provide data.
- Editing programs for services where the IPG data 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 from the IPG data provider overwrite the edits you make.

Editing Existing IPG Data

Complete these steps to edit existing IPG data.

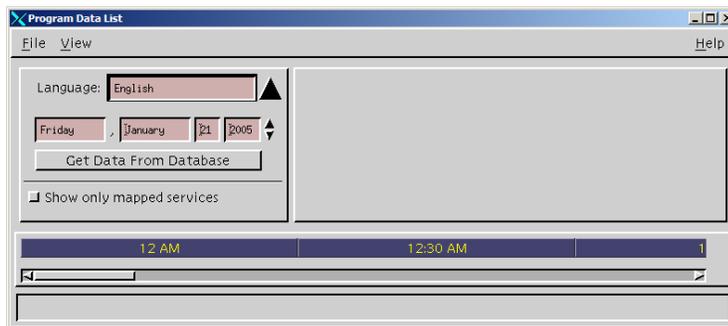
1. On the **Server Applications** Tab, click **IPG**.

Result: 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**.

Result: The Program Data List window opens.

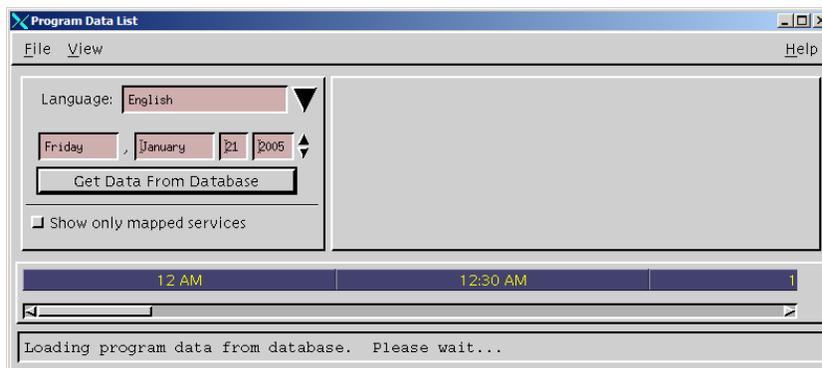


4. Follow these instructions to select the data you want to display.
 - To select program data in a specific language, click the Language arrow (▲) and select the language you want to display from the list that opens.
 - To select program data for a particular date, click the Reverse (▲) or Advance (▼) arrow until the date you want appears.

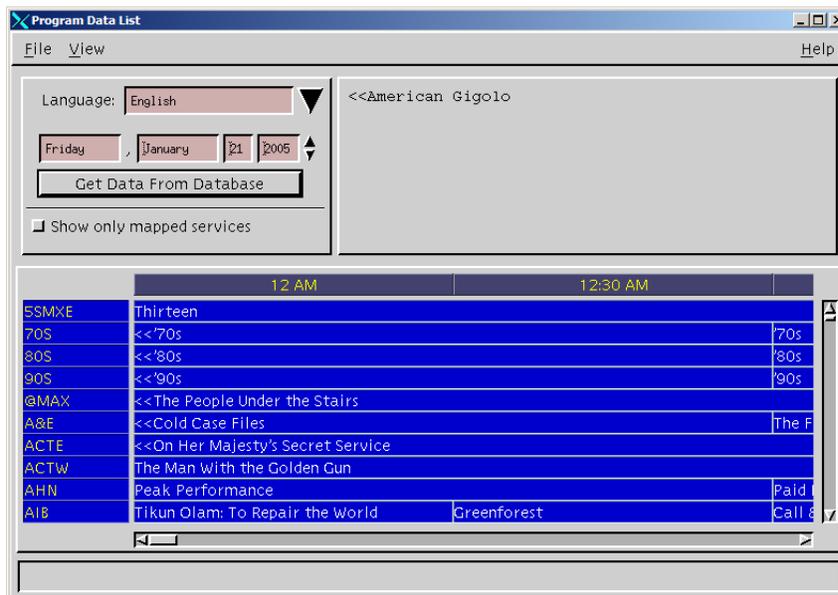
Edit Existing IPG Data, Continued

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 the **Show only mapped services** option.



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.



Edit Existing IPG Data, Continued

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

Result: The Set Up Program Data window opens and displays existing data for the program you selected.

The screenshot shows the 'Set Up Program Data' window with the following details:

- Language: English
- Service Name: 5SMXE
- Start Date/Time: 07/09/2003 10:30 PM
- Stored Start Time: 1057804200
- Duration: 1 hours 45 minutes
- Title: The Big Easy
- Short Title: [Empty]
- Description: Romance complicates a detective's murder investigation. (1986) Dennis Quaid, Ellen Barkin, Ned Beatty, John Goodman, Jim McBride. (105 min) Adult language, adult situations, nudity, violence.
- Primary Theme: Drama
- Secondary Theme: [List: Other, Action/Adv., Adult, Biography, Cartoons, Children's, Comedy, Documentary, Drama, Family]

8. Change the existing data in the Descriptions tab.

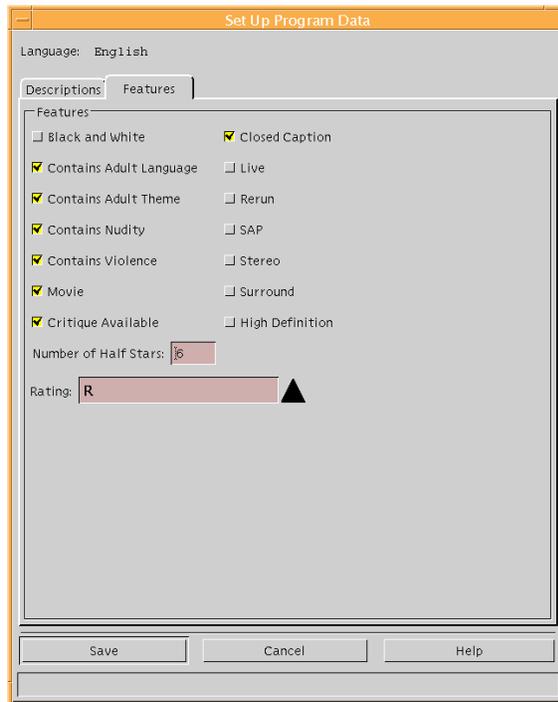
Note: Only the following fields can be changed:

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

Edit Existing IPG Data, Continued

9. Click the **Features** tab.

Result: 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 SARA. For example, the High Definition feature only displays in SARA 1.52 and later.

11. Click **Save**.

Result: The Set Up Program Data window closes.

12. Repeat steps 4 to 11 to edit other program data.

13. After you have completed editing program data, click the **File** menu in the IPG Server List window, and select **Send**.

Result: The IPG Server sends the updated information to the IPG collector.

Add Your Company's Logo to the Main IPG Screen

Introduction

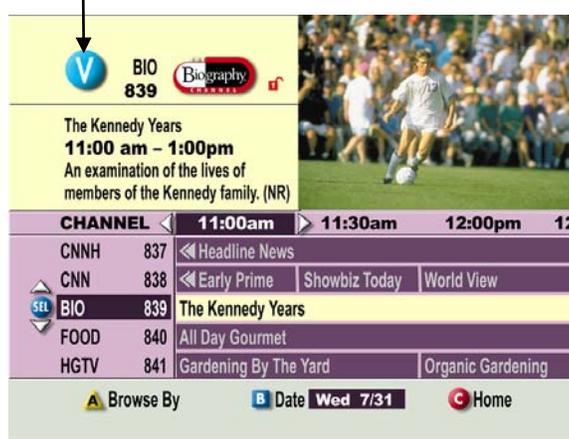
Each time subscribers tune to the IPG, remind them who provides this service by placing your company's logo on the main screen of the IPG. Adding a file containing your company's logo to the BFS causes the logo to appear on the main screen of the IPG. You can also use the MSO Logo Position option to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

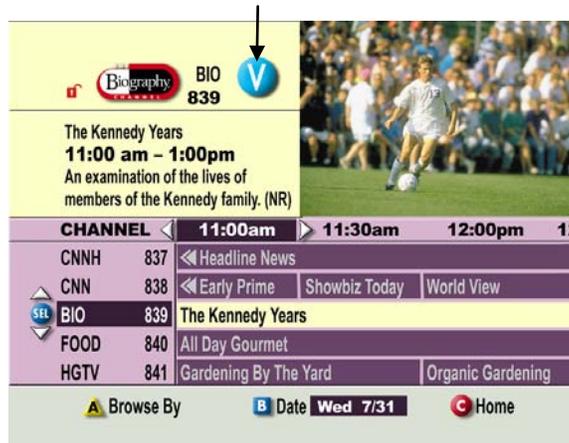
Logo Positions

The following screens show an example of the logo positions.

Logo to the left



Logo to the right



Add Your Company's Logo to the Main IPG Screen, Continued

Add 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**.
Result: 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**.
Result: 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.
Result: 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**.
Result: The Set Up DHCT OS window opens.
11. Click **Browse** in the **Source File** field.
Result: The Select OS File window opens.

Add Your Company's Logo to the Main IPG Screen, Continued

12. In the Directories list on the left, click twice to select the **/dvs/resapp/logos** directory.

Result: 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.

Result: The full path of the RLE file that you selected appears in the Selection field.

14. Click **OK**.

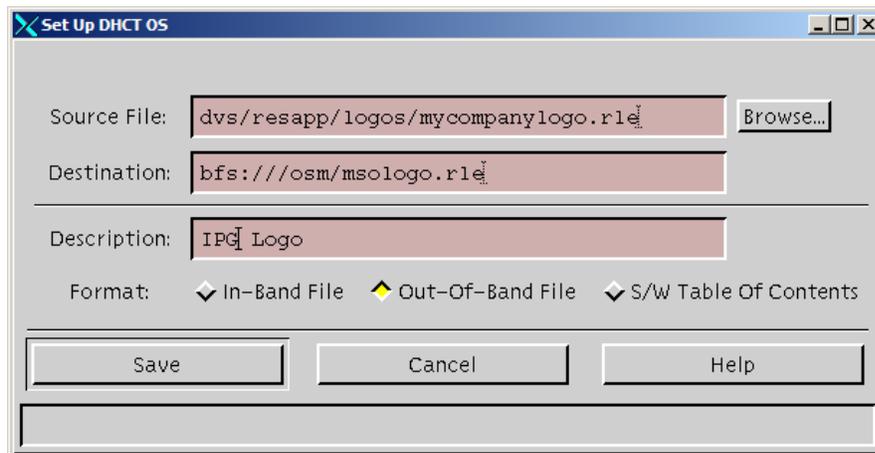
Result: The Select OS File window closes and the RLE file that you selected appears in the Source File field on the Set Up DHCT OS window.

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.



Result: After the DVR cable box reboots, the SARA client displays the logo in the Recorded List.

Add Your Company's Logo to the Main IPG Screen, Continued

Position 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**.

Result: The DHCT Configure Prompt window opens.

3. Select **Global**.

Result: The Set Up Global DHCT Configuration window opens.

4. Select the **IPG** tab.

Result: 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**.

Result: The logo appears either to the left or right of the channel number on the Interactive Program Guide.

Configure SARA to Enhance Your Subscribers' Experience

Creating DHCT Configurations

Explorer DHCTs use a standard set of default parameters that define the way they operate and affect subscribers' experience with SARA. 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 SARA, refer to *Enhancing Your Subscribers' Experience: SARA Configurable Options*.

For assistance configuring DVR or DVD features, refer to *Configuring the DBDS to Support DVR and DVD*.

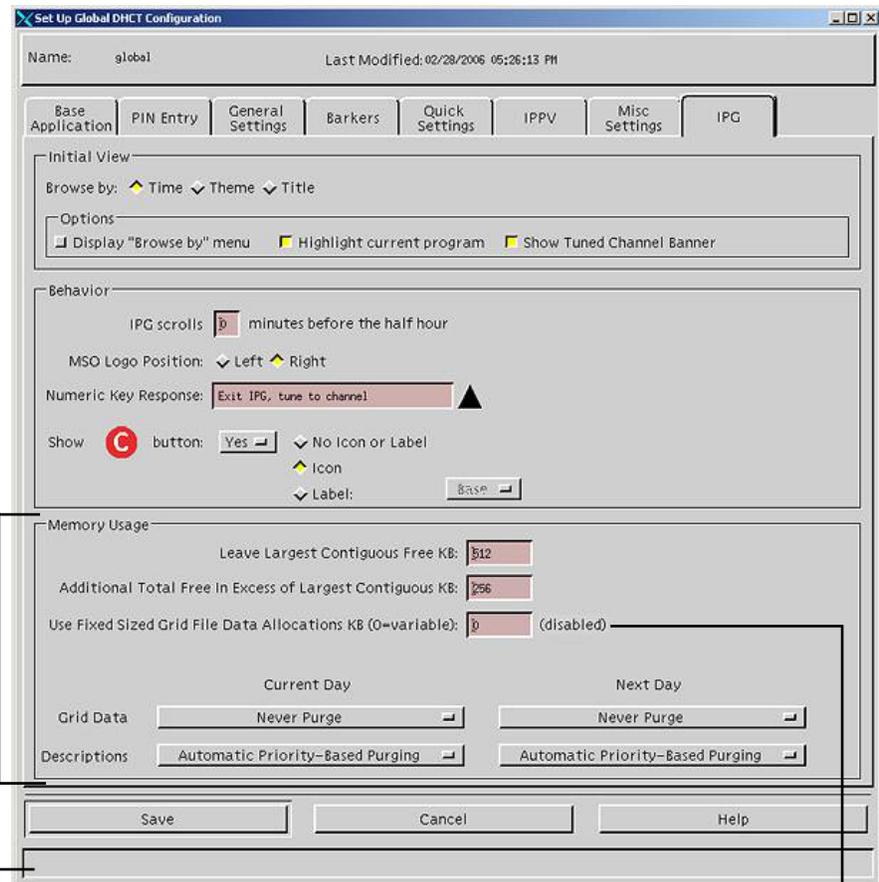
IPG Memory Usage Settings

Introduction

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, may be made on a hub basis). Adjusting these settings may enable you to maximize memory usage, particularly on older, lower-memory DHCTs, such as Explorer 2000 set-tops.

IPG Memory Usage Settings

You can 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 how close the current value is to the minimum required value.

IPG Memory Usage Settings, Continued

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	<p>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.</p> <p>Note: This field requires a minimum value of 50 KB.</p> <p>Default setting: 512 KB</p>
Additional Total Free in Excess of Largest Contiguous KB	<p>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.</p> <p>Default setting: 256 KB</p>

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 settings 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".
- These two settings do not restrict loading of files when requested by the IPG UI (user-initiated).
- These two settings 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 512KB contiguous free *after* loading data, and the site's grid data files are at most 300KB (for example), then the value needs to be set to 512+300, or 812 KB.

IPG Memory Usage Settings, Continued

Field Name	Description and Possible Values
Use Fixed Size Grid File Data Allocations KB (0-variable)	<p>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.</p> <ul style="list-style-type: none">• 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 SARA server's disk. Important! When using this setting, Cisco recommends that each week you verify the allocated size against the actual file sizes and, if needed, increase the allocated file size. <p>Notes:</p> <ul style="list-style-type: none">– 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, SARA 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.

IPG Memory Usage Settings, Continued

The following IPG Memory Usage settings define when grid data for the current day and next day will be purged. These settings are shown in order from least restrictive (allowing purging to occur with the least number of restrictions) to most restrictive (not allowing any purging to occur at all):

- Automatic Priority-Based Purging
- Purge Only When Asked By Another App
- Never Purge

Field Name	Default Setting
Grid Data	
Current Day	Never Purge Important! This setting must not be less restrictive than any of the other IPG Memory Usage settings.
Next Day	Never Purge Important! This setting must not be more restrictive than the setting for the current day's grid data.
Descriptions	
Current Day	Purge Only When Asked By Another App Important! This setting must not be more restrictive than the setting for the current day's grid data.
Next Day	Automatic Priority-Based Purging Important! This setting must not be more restrictive than the setting for the next day's grid data, or the setting for the current day's descriptions.

Adjust How DHCTs Use IPG Memory

Introduction

After you configure the IPG Memory Usage settings on the DNCS, use the DHCT Configure utility to send these settings to DHCTs. Otherwise, DHCTs are unable to fine-tune how they use IPG memory.

Important! Be aware that the DHCT Configure utility sends not only the IPG Memory Usage settings to DHCTs, but also sends any other settings configured in the DHCT Configuration windows. For a description of all the settings that can be configured from DHCT Configuration windows, refer to *Enhancing Your Subscribers' Experience: SARA Configurable Options*.

Sending IPG Memory Usage Settings to DHCTs

You can use either of the following methods to send settings to DHCTs:

- **Global** – Sends the settings to all DHCTs in your network. For assistance using this method, refer to **Send a Global Configuration to All Set-Tops in Your Network** in *Enhancing Your Subscribers' Experience: SARA Configurable Options*.
- **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. For assistance using this method, refer to **Build and Send a Configuration to All Set-Tops in a Single Hub** in *Enhancing Your Subscribers' Experience: SARA Configurable Options*.

Chapter 6

Setting Up a Virtual Channel Service

Overview

Introduction

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 SARA 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

This chapter contains the following topics.

Topic	See Page
Configure the VCS Broadcast File System (BFS)	6-2
Build a Virtual Channel Source File	6-6
Set Up a Virtual Channel Service	6-9

Configure the VCS Broadcast File System (BFS)

Introduction

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 SARA 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 SARA 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.

Configure the VCS Broadcast File System (BFS), Continued

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*.

- **Block Size and Indication Interval:** Use the default values
- **Selected Hosts:** Select the host according to your system configuration:
 - For single-site systems, select **dnscatm**.
 - 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

Configure the VCS Broadcast File System (BFS), Continued

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**, next in this section.

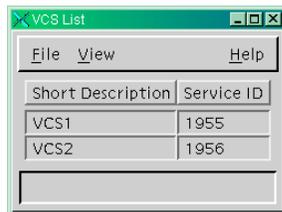
Configure the VCS Broadcast File System (BFS), Continued

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.

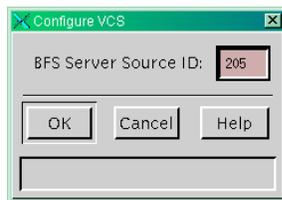
1. On the DNCS Administrative Console, select the **Server Applications** tab.
2. Click **VCS**.

Result: The VCS List window opens.



3. Click the **File** menu and select **Configure**.

Result: 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 **SARA Server**, run **appControl**.
7. In the appControl window, stop and restart the **VC** server group.

Result: 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

Introduction

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 SARA 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 SARA client uses the Virtual Channel application (not a standard, full-featured browser) to read the source file.

Tag	Meaning
	Display text between tags as bold text
<big></big>	Display text between tags as large text
 	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
	Display the SELECT button.
	Display the A button.
	Display the B button.
	Display the C button

Build a Virtual Channel Source File, Continued

Tag	Meaning
	Display the SETTINGS button.
	Change the font color to white.
	Change the font color to black.
	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.

```

<table bgcolor="alert">
<tr>
<font color="yellow">
<center><big><b>ACME CABLE TV</b></big></center><br>
<center><big><b>Job Line</b></big></center><br>
<font color="white"><center><b>Professional, Technical and Managerial</b></center>
<tr>
<font color="black">
JOB:           Sales Engineer III<br>
LOCATION:       Suwanee<br>
SALARY:       $20.82 / HR Full-time<br>
EDUCATION:    4 YR Degree<br>
TELEPHONE:    (404) 555-5555
<tr>
<font color="black">
<center><b>JOBS PRESENTED FROM THE ACME INC. WORK LINE.</b></center><br>
<center>Call (404) 555-5555 for more information or to post a job
opening.</center>

```

Build a Virtual Channel Source File, Continued

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.

Result: 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 <filename>** to run the parse utility.

Note: Replace the `<filename>` in this entry with the name of the HTML file that you created.

Result:

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

Introduction

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.

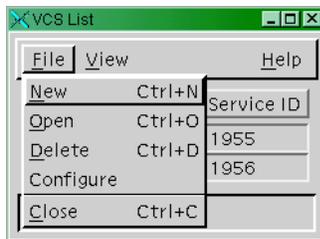
Setting Up the Virtual Channel Service

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.

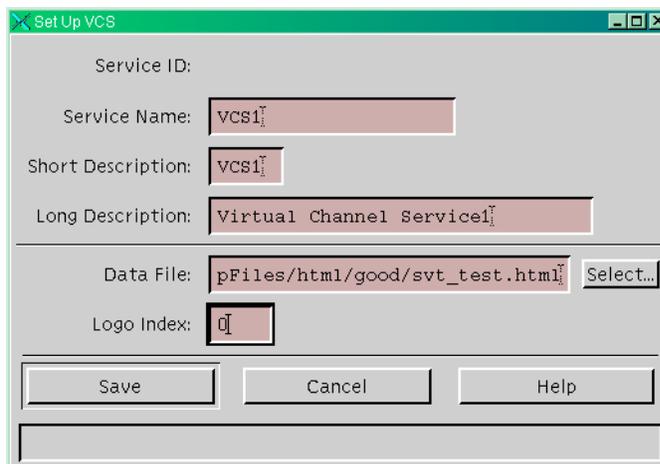
1. On the DNCS Administrative Console, click the **Server Applications** tab.
2. Click **VCS**.

Result: The VCS List window opens.



3. Click the **File** menu and select **New**.

Result: The Set Up VCS window opens.

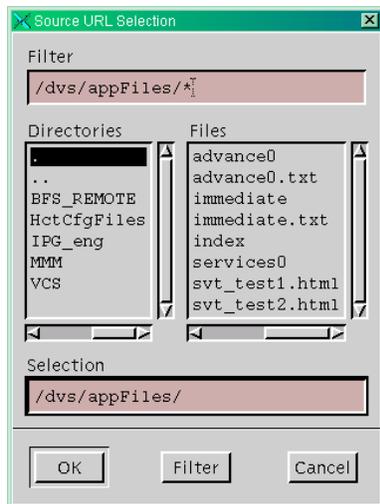


4. Type the service name, short description, and long description in their respective fields.

Set Up a Virtual Channel Service, Continued

5. In the Data File field, click **Select**.

Result: 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 *Digital Network Control System Online Help (UNIX) Version* for your system release.

Set Up a Virtual Channel Service, Continued

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.

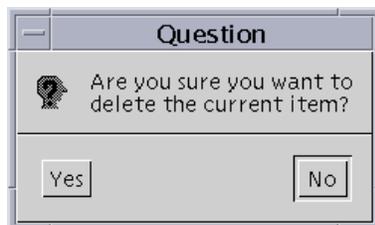
1. Open the source file in the editor and make the changes you require.
2. Use the **parse** utility to verify your changes.
3. Check for updated information.

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**.

Result: 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.

Chapter 7

Enabling Tracing on the SARA Server

Overview

Introduction

The SARA Server can track the flow of data messages between the SARA 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

This chapter contains the following topics.

Topic	See Page
Enable Tracing	7-2
View the Log Files	7-6

Enable Tracing

Introduction

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

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 SARA 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 SARA 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 SARA Server, type **more trace.cfg** and press **Enter**.
Result: 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**, next in this section.

Enable Tracing, Continued

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.

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.

Important: To enable the tracing function, go to **Enabling the Tracing Function**, next in this section.

Enable Tracing, Continued

Enabling the Tracing Function

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

1. In an xterm window on the SARA Server, type `cd /dvs/appserv/tmp` and press **Enter**.
Result: The `/dvs/appserv/tmp` directory becomes the working directory.
2. Type `vi trace.cfg` and press **Enter**.
Result: 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** earlier in this section 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.

Enable Tracing, Continued

Disabling the Tracing Function

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

1. In an xterm window on the SARA Server, type **cd /dvs/appserv/tmp** and press **Enter**.
Result: The /dvs/appserv/tmp directory becomes the working directory.
2. Type **vi trace.cfg** and press **Enter**.
Result: 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. By doing so, you can easily 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

Introduction

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

- The files in `/var/log/dnclsLog` only contain error message and process start/stop messages. The SARA 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 SARA Server automatically deletes these log files after seven days.

The Logger Utility

The SARA 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 <filename>.gz` and press **Enter**. In this command, `<filename>` is the name of the file you want to view. When you enter this command, the SARA 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 SARA Server creates an unzipped file called `vcServer.101`.

View the Log Files, Continued

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
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.

Chapter 8

Adding a dvd Server to the BFS and Updating the dvd Server with New Files

Overview

Introduction

This chapter provides procedures for adding a dvd server to the BFS and updating the dvd server with DVD files. These files enable SARA 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.

Starting with SR 2.5/3.5/4.0 and later, a dvd server has been added to the BFS to support the DVD burning capability of SARA Server software. This capability is required to fully support Explorer set-top boxes that have the ability to burn content from the hard drive of the set-top box to the DVD drive.

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 SR 2.5/3.5*.

In This Chapter

This chapter contains the following topics.

Topic	See Page
Add a dvd Server to the BFS	8-2
Update a dvd Server	8-4

Add a dvd Server to the BFS

Introduction

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 SARA 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.

Adding a dvd Server to the BFS

Follow these procedures to add a dvd server to the BFS. If your system uses the Regional Control System (RCS) option and supports multiple sites, add a dvd server to only the AllSites BFS and not to the BFS of individual sites.

Note: For step-by-step instructions on adding a server to the BFS, refer to *Adding and Removing Applications on the BFS for SR 2.5/3.5*.

1. Add a server with the following characteristics to the Servers tab of the **BFS Administration** window:

- Server Name: **dvd**

Important: This field requires a specific entry. You must enter "dvd" in lowercase letters in this field. Otherwise, the system will be unable to set up a dvd server.

- Selected Sources: **Inband** and **Out of Band**

Important: Multi-site (RCS-enabled) systems must add the dvd server to *only* the Site AllSites Administration window. Adding a dvd server to the BFS Administration window of individual sites and to the Site AllSites Administration window causes the dvd server to fail.

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

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

Add a dvd Server to the BFS, Continued

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

- Server Name: **dvd**
- Mode: **One-way**
- Selected Sources: **Out of Band**

Important: Multi-site (RCS-enabled) systems must add the dvd server to *only* the All Sites Broadcast File Server List window. Adding a dvd server to the Broadcast File Server window of other individual sites and to the All Sites Broadcast File Server List window prevents the system from setting up a dvd server.

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

3. Add DVD files to the dvd server in the BFS Client window. For assistance, go to **Update a dvd Server with New Files**, next in this chapter.

Update a dvd Server with New Files

Overview

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

To support SARA'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 SARA 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 SARA client writes to the first border of a Cisco 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 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 Cisco provides. 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 SARA client where to look on the BFS to find the ISO image file, which the client uses when burning TDF discs.

Update a dvd Server with New Files, Continued

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.

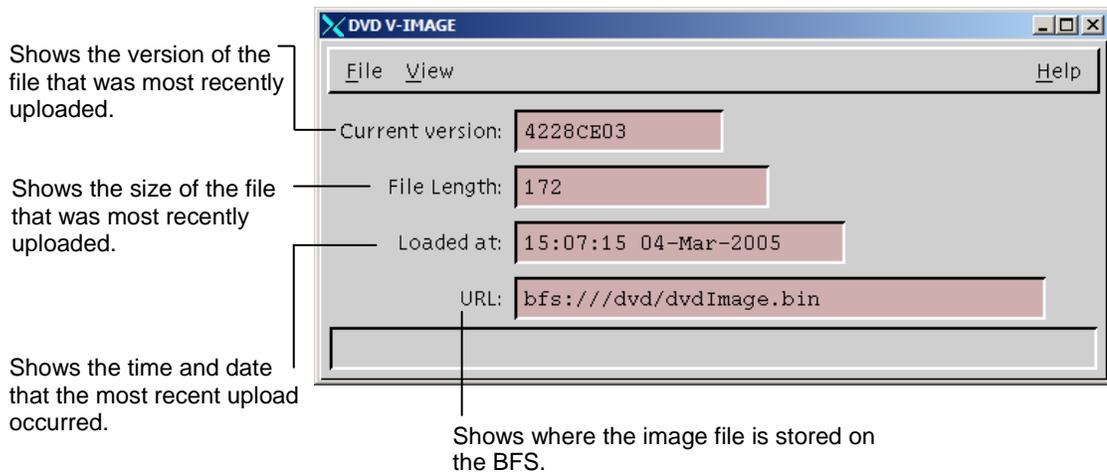
Note: Update a dvd server with DVD files immediately after adding a dvd server to the BFS and from that point on, whenever DVD files are changed or updated.

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

Result: The Server Applications tab moves to the forefront.

2. Click **DVD**.

Result: The DVD V-IMAGE window opens as shown in the following example.



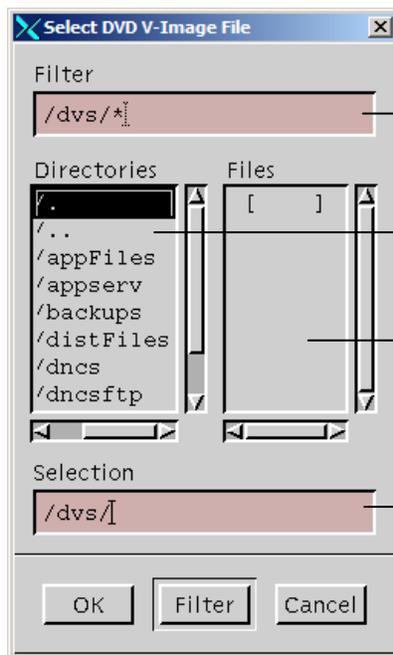
Update a dvd Server with New Files, Continued

3. Click **File** and select **Update**.

Result: 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.

Result: The Select DVD V-Image File window updates as shown in the following example.



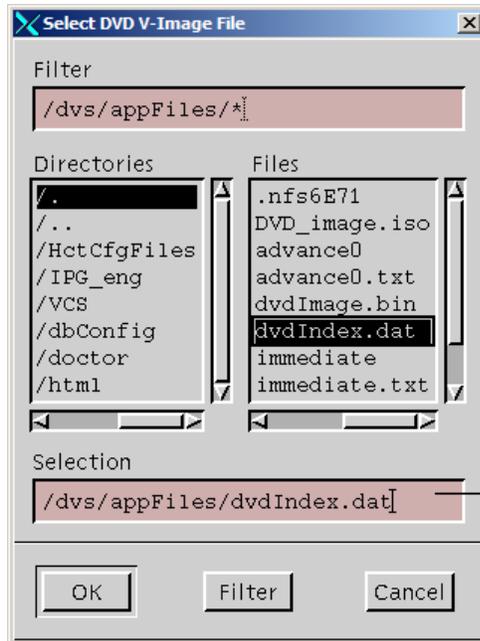
When you select a directory in the Directories list, the following fields update:

- 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.

Update a dvd Server with New Files, Continued

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.

Result: The Select DVD V-Image File window updates and shows the full path of the file 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.

Update a dvd Server with New Files, Continued

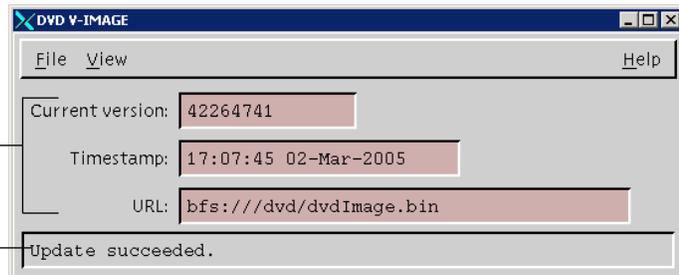
7. Click **OK** to upload this file to the dvd server.

Result: 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.



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**.

Chapter 9

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.

Glossary

App Server	<i>See</i> Application Server.
Application Server	Application Server. A computer workstation and server used to execute the application programs, which provide an interface for downloading application data to the DHCTs. App Server works in conjunction with the DNCS and the two computers share a common database. <i>See also</i> SARA Server.
ASI	Asynchronous Serial Interface.
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. Primary interface (means of communication) between the App Server and the DHCTs that are connected to the network.
BFS BIG	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 a DHCT displays no video or audio and the front panel LED only displays four dashes (“- - - -”). This state is controlled through the use of a brick mode avoidance package. If the DHCT is not authorized for this package, then the DHCT enters brick mode. Brick mode is sometimes called “Allow Service Disconnect.”
Burn	To write data from the hard drive of the cable box to the DVD drive.
CA	conditional access. Consists of the system, software, and components necessary to provide for selective access or denial of specific services in a network. Establishes means by which a cable service provider can collect subscriptions or other payments for services received.
CableCARD	<i>See</i> POD module.
CAM	Conditional Access Manager. Network encryption control, entitlement definition and management, and authorization control (<i>see</i> PowerKEY).

Glossary, Continued

CAQAM	Conditional Access Quadrature Amplitude Modulator.
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. <i>Also known as Data Carousel or Data Pump.</i>
CATV	cable television.
Certification Revocation List	<i>See CRL.</i>
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 configuration file. The Application Server ignores any lines that begin 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	<i>See carousel.</i>
Data pump	<i>See carousel.</i>
DBDS	Digital Broadband Delivery System. The entire network architecture of Cisco's 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.

Glossary, Continued

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. Cisco's digital set-top converter that is two-way capable for interactive services. <i>See also</i> Explorer.
DNCS	Digital Network Control System. A computer server used to monitor and control the DBDS network elements. Generally located at the DBDS headend, although it may be located elsewhere and remotely connected to the DBDS.
ECM	Entitlement Control Message. System-wide information that "unlocks" an encrypted service by transmitting control words. Each ECM is unique for each service, enables cryptographic partitioning so that different 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. <i>Also known as</i> system components.
Explorer®	Cisco's trademarked name for the Digital Home Communications Terminal. Also known in the CATV industry as a set-top box.
FAT channel	Forward Application Transport channel. Carries programming information (content data) using MPEG-2 transport streams modulated onto RF signals. These channels transmit data at a fast rate (at least 27 Mbps), and therefore require large amounts of bandwidth; 54 MHz to 860 MHz of the broadband spectrum may be reserved for FAT channels.
FTP	File Transfer Protocol. Ability to download files from or upload files to remote computer systems on a network, such as Internet.
GQAM	gigabit quadrature amplitude modulation.
Headend	A headend is 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. <i>See also</i> 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.

Glossary, Continued

Hub	Physical locations designed to serve a specific number of subscribers, usually 50 to 15,000. May be collocated 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 modulators/ 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. Cisco's 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. <i>See also</i> 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.
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. Unique physical address embedded into a network device. Similar to a serial number.
MIB	Management Information Base (SNMP data structure).
Modulator	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.

Glossary, Continued

MPEG-2	International video compression standard supporting the interlaced video format used by the TV industry and allowing a scaling of image quality and transmission bandwidth.
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 AppServer. <i>Also known as system components. See element.</i>
On-demand session	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 conferencing, Internet information, and time-shifted TV, including HDTV.
PIN	personal identification number.
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.
PowerKEY® Conditional Access system	Cisco's trademarked name for the hardware and software encryption and decryption of digital signal. Uses secret key, public key, and private key.
PowerTV®	PowerTV's trademarked name for their 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 cable subscribers are charged a user fee for individual program events. <i>See also IPPV.</i>
PPV barker	A screen that the DHCT displays to advertise an event or let a subscriber order a PPV event.

Glossary, Continued

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 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.
PVC	permanent virtual circuit. A data path that someone creates manually and that continues to exist on the DBDS until someone manually removes it.
PVR	personal video recorder. A service that automatically and digitally allows television programs to be recorded without the use of videotape and saved to a hard drive located inside the recorder much like a computers hard drive. The program can then be deleted, saved to a tape, or left on the hard drive. A PVR allows you to pause live broadcast for interruption, such as creating your own instant replays.
QAM	quadrature amplitude modulation. A frequency modulation technique primarily used for program audio and video. QAM supports data rates from 27 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.
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.
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 with need by DHCTs.

Glossary, Continued

SAP	second audio program. A feature allows cable service providers to offer subscribers a second audio option for their programming. This second option may be a different language or another audio track, such as the weather or a sports event.
SARA	Cisco Resident Application. The set of operating programs that is “permanently” loaded into the DHCT. These applications are immediately available to the subscriber upon activation of the DHCT.
SARA Server	Cisco Resident Application (SARA) Server. A computer workstation and server used to execute Cisco’s 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	<i>See</i> 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.
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 connection from an Internet service provider (ISP); digital PPV that is a secure, encrypted, digital MPEG-2 program; digital music services; analog programs that are modulated in the traditional format or converted into MPEG-2 format

Glossary, Continued

SR	System Release. Cisco's 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 to maintain security throughout the DBDS.
TED FX	A TED that provides faster transactions. <i>See</i> 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 may include AM fiber and SONET technologies.
transport stream	An MPEG transport stream is a data communications signal that is formatted in accordance with protocol definition defined in the MPEG-2 specification ISO IEC 13818. An MPEG transport stream may carry voice, video, or data information. The MPEG data transmission protocol transports real-time data.
Un-Config	User-to-network configuration. DNCS to DHCT configuration message.
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.
VCS	Virtual Channel Server.
VCR Commander™	Cisco's trademarked name for an external device that allows subscribers to record programs on their VCR using their Explorer DHCT.

Glossary, Continued

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.

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Cisco Systems, Inc.
5030 Sugarloaf Parkway, Box 465447
Lawrenceville, GA 30042

678 277-1120
800 722-2009
www.cisco.com

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