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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Introduction

The Cisco Application Server works with the Explorer Controller (EC) to deliver digital applications to subscribers. Together, the Application Server and the EC form the core of the Digital Broadband Delivery System (DBDS). The DBDS delivers broadcast data and digital applications from the headend to the subscribers’ homes.

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

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

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

Purpose

The purpose of this guide is to enable users to manage the applications that reside on Application Server 6.0. You will learn how to set up, or provision, each of the applications that reside on the Application Server.

Prerequisites

Application Server 6.0 (AS 6.0) requires System Release (SR) 6.0 and later.

Audience

This guide is intended for system operators who are using Application Server 6.0 with the system release listed earlier.

Document Version

This is the first formal release of this document.
Getting Started

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

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

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- Power On the Application Server Workstation............................................. 8
- Start Application Server Processes................................................................. 9
Power On the Application Server Workstation

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

Complete these steps to power on the Application Server workstation.

1. Go to the Application Server workstation and press the **Power** button. The login window opens with a welcome message after a few minutes.
   
   **Note:** If your system is not set up properly, the Application Server will not finish powering up. If your Application Server does not power on, contact Cisco Services at 1-800-283-2636.

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

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

4. Your next step is to start the Application Server processes. Go to *Start Application Server Processes* (on page 9).
Start Application Server Processes

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

Complete these steps to start the Application Server processes:

1. Use the mouse to place the cursor anywhere on the Application Server desktop, and then click the middle mouse button. A drop-down menu appears with a list of options.
2. Click App Serv Start. The workstation front-panel "busy" light blinks to indicate that the software startup is in process.

Monitoring Application Server Processes

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

1. When you log in to the EC status window, the initial screen shows all EC and Application Server processes and their working states, similar to the following example. A green state indicates that a process is running. A red state indicates that a process is not running.

![EC status window example]

2. Wait until all processes show a status of running (green).
3. Leave this window open and visible to help you monitor the system.
What’s Next?

After you have verified that all of the processes are running properly, your next step is to set up the applications that you offer to your subscribers. Most of the following chapters contain procedures for defining the applications you offer subscribers and changing the way the applications are configured.

*Enabling Tracing on the Application Server* (on page 93) contains procedures to enable and disable the tracing function and to specify the level of detail that you want to include in the log file.
This chapter explains how to configure the EC to display the Interactive Program Guide (IPG) and PPV/IPPV event information menus in one of several languages.

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

- To provide IPG in a different language, your data provider must provide programming information, such as titles in those languages.
- To provide PPV/IPPV titles in a different language, the billing system must provide this information as a part of the event definition.

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Set Up Supported Languages

To set up other languages for your IPG, choose Server Applications > Languages in the main window. For each language that you set up, there must be an IPG server and an IPG collector to support the language. The EC 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 Setting Up the Interactive Program Guide (on page 45).

Verifying and Selecting the Appropriate Languages

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

1. In the main window, choose Server Applications > Languages. The Supported Languages window opens.

   Note: Standard DHCT code supports English, French, and Spanish. Special DHCT code is required to support Japanese.

2. Be sure that the languages that your DBDS supports are selected.

   Note: In the example in Step 2, only English is selected. However, if your system supports other languages, select those options as well, and then click Save.
Configure Screen Language

The language set on the Application Server is shown on the screen and is called the "screen language." Screen Language can be configured as either a global or an addressable feature.

On the General Settings tab in the Global Configuration window, you can use **Language: Screen** to determine whether the Screen Language feature should be an Addressable option (meaning that the subscriber can change it from the set-top menu) or a Global option (meaning that you will set it in the headend for all subscribers).

When checked, the **Language: Screen** check box enables **Addressable** configuration. When unchecked, the **Language: Screen** check box enables **Global** configuration.

**Global Configuration**

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. The Global configuration affects all the set-tops in the network.

- Screen Language is set from the Application Server.
- Screen Language is not displayed in General Settings on the set-top box.
Chapter 2  Setting Up Language Support

If Screen Language is a Global Configuration, the Screen Language drop-down list appears on the Base Application tab of the Global configuration window, but it does not appear on the Base Application tab of the Addressable or Staging configuration windows.

Changing from Addressable to Global Configuration

You can change Screen Language from an Addressable configuration to a Global configuration.

1  In the Set Up Global DHCT Configuration area on the General Settings tab, ensure the Screen Language feature is unchecked. This enables the Global configuration.

2  The Screen Language option is no longer displayed in the General Settings on each set-top box.

Note: Until the Global configuration is reconfigured from the server, the Addressable configuration value will be used. After the server is reconfigured and the Global configuration is set, it will override any Addressable configurations.

Addressable Configuration

The Addressable configuration affects individual set-tops. Screen Language can be set from the set-top General Setting Menu.

Note: If the Global configuration is set, it will override any Addressable configurations.
Configure Screen Language

If **Screen Language** is an **Addressable** and Staging Configuration, the **Screen Language** combo list appears in the Base Application of Addressable and Staging Configuration and does **not** appear in the Base application of Global configuration.

**Changing from Global to Addressable Configuration**

If **Screen Language** is configured as **Global**, it can later be changed to an Addressable configuration.

1. On the Global/General Settings tab, ensure that the Screen Language feature is checked. This enables the Addressable configuration.

2. The Screen Language option is now displayed in the General Settings menu on each set-top box.

**Note:** The original, Global configuration value will be used until the Screen Language option in General Settings is reconfigured from each set-top box.
One-For-All

One-For-All is a feature that checks to see if PPV event descriptions are available in more than one language in an attempt to avoid showing the text "No description available."

Background

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

PPV Event Descriptions Without One-For-All

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

Note: The language set on the Application Server is called the screen language. For more details, see Configure Screen Language (on page 13).

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

<table>
<thead>
<tr>
<th>Screen Language Set on the Application Server</th>
<th>Event Description Available in Screen Language?</th>
<th>This Description is Populated in an IPG without One-For-All</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Yes</td>
<td>Description in English</td>
</tr>
<tr>
<td>French</td>
<td>Yes</td>
<td>Description in French</td>
</tr>
<tr>
<td>English</td>
<td>No</td>
<td>No description available in English</td>
</tr>
<tr>
<td>French</td>
<td>No</td>
<td>No description available in French</td>
</tr>
</tbody>
</table>

PPV Event Descriptions With One-For-All

One-For-All is a strategy to show PPV event descriptions, even if the description is not offered in the screen language. To enable One-For-All, the operator sets a default language in the .profile file. For directions, see Configuring One-For-All (on page 17).

Note: The language set in the .profile file is the default language. Since this is an alternate language to check for a description, the operator must set a language in the .profile file that is different from the screen language and which may have a description available.
Every time a description is not available in the screen language, One-For-All triggers the Application Server to look for a description in the default language. If a description is available in the default language, then the Application Server will populate the IPG with a PPV event description in the default language.

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

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

<table>
<thead>
<tr>
<th>Screen Language Set on the App Server</th>
<th>Description Available in Screen Language?</th>
<th>Default Language Set in .profile</th>
<th>Description Available in Default Language?</th>
<th>This Description is Populated in an IPG with One-for-All</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>No</td>
<td>French</td>
<td>Yes</td>
<td>Description in French</td>
</tr>
<tr>
<td>French</td>
<td>No</td>
<td>English</td>
<td>Yes</td>
<td>Description in English</td>
</tr>
<tr>
<td>English</td>
<td>No</td>
<td>French</td>
<td>No</td>
<td><em>No description available</em> in English</td>
</tr>
<tr>
<td>French</td>
<td>No</td>
<td>English</td>
<td>No</td>
<td><em>No description available</em> in French</td>
</tr>
</tbody>
</table>

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

### Configuring One-For-All

Complete these steps to configure One-For-All:

1. Open an xterm window on the EC.
2. Type `cd /export/home/dncs` and press Enter. The `/export/home/dncs` directory is now the working directory.
3. Type `vi .profile` and press Enter. The vi editor opens the `.profile` file for editing.
   
   *Note:* Be sure to type a period (.) before the word "profile."
4. Use the arrow keys to move to the bottom of the file.
5. Type o. A new line appears at the end of the file.
6. Type the following lines at the end of the file and press Enter after each line.
   
   ```
   PPV_DEFAULT_LANGCODE="<language>";
   export PPV_DEFAULT_LANGCODE;
   ```

   Examples (English, French, Spanish, Japanese and Arabic):
Chapter 2  Setting Up Language Support

PPV_DEFAULT_LANGCODE="eng";
PPV_DEFAULT_LANGCODE="fra";
PPV_DEFAULT_LANGCODE="spa";
PPV_DEFAULT_LANGCODE="jpn";
PPV_DEFAULT_LANGCODE="ara";

**Important:** Ensure that the PPV_DEFAULT_LANGCODE that you set (the "default language") is different from the Application Server language (the "screen language"), and is likely to be used for a PPV event description. For more about the screen language, see *Configure Screen Language* (on page 13).

**Notes:**

- Currently, five language options are available. To set the default language to English, type "eng". For French, type "fra". For Spanish, type "spa".
- Japanese "jpn" is available for SR 4.0, 4.2 and later.
- Arabic "ara" is available for SR 4.3 and later.

7  Press Esc.

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

9  On the Application Server, you must stop and restart the PPV processes to activate these new values. See *Stopping and Restarting a Server Process* (on page 52) for more information.
Described Video Services (DVS) is an audio track feature that describes video to aid the visually-impaired. It provides visually impaired viewers with audio descriptions of key elements in a program, such as what is happening on the screen, during pauses in the dialogue.

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

**Important:**

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

<table>
<thead>
<tr>
<th>Application Server Platform</th>
<th>Client Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>4250SD/HD</td>
<td>PowerKEY 5.3.1</td>
</tr>
<tr>
<td>8300SD/HD DVR</td>
<td>DVR 1.7.0</td>
</tr>
<tr>
<td>8500SD/HD DVR</td>
<td>DVR 1.7.0</td>
</tr>
</tbody>
</table>

Follow these guidelines when you enable DVS support:

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

- Enable DVS Support
- Configure DVS Support
Enable DVS Support

Overview

Setting up DVS support is a two-step process:

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

2. Configure DVS support on the set-top
   - **Staging defaults configuration**: Configure DVS support during the staging process, so that all set-tops receive the same configuration when they are staged
   - **Addressable configuration**: Configure DVS support on a single set-top, identified by MAC address
   - **Subscriber configuration**: The subscriber can configure and enable or disable DVS support

For more information about configuring EC settings, see *Enhancing Your Subscribers' Experience: SARA Configurable Options* (part number 78-4002178-01).

Enabling Global DVS Support

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

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

**Important:**

- Once DVS support has been enabled globally, support must be configured on the set-tops before subscribers can use DVS.
- Global settings for DVS support override individual set-top settings.

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

1. In the main window, choose **Server Applications > DHCT Config**. The DHCT Configure window opens:
2. Click **Global**. The Set Up Global DHCT Configuration window opens.
3. Click the **General Settings** tab.
Chapter 3  Setting Up Described Video Services

4  Be sure that the **DVS Support** check box in the User Menu Options area is checked, as shown in the following example:

5  Click **Save** to save your changes, then click **Cancel** to close the window. Support for DVS has now been successfully activated on your EC.

### Enabling and Disabling DVS Support on a Hub

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

**Important:** DVS support must be enabled globally before the hub can be configured. If you have not enabled DVS support on the system, return to *Enabling Global DVS Support* (on page 21) before you attempt the following steps.

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

**Enable the DVS Support in the User Interface**

1  From the main window, choose **Server Applications > DHCT Config**. When the DHCT Configure window opens, choose **Hub**.

2  Click **Select Hub-Specific Items**.

3  Click **New Hub-Specific**.

4  In the Select Hub-Specific Items window, click the **General Settings** tab.
5 Check the DVS Support check box in the User Menu Options area to enable DVS support on the hub or ensure that the check box is unchecked to disable DVS support on the hub, as shown in the following example.

6 Click Save to save your changes, and then click Cancel to close the Select Hub Specific Items window.

Enable or Disable DVS Support on a Specific Hub
1 From the main window, choose Server Applications > DHCT Config. When the DHCT Configure window opens, choose Hub.
2 Click New Hub-Specific.
3 In the New Hub-Specific Items window, click the General Settings tab.
4 Check the **DVS Support** check box in the User Menu Options area to enable DVS support on the hub or ensure that the check box is unchecked to disable DVS support on the hub, as shown in the following example.

![DVS Support Check Box](image)

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

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

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

After you enable DVS support on the system, you must configure the set-tops.

Configuring DVS Support During Staging

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

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

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

1. In the main window, choose Server Applications > DHCT Config. The DHCT Configure window opens.
2. Click Staging Defaults.
3. In the Set Up Staging Defaults window, click the Base Application tab.
4. Check the Audio: Described check box in the Options area.
5. Click Save to save your changes, then click Cancel to close the window. DVS support has now been successfully configured on your set-tops.
Configuring DVS Support on a Single Set-Top

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

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

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

1. In the main window, choose Server Applications > DHCT Config. When the DHCT Configure window opens, choose Addressable.

2. In the Set Up Addressable DHCT Configuration window, click the Base Application tab.

3. Type the MAC address of the set-top that needs DVS enabled in the DHCT MAC Address field at the top of the page.

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

4. Check the Audio: Described check box in the Options area.

5. Click Send, and click Cancel to close the Set Up Staging Defaults window. Support for DVS has now been successfully configured on the set-top.

Subscribers Configure DVS Support

Set-tops can be configured and enabled or disabled by subscribers from the set-top UI. Subscribers must follow these steps to enable DVS on their set-top.
1. Choose **General Settings > Audio: Described**.
2. Use the arrows on the remote control to choose **Enabled**.

### General Settings

<table>
<thead>
<tr>
<th>Preference</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio: Described</td>
<td>Disabled</td>
</tr>
<tr>
<td></td>
<td>Enabled</td>
</tr>
</tbody>
</table>

- Accept
- Cancel Changes

### Subscribers Quick Settings DVS Experience

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

### Quick Settings

- **Caption Off/On/On with Mute**: OFF
- **Choose Language**: DVS:English
- **Start Recording MAXE Now**: OFF

For more information about the user interface, see **Set Up the IPG** (on page 50).
4

Defining PPV Services and Events

This chapter explains how to define PPV services and events. It also describes the purpose of windows and barkers.

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- Understanding Windows and Barkers ........................................................................ 35
- Define PPV Events .......................................................................................................... 40
- Configure Purchase PIN .................................................................................................. 44
Define PPV Services

This section explains how to create, modify, and delete 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 movies, concerts, or sporting events and view them 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 EC.** 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 EC automatically registers the service with the SAM when you create the service, so that you do not need to register an event's service with the SAM.
Define PPV Services

Understanding the Add PPV Service Window

Use the Add PPV Service window to set up PPV services.

The fields in this window are as follows:

- **Service Name**: A unique name for the service, typically provided by the billing system.

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

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

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

- **Default Order Phone 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 displays for subscribers unless the billing system provides another telephone number. Type this phone number exactly as it should appear on the TV screen (including dashes and parenthesis, if appropriate).

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

- **Default Order Start Interval** (Optional): Specifies a default interval during which subscribers can call to order an event, if the event definition does not specify when subscribers can order the event. For example, suppose the Default Order Start Interval is 12 hours and 0 minutes. If an event does not specify an order start time, then subscribers can begin calling to order the event 12 hours before the event begins. Type this amount in hours and minutes.
Chapter 4  Defining PPV Services and Events

- **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 choose the appropriate service from the drop-down 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, choose **none**.
  - If you want the service to function as a subscription service (one that is always available to authorized subscribers), choose the same service that you selected from the **Event Use Service** drop-down list.

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

**Creating a PPV Service**

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

Complete these steps to create a PPV service:

1. In the main window, choose **Server Applications > PPV Service**.
2. Click **Add**. The Add PPV Service window opens, similar to the following example.

3. In the **Add PPV Service** window, complete all of the following required fields. Optional fields are labeled. See **Understanding the Add PPV Service Window** (on page 31) for descriptions of these fields.

   **Note**: 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.

   - **Service Name**
Define PPV Services

- 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)

4 Click **Save**. The Application Server creates a PPV service for the source and automatically does the following:
- Registers the service with the SAM
- Assigns a URL of ippv to the service
- Makes the service available to the channel maps
- Creates an unlimited segment from the service, which you can view in the Segment List

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

5 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.

6 Add all of the PPV services that you created and all of their Event Use services to the IPG Service List. For assistance, go to *Set Up the IPG* (on page 50) and follow the instructions.

7 Add all of the PPV services that you created to the channel map. Refer to your online help for procedures to complete this task.

8 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 barker graphics and other graphics over HD content. As a result, full-screen HD content is displayed 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, see *Enhancing Your Subscribers' Experience: SARA Configurable Options* (part number 78-4002178-01).
Chapter 4  Defining PPV Services and Events

Note: The HD flag (;HD) must be attached to the end of the SAM Service URL (in the Add 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 (see "Understanding Windows and Barkers" on page 35).

Modifying a PPV Service

Complete these steps to modify a PPV service:

1. In the PPV Service List window, select the service that you want to edit.
2. Click Edit. The Edit PPV Service window opens, similar to the following example.

![Edit PPV Service Window]

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

Deleting a PPV Service

Complete these steps to delete a PPV service:

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

1. Select the service that you want to delete in the PPV Service list window, and choose Delete. A dialog box prompts you to confirm that you want to delete the current item.
2. Click Yes to confirm that you want to delete the PPV service.
Understanding Windows and Barkers

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

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

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

Windows

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

<table>
<thead>
<tr>
<th>Type of Window</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event Window</td>
<td>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.</td>
</tr>
<tr>
<td>Marketing Window</td>
<td>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).</td>
</tr>
<tr>
<td>Advertising Window</td>
<td>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.</td>
</tr>
<tr>
<td>Preview Window</td>
<td>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.</td>
</tr>
<tr>
<td>Buy (GBAM) Window</td>
<td>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.)</td>
</tr>
</tbody>
</table>
## Window Relationships

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

In examining the window relationships in the following illustration, remember that the billing system defines these windows when it sends the event definition to the Application Server. Therefore, in most cases you should not need to define an event (although you can do so manually if necessary.) You can view the Set Up PPV Event window to view the window definitions for an event.
Note: For IPPV events, you must define the Marketing, Advertising, Buy (GBAM), and Event windows. For RPPV events, you only need to define three windows: the Marketing, Advertising, and Event windows.

Barkers

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

- **Purchase Prompt barker**: This barker prompts subscribers to buy an event when the subscriber performs one of the following actions:
  - Sets the VCR timer to record an event that has not yet occurred
  - Uses a reminder timer to notify the subscriber of an event to view in the future

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

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

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

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

**PPV Advertising Window Defaults**

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

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

- The total offset time (start offset plus end offset) must not exceed your minimum event interval. For example, if your shortest event is 30 minutes long, then the start offset plus the end offset must not exceed 30 minutes.
- For IPPV events, the purchase window cannot start before the advertising window starts.
- The advertising window must end at least 5 minutes before the end of the event.

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

<table>
<thead>
<tr>
<th>Minimum Event Interval</th>
<th>Advertising Window Start Offset</th>
<th>Advertising Window End Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 minutes</td>
<td>10 minutes</td>
<td>15 minutes</td>
</tr>
<tr>
<td>59 minutes</td>
<td>15 minutes</td>
<td>35 minutes</td>
</tr>
</tbody>
</table>

**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 EC.
2. Type `cd /export/home/dncs` and press Enter. The `/export/home/dncs` directory is now the working directory.
3. Type `vi .profile` and press Enter. The vi editor opens the `.profile` file for editing. **Note:** Be sure to type a period (.) before the word "profile."
4. Use the arrow keys to move to the bottom of the file.
5. Type o. A new line appears at the end of the file.
6. Type the following lines at the end of the file and press Enter after each line.
export PPV_ADV_WIND_START_INTVL=[number of seconds for new default start offset]

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

Examples:

PPV_ADV_WIND_START_INTVL=600
PPV_ADV_WIND_END_INTVL=900

7 Press Esc.

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

9 On the Application Server, you must stop and restart the PPV processes to activate these new values. See Stopping and Restarting a Server Process (on page 52) for more information.
Define PPV Events

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

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

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

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

Generating PPV Events Automatically

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

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

**Note**: If you are generating IPPV events for a test lab, you can use the genPpvFromIpg utility to create PPV events using existing IPG data. The utility works by reformatting existing IPG data in the database into PPV data. For details, see *Application Server Utilities* (part number 78-749639-01).

**Important**: 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 the event definition to the Application Server.
2. The Application Server processes the definition and sends it to the EC for packaging.
3. Using the definition, the EC issues an ECM for the event. As part of issuing the ECM, the EC creates a package for the event and assigns the package an EID.
4. The EC transmits the ECM to a router, and the router forwards the ECM to the appropriate program QAM modulator.
Define PPV Events

Generating PPV Events Manually

Even though your billing system typically generates PPV events automatically, you may occasionally need to set up an IPPV or RPPV event manually.

You can set up an event as either RPPV or IPPV, or you can set up a dual RPPV/IPPV event. When you set up a dual event, DHCTs that can purchase IPPV events will display IPPV advertisements for the event, and subscribers can purchase the event from the remote control. DHCTs will also display a telephone number for subscribers to call to order the event.

**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 reformats existing IPG data from the database into PPV data. For details, see *Application Server Utilities* (part number 78-749639-01). However, this utility is designed for use in test labs only. Do not run this utility on a live system.

Perform the following steps to create an IPPV event:

1. In the main window, choose **Server Applications > PPV Event**. The PPV Event List window opens.

2. Click **Add** to create a new event. The Add PPV Event window opens.

3. Click the **Package Info** tab.

4. In the top section of the tab, type the following information into their respective fields:

   - **Package Name**: A name for the package
Chapter 4  Defining PPV Services and Events

- **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. Choose AM or PM
- **Length**: The length of the package in days, hours, and minutes

5. If you are setting up an RPPV event, choose **Reservation Pay Per View**.
6. If you want subscribers to be able to copy the event, choose **Right To Copy Allowed**. This option is only available for RPPV events.
7. If you are setting up an IPPV event, choose **Impulse Pay Per View**.
8. For IPPV events, complete the fields on the Preview, Buy Window, and Purchase Mode tabs to define how the window should function. See **Understanding Windows and Barkers** (on page 35) for information on how windows relate to each other. Otherwise, the Application Server applies the defaults to the data in these fields when you save it.
9. Click the **Event Info** tab.

   ![Event Info tab](image)

10. At the top, type the following information in the fields:
   - **Service Name**: Choose 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 EC

11. If you choose the **Specify Advertising Window** or **Specify Marketing Window** options, use the tabs that appear to define how these windows function. Otherwise, the Application Server applies the defaults to the data in these fields when you save it.
12 Click **Save** when you finish entering all the data.

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

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

### Modifying a PPV Event

Perform the following steps to modify a PPV service:

1. In the PPV Event List window, choose the event that you want to modify.
2. Click **Edit**. The Set Up PPV Event window opens with completed fields.
3. Make the necessary changes in the fields, and then click **Save**.

### Deleting a PPV Event

Perform the following steps to delete a PPV event.

1. Choose the event you want to delete in the PPV Event list window, and choose **Delete**. A Question window opens, prompting you to confirm that you want to delete the current item.
2. Click **Yes** to confirm.
Configure Purchase PIN

The Purchase PIN feature on the set-top is set to **enabled** by default; for this reason, the Purchase PIN screen is displayed by default. Some customers prefer that an operator be able to enable or disable this feature from the headend, so these new procedures facilitate remote access and control of the Purchase PIN.

You can enable or disable the set-top resident Purchase PIN feature globally from the Set Up Global DHCT Configuration screen.

1. In the main window, choose **Server Applications > DHCT Config**.
2. Click **Global**.
3. Click the **PIN Entry** tab.
4. Check the **Enable Enhance Purchase PIN** check box to enable the Purchase PIN feature, or uncheck it to disable the feature.
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 EC populates the IPG with data such as program listings and program descriptions. The Application Server provides other information on the IPG such as instructional text (for example, the words Browse By and Choose Date) and other General Settings menus. If you do not set up the IPG correctly, the IPG appears with no program information, even when a subscriber selects the Guide button.

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

This chapter provides procedures for setting up the IPG.

**Important:** Enabling DVS support on the Application Server allows you to offer your subscribers audio streams designed for the visually impaired. Once enabled, DVS will cause new IPG options to be displayed in Quick Settings and General Settings. For details about enabling DVS, see *Enable DVS Support* (on page 21).

**Notes:**

- Obtaining and providing audio streams is the responsibility of the operator.
- Audio streams must be encoded within an MPEG program.
- We recommend that this option not be enabled unless you are familiar with DVS and your content is encoded with DVS audio streams.
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Before You Begin

The IPG is an application that DHCTs use to present program information, including the program name, start and end times, description, and rating.

- Subscribers can use the IPG to view and purchase programs.
- Subscribers 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 in the upper right corner of the screen, as shown in the following example.

Areas of the IPG

The IPG can be divided into three areas:

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

  **Note**: Space in this section is also available for an optional Multiple System Operator (MSO) logo. For instructions on positioning your logo, see *Positioning Your Logo on the Main Screen of the IPG* (on page 61).

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

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

Collecting the IPG Data

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

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

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

<table>
<thead>
<tr>
<th>IPG Data Required</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>The IPG service provider</td>
<td>Specifies the format in which to provide data to the subscriber. Three formats are supported: TV Data, On TV, and SA COMP (SA-Compatible) formats.</td>
</tr>
<tr>
<td>Host Name</td>
<td>Specifies the FTP site from which to retrieve the data. The host name can be a standard web name if the Application Server uses Domain Name Service (DNS) or a raw IP address.</td>
</tr>
<tr>
<td>User Name</td>
<td>Specifies your user name. The IPG data provider will give you this name.</td>
</tr>
<tr>
<td>IPG Data Required</td>
<td>Description</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Password</td>
<td>Specifies your password. The IPG data provider will give you this password.</td>
</tr>
<tr>
<td>Pickup Directory or Data file location</td>
<td>Specifies the directory from which to retrieve data files. The IPG data provider will give you this directory.</td>
</tr>
<tr>
<td>File Template</td>
<td>Specifies the naming convention of the file to be retrieved.</td>
</tr>
<tr>
<td>Collection Time</td>
<td>Specifies the time that the IPG collector will collect new data from the data provider.</td>
</tr>
<tr>
<td>Service Names</td>
<td>Specifies the service names used by the content provider.</td>
</tr>
<tr>
<td>Logo File</td>
<td>If using a logo, the logo file must be present on the EC. For more information, see <em>Adding a File Containing Your Company's Logo to the BFS</em> (on page 60).</td>
</tr>
</tbody>
</table>
Set Up the IPG

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

- Selecting languages that subscribers can choose to display IPG data
- Setting up the IPG servers for each language
- Setting up IPG collectors for each language
- Setting up the IPG services

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

If you provide IPG data in foreign languages, you must set up the languages for the IPG data before you set up the IPG. When you first install your system, the IPG is available in at least one language. For the EC 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 6.0 and later, and SR 4.0 and later provide support for IPG data in English, French, Spanish, and Japanese. For detailed instructions on setting up support for foreign languages, see Set Up Supported Languages (on page 12).

Setting Up the IPG Server

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

Perform the following steps to set up IPG servers:

1. Choose Server Applications > IPG. The IPG Server List window opens.
2. Click Add Server. If you selected a language that does not yet have an IPG server, the Set Up IPG Server window opens.
   
   Note: If all languages already have IPG servers, a message appears to tell you that no languages were found.
3. From the Language drop-down list, choose the desired language.
   
   Note: The Supported Languages that you selected earlier appear in the list.
4. Type the appropriate information for the following fields:
   - In the Produce Data for field, type the number of days for which you want to produce IPG data (up to 28).
   - Type 2 in the Send Schedule File Out-of-band for field.

   CAUTION:

   The BFS requires a lot of bandwidth to send IPG data out of band. If you schedule out-of-band data for more than 2 days, you may cause the BFS Server to function incorrectly and disrupt service to subscribers.
5 Click Save. The IPG Server List window opens again and lists the new IPG language server that you have just added.

Editing IPG Servers

Perform the following steps to edit an existing IPG server:

1 In the main window, choose Server Applications > IPG. The IPG Server List window opens.

2 Choose the IPG server whose settings you want to edit. Then click Edit. A message reminds you that your changes will not take effect unto you restart the IPG server.

3 Click OK. The message disappears and the Edit IPG Server window opens for the server that you selected.

4 Edit the fields in this screen as necessary:
   - Produce Data For (Days): The typical choice is 7
   - Send Schedule File Out-of-band for (Days): The typical choice is 2
   - Maximum Size of each description file (KB): The typical choice is 24

   **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.

6 Now that you have edited the settings for this server, stop and restart the ipgServer process for the changes to take effect. For assistance, see Stopping and Restarting a Server Process (on page 52).
Stopping and Restarting a Server Process

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

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

1. Open an xterm window on the EC and log in as dncs user.
2. Type `appControl`, and press Enter. The Applications Control window opens, similar to the following example.

   ![Application Control Window](image1)

3. Type 2 (for Startup/Shutdown Single Group or Process), and press Enter. The Applications Control window displays a numbered list of servers and processes, similar to the following example.

   ![Application Control Window](image2)

4. Type the number associated with the server process, and press Enter. The Applications Control window prompts you to enter a target status for the selected element group, similar to the following example.

   ![Application Control Window](image3)
5 Type e (to display groups) and press Enter.

6 Type 4 to select the PPV processes and press Enter.

7 Type 1 (for stopped) and press Enter. The Applications Control window refreshes.

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

8 Wait until Present State of the server process indicates stopped.
To restart the group, type 1 to select the PPV processes and press **Enter**.

![AppControl Window](image)

10 Type **2** (for running) and press **Enter**. The Applications Control window refreshes.

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

11 Wait until Present State of the server process indicates running.

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

### Setting Up the IPG Collector

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

Perform the following steps to set up IPG collectors:

1. In the IPG Server List window, select the language server that you want to set up.
2. Click **Add IPG Collector**. The Add IPG Collector window opens, similar to the following example.

![Add IPG Collector Window](image)

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

**Setting Up IPG Services**

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

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

1. In the IPG Server List window, click the **IPG Services**. The IPG Service List window opens.
2. Click **Add**. The Create IPG Service window opens.
3. Type the IPG Provider Service Name and the SAM Service ID.

**Notes:**
- The SAM Service ID is the ID number assigned by the EC when the service was registered with the SAM. For more information on registering services with the SAM, refer to your online help.
- 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 in the IPG service list. If you do not enter both services, event information will be missing from the IPG grid (which requires the PPV service ID) or the PPV purchase Barker (which requires the Event Use service ID).

4 Click Save.

### 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 In the IPG Service List window, highlight the row of the desired IPG service.
2 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 Click Service.
2 In the IPG Service List window, choose the IPG service that you want to delete.
3 Click Delete. A message prompts you to confirm that you want to delete the current item.
4 Click Yes to confirm that you want to delete the IPG service name.
Add IPG Data Manually

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

Overview of Adding IPG Data Manually

To provide subscribers with IPG data when no data has been provided by the IPG data provider, perform the following steps to manually add IPG data to the service.

1. Create an IPG service for the missing data.
   
   **Note:** For assistance, see *Creating an IPG Service from an Existing SAM Service* (on page 57).

2. Map the service to an appropriate SAM service.
   
   **Note:** For assistance, see *Creating an IPG Service from an Existing SAM Service* (on page 57).

3. Add IPG data for the service that you created.
   
   **Note:** For assistance, see Manually Adding Data to an IPG Service.

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. In the main window, choose Server Applications > IPG. The IPG Server List window opens.

2. Click IPG Services. The IPG Services List window opens.

3. Click Add. The Create IPG Service window opens, similar to the following example.

4. Complete these steps to enter data in the Create IPG Service window:
   
   - In the IPG Provider Service Name field enter a name for the new service that is unique and does not match any of the names provided by your IPG service provider. For example, you might use "localdata1" to indicate that this is data for a local access channel.
Chapter 5  Setting Up the Interactive Program Guide

- **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.

5  Click **Save**. The service that you created is added to the window.
Add Your Company's Logo to the Main IPG Screen

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

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

Logo Positions

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

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

1. Has the video service provider’s logo been placed on the OSM data carousel?
   - If yes, go to Step 5.
   - If no, open an xterm window on the EC.

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

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

4. Type `exit` and press Enter. The xterm window closes.

5. In the main menu, choose EC > OS (under the DHCT Provisioning section of the Home Element Provisioning area). The DHCT OS List window opens.

6. Is there an entry in the DHCT OS list named msologo.rle?
   - If yes, select `msologo.rle`, then click File and choose Delete to delete it.
   - If no, go to Step 9.

7. Click Add. The Add DHCT OS window opens.

8. Click Select beside the Source File field. The Select OS File window opens.

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

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

11. Click OK. The Select OS File window closes and the RLE file that you selected appears in the Source File field in the Add DHCT OS window.

12. In the Description field, type IPG Logo.

13. In the Destination field, type `bfs:///osm/msologo.rle`.


15. Click Save to save the logo file to the OSM data carousel. After the set-top box reboots, the Application Server client displays the logo in the Recorded List.
Positioning Your Logo on the Main Screen of the IPG

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

1. In the main window of the EC, click the Server Applications tab.
2. Click DHCT Config. The DHCT Configure Prompt window opens.
4. Click the IPG tab. The IPG tab appears in the forefront.
5. For the MSO Logo Position option, choose either Left or Right to place your logo either to the left or to the right of the channel number on the Interactive Program Guide.
6. Click Save. The logo appears either to the left or right of the channel number on the Interactive Program Guide.
Configurations That Enhance Your Subscribers' Experience

Overview

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

Creating DHCT Configurations

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

For assistance configuring the Application Server, see Enhancing Your Subscribers' Experience: SARA Configurable Options (part number 78-4002178-01).

For assistance configuring DVR or DVD features, see DVR Configuration Guide (part number 78-4011411-01).
IPG Memory Usage Settings

Overview

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

IPG Memory Usage Settings

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

To adjust how the IPG utilizes memory, change the default settings in the Memory Usage area.

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

### Leave Largest Contiguous Free KB

The value in this field indicates, in kilobytes, the minimum amount of contiguous free memory ("largest contiguous free block") that the IPG daemon in the set-tops must see available in order to download IPG files in the background.

**Note:** This field requires a minimum value of 50 KB.

**Default setting:** 512 KB

### Additional Total Free in Excess of Largest Contiguous KB

The value in this field indicates, in kilobytes, the minimum amount of additional free memory above and beyond the largest contiguous block that the IPG daemon in the set-tops must see available 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.

**Default setting:** 256 KB

### Notes:

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

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

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

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

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Description and Possible Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use Fixed Size Grid File Data Allocations KB (0-variable)</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Disabled</strong> - A zero in this field indicates that this setting is disabled.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Note</strong>: Disabled is the default setting.</td>
</tr>
<tr>
<td></td>
<td>- <strong>Enabled</strong> - When enabled, this field requires a value that is a minimum of 10% larger than the largest grid data file on the Application Server's disk.</td>
</tr>
<tr>
<td></td>
<td><strong>Important</strong>: When using this setting, we recommend that each week you verify the allocated size against the actual file sizes and, if needed, increase the allocated file size.</td>
</tr>
<tr>
<td></td>
<td><strong>Notes</strong>:</td>
</tr>
<tr>
<td></td>
<td>- 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.</td>
</tr>
<tr>
<td></td>
<td>- Entering a value in this field also causes a message to appear to the right of the field that provides the minimum required value.</td>
</tr>
<tr>
<td></td>
<td>- This fixed size allocation applies only to the grid data for days configured as &quot;Never Purge.&quot;</td>
</tr>
<tr>
<td></td>
<td>- When this value is changed, the Application Server will attempt to resize the memory allocations for &quot;Never Purge&quot; 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.</td>
</tr>
</tbody>
</table>

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

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

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Default Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Day</td>
<td></td>
</tr>
</tbody>
</table>
### Data Grid

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never Purge</td>
<td><em>Important:</em> This setting must not be more purgeable than the setting for the Current Day Descriptions, the setting for Next Day Data Grid, or the setting for Next Day Descriptions.</td>
</tr>
</tbody>
</table>

### Descriptions

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purge Only When Asked By Another App</td>
<td><em>Important:</em> This setting must not be more purgeable than the setting for the Next Day Data Descriptions.</td>
</tr>
</tbody>
</table>

### Next Day

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never Purge</td>
<td><em>Important:</em> This setting must not be more purgeable than the setting for the Next Day Descriptions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Priority-Based Purging</td>
<td><em>Important:</em> This setting must not be more purgeable than the setting for the Current Day Data Grid.</td>
</tr>
</tbody>
</table>

## Automatic Purging of IPG Data

From time to time, the operating system may purge IPG descriptions or future grid data in order to fulfill a more urgent memory allocation request. Each IPG memory cache is marked with a purge priority, which determines which information should be purged first. Important data is marked with a higher number, so the operating system purges data with lower numbers first. The memory usage scheme is as follows:

- Data for the current day is always locked in memory, so it is never purged.*
- Data for the next day is always locked in memory, so the OS cannot purge it.* *However,* SARA will purge this data as a last resort before unloading apps to get memory.
- Descriptions for the current day can be purged at priority 3 when idle or priority 8 when the IPG is active.
- Descriptions for the next day can be purged at priority 1 when idle or priority 6 when the IPG is active.
- All grid data for future days can be purged at priority 0 when idle or priority 5 if the IPG is active. This data is locked and cannot be purged while the IPG is displaying data for that day.
- All descriptions for future days can be purged at priority 0 when idle or priority 5 when the IPG is active. (When idle, all future days descriptions should already be automatically purged by the IPG daemon.)

---

*This is true for older Application Servers; however, newer Application Servers give you additional flexibility. In the EC IPG GUI, you can now set Current and Next Day to allow purging.*
Adjust How DHCTs Use IPG Memory

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

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

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

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

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

To Enable Hub-Specific Memory Usage Settings

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

1. In the main window, choose Server Applications > DHCT Config. The DHCT Configure window opens.
2. Click Hub. The DHCT Configure window displays all of the hubs in your network along with their IDs and configurations.
3. Click Select Hub-Specific Items. The Select Hub Specific Items window opens.
4. Click the IPG tab. The IPG tab moves to the forefront and displays the settings that are available for selection.
5 In the Memory Usage area of the tab, select each setting that you want to be able to configure at the hub level.

6 Click **Save**. These selections are made available to all hubs and the Select Hub-Specific Items window closes. You can now configure and send IPG Memory Usage settings to DHCTs in a hub. See *To Send IPG Memory Usage Settings to All DHCTs in a Hub* (on page 68).

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

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

1 In the main screen, click the **Server Applications** tab.
2 Click **DHCT Config**. The DHCT Configure Prompt window opens.
3 Click **Hub**. The DHCT Configure Prompt window displays all of the hubs in your network along with their IDs and configurations.
   
   **Note**: The Configuration field indicates whether the hub is set to the standard, Global configuration or whether it uses a Hub-Specific configuration.
4 Select the hub whose IPG Memory Usage settings you want to configure and click **New Hub-Specific**. The Set Up Hub DHCT Configuration window opens.
5 Click the **IPG** tab. The IPG tab moves to the forefront and displays the default Memory Usage settings.
6 Are the Memory Usage settings available?
   - If **yes**, continue with the next step in this procedure.
Adjust How DHCTs Use IPG Memory

- If no, the settings are dimmed because they have not been enabled for hub-specific configurations. See To Enable Hub-Specific Memory Usage Settings (on page 67).

7 Enter the settings appropriate for this hub.

Note: For an explanation of Memory Usage settings, see IPG Memory Usage Settings (on page 63).

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

9 Do you want to send this configuration to another hub in your network?
- If yes, repeat Steps 4 to 8 for each hub that you want to change.
- If no, you have successfully sent IPG Memory Usage settings to DHCTs in all hubs that you require.

Modifying IPG Memory Usage Settings for DHCTs in a Specific Hub

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

1 In the main window, click the Server Applications tab.
2 Click DHCT Config. The DHCT Configure Prompt window opens.
3 Click Hub. The DHCT Configure Prompt window displays all of the hubs in your network along with their IDs and configurations.
4 Select the hub whose IPG Memory Usage settings that you want to change and click Edit. The Set Up DHCT Configuration window for the hub that you selected opens.
5 Click the IPG tab. The IPG tab moves to the forefront.
6 Change the Memory Usage settings you desire.
7 When finished, click Save. The Application Server sends the configuration to all of the DHCTs in the hub that you specified. Changes should be made to DHCTs within a few minutes.

Sending IPG Memory Usage Settings to All DHCTs in Your Network

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

1 In the main window, click the Server Applications tab.
2 Click DHCT Config. The DHCT Configure window opens.
3 Choose Global. The Set Up Global DHCT Configuration window opens.
Chapter 5  Setting Up the Interactive Program Guide

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

5  Enter the settings appropriate to your network.
   
   **Note:** For an explanation of Memory Usage settings, see *IPG Memory Usage Settings* (on page 63).

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

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

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

1  In the main window, click the **Server Applications** tab.

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

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

4  Select the hub that you need to change from Hub-Specific to Global configuration and click **Delete**. A message asks if you are sure that you want to delete the hub-specific configuration.

5  Click **Yes** to delete the hub-specific configuration.
Selecting the Number of Days of IPG Data to Produce

You can set the IPG to produce up to 28 days of data. Follow these steps to specify how many days of data the IPG should produce.

1. From the EC Administrative Console, click the Server Applications tab.
2. Click IPG. The IPG Server List window opens.
3. Select the server that you want to modify, then click Edit. An information message appears.
4. Click OK to acknowledge the information message. The Edit IPG Server window opens, similar to the following example.

   ![Edit IPG Server Window]

5. In the **Produce data For** field, type the number of days of IPG data that you want to download.
6. Click Save to save the changes, then click Cancel to close the window.
Graying Out Unauthorized Channels in IPG

You can choose to gray out, or "shade" unauthorized channels in the IPG, so that subscribers can tell which channels are not authorized. Follow these steps to gray out unauthorized channels:

1. In the main window, choose Server Applications > DHCT Config.
2. Click Global. The Set Up Global DHCT Configuration window opens.
3. Click the IPG tab.
4. Check the Show Visual Cue For Unauthorized Channels check box.

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

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

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

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

**In This Chapter**

- Configure the VCS Broadcast File System (BFS) .................................. 74
- Build a Virtual Channel Source File ..................................................... 77
- Set Up a Virtual Channel Service ....................................................... 80
Configure the VCS Broadcast File System (BFS)

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

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

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

**Procedure at a Glance**

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

**Note:** For detailed instructions on adding a VCS application to the BFS, see *Adding and Removing Applications on the BFS For System Release 2.5/3.5 and 4.0* (part number 78-4011048-01).

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 that 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: main window > System Provisioning tab > Source > File > New.

2. Create a new source definition with the following characteristics in the Source Definition List window:
   - **Session ID:** 00:00:00:00:00:00 plus the number used for the Source ID
   - **Session Definition:** BFS
     
     **Note:** To define these characteristics, display the Set Up Digital Source Definition window, by following this quick path: main window > 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:
Configure the VCS Broadcast File System (BFS)

**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 that you can enter for inband data is 2.00 Mbps. For assistance, see *Recommendations for Data Carousel Rate Management Technical Bulletin* (part number 700-716377-01).

- **Block Size and Indication Interval:** Use the default values
- **Selected Hosts:** Select the host according to your system configuration:
  - For single-site systems, select dncsatm
  - For multiple-site (RCS-enabled) systems, select AllSitesHost
  
  **Note:** To define these characteristics, display the Set Up BFS Source window by following the quick path for your system configuration:
  - **Single-Site System:** main window > Application Interface Modules tab > BFS Admin > Sources tab > File > New
  - **Multi-Site System:** main window > Application Interface Modules tab > BFS Admin > File > All Sites > Sources tab > File > New

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

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

- **Server Name:** VCS
- **Selected Sources List:** VCS Source

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

  - **Single-Site System:** main window > Application Interface Modules tab > BFS Admin > Servers tab > File > New
  - **Multi-Site System:** main window > 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:** main window > Application Interface Modules tab > BFS Client > File > New Server
- **Multi-Site Systems:** main window > Application Interface Modules tab > BFS Client > File > All Sites > File > New Server

Configure the new BFS server source ID on the virtual channel server. For assistance, go to *Configuring the New BFS Server Source ID* (on page 76).

**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 main screen, click **Server Applications > VCS**. The VCS List window opens.
2. Click **Configure**. The Configure VCS window opens.

![Configure VCS Window](image)

3. 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.
4. Click either **Save** or **Cancel** to return to the VCS List window.
5. Use appControl to stop and restart the VCS group. Refer to *Stopping and Restarting a Server Process* (on page 52) for more information.

   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.

6. Verify that the virtual channels operate correctly.
Build a Virtual Channel Source File

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

1. Create the source HTML files for the virtual channel client to use.
2. Save the source HTML files to the appropriate directory on the Application Server.

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

Creating the Source HTML Files

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

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

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

<table>
<thead>
<tr>
<th>Tag</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;b&gt;&lt;/b&gt;</td>
<td>Display text between tags as bold text</td>
</tr>
<tr>
<td>&lt;big&gt;&lt;/big&gt;</td>
<td>Display text between tags as large text</td>
</tr>
<tr>
<td>&lt;br&gt;</td>
<td>Insert blank rule (line break)</td>
</tr>
<tr>
<td>&lt;br1.5&gt;</td>
<td>Insert 1.5 blank rules (1.5 line break)</td>
</tr>
<tr>
<td>&lt;center&gt;&lt;/center&gt;</td>
<td>Display text and images between tags as</td>
</tr>
<tr>
<td></td>
<td>horizontally centered on the line</td>
</tr>
<tr>
<td>&lt;img scr=&quot;ok.img&quot;/&gt;</td>
<td>Display the SELECT button</td>
</tr>
<tr>
<td>&lt;img scr=&quot;a.img&quot;/&gt;</td>
<td>Display the A button</td>
</tr>
<tr>
<td>&lt;img scr=&quot;b.img&quot;/&gt;</td>
<td>Display the B button</td>
</tr>
<tr>
<td>&lt;img scr=&quot;c.img&quot;/&gt;</td>
<td>Display the C button</td>
</tr>
<tr>
<td>&lt;img scr=&quot;settings.img&quot;/&gt;</td>
<td>Display the SETTINGS button</td>
</tr>
<tr>
<td>&lt;font color=&quot;white&quot;&gt;</td>
<td>Change the font color to white</td>
</tr>
<tr>
<td>&lt;font color=&quot;black&quot;&gt;</td>
<td>Change the font color to black</td>
</tr>
</tbody>
</table>
### Tag Meaning

- `<font color="yellow">` Change the font color to yellow
- `<table bgcolor="alert">` Applies a standard 3-row alert-banner background to the table
- `<table bgcolor="swirl">` Applies a purple swirl graphic to the background of the table
- `<table bgcolor="none">` 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>
<big><b>Job Line</b></big><br>
<font color="white">
<big>Professional, Technical and Managerial</big>
<br>
<font color="black">
JOB: Sales Engineer III<br>
LOCATION: Suwannee<br>
SALARY: $20.82/HR Full-time<br>
EDUCATION: 4 YR Degree<br>
TELEPHONE: (404) 555-5555
<br>
<tr>
<font color="black">
<center><big>JOBS PRESENTED FROM THE ACME INC. WORK LINE</big></center><br>
<big>Call (404) 555-5555 for more information or to post a job opening.</big><br>
```

### 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 EC. Use the parse utility in the `/dvs/appserv/bin` directory to verify that the Virtual Channel client can display your files.

Perform the following steps to run the parse utility.

1. Create two directories.
2. Name one `good` and the other `bad`.
3. Save them in the `/dvs/appFiles/html` directory. The following three directories appear for HTML files:
   - `/dvs/appFiles/html`
   - `/dvs/appFiles/html/good`
   - `/dvs/appFiles/html/bad`
4 In an xterm window, type `parse [filename]` to run the parse utility, where `[filename]` is the name of the file you want to validate. One of the following results occurs:

- If the Virtual Channel can use your HTML file, the parse utility displays the following:
  
  Parsed file `<file.html>`, no errors found.
  Moved the file to `<good/file.html>`.

- If the Virtual Channel cannot use your HTML file, the parse utility displays the following:
  
  Parsed file `<file.html>`, errors found.
  Moved the file to `<bad/file.html>`.
  Please look at `<bad/file.err>` for details

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

Overview

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

1. Set up the virtual channel service.
2. Place the virtual channel service on the Channel Map.

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

Setting Up the Virtual Channel Service

Now that you have created your source HTML file and saved it on your EC 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 main screen, click the Server Applications tab.
2. Click VCS. The VCS List window opens.
3. Click Add. The Add VCS window opens.
4. Type the service name, short description, and long description in their respective fields.
5. In the Data File field, click Select. The Source URL Selection window opens. 
   **Note:** 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:** We recommend that you save the html files is in /dvs/appFiles/html/good or in one of its subdirectories.
7. Click OK to return to the Add 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 your online help for more information.

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 and click Edit.
2. Make the 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 Delete. A message prompts you to confirm that you want to delete the current item.
3. Click Yes to confirm that you want to delete the virtual channel.
Enabling Power On Features

This chapter details the procedures used to manage the *Power On Keys*, *Numeric Keys Power On DHCT*, and *Power On Channel Selective Override* options.

**Note:** If the *Power On Keys* option is not selected, then the *Power On Keys* option is not displayed on the set-top box.

These options let you:

- Configure keys on the set-top remote control device to power-on the set-top from standby
- Change the power-on channel that is set for most subscribers without affecting subscribers who have chosen a different power-on channel for themselves

**Important:** The set-top remote control must be in "cable" mode for subscribers to use this feature to power-on the set-top from standby.

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- Configure Power On Keys ......................................................... 85
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- Configure Power On Channel Options ....................................... 89
Set Up Power On Keys

You can configure the DHCT to control which buttons will turn on the DHCT, and you can set these as either a Global variable or an Addressable variable.

You can set any of the following combinations to power on the DHCT:

- Power Key Only
- Power and Numeric Keys
- Power, Numeric, Channel, and Volume Keys

**Note:** Channel keys include Channel +/-, LAST, and FAV. Volume keys include Vol +/- and Mute.
Configure Power On Keys

The Power On Keys feature can be configured in one of two ways:

1. **Global**
2. **Addressable**

In Global Configuration, the **Power On Keys** checkbox on the General Settings tab determines whether the Power On Keys feature is set for Addressable or for Global configuration.

- When selected, **Power On Keys** enables **Addressable** configuration.
- When de-selected, **Power On Keys** enables **Global** configuration.

### Global Configuration

The Global configuration affects all the set-tops in the network.

- Keys that can power-on the set-top from standby are set from the Application Server.
- The Power On Keys option is not displayed in General Settings on the set-top box.
If Power On Keys is a Global Configuration, the Keys Power On DHCT combo list appears in the Base Application section of the Global configuration (see screen below) and does not appear in the Base Application of Addressable and Staging Configuration.

Changing from Addressable to Global Configuration

If Power On Keys is configured as Addressable, it can later be changed to a Global configuration.

1. From Set Up Global DHCT Configuration in the General Settings tab, ensure the Power On Keys feature is unchecked. This enables the Global configuration.

2. The Power On Keys option is no longer displayed in the General Settings on each set-top box.

Note: Until the Global configuration is reconfigured from the server, the Addressable configuration value will be used. After the server is reconfigured and the Global configuration is set, it will override any Addressable configurations.

Addressable Configuration

The Addressable configuration affects individual set-tops. Keys that will power on the set-top from standby can be set from the set-top General Setting menu.

Note: If the Global configuration is set, it will override any Addressable configurations.
If **Power On Keys** is an Addressable or Staging Configuration, the **Keys Power On DHCT** combo list appears in the Base Application of Addressable and Staging Configuration (see screen below) and does not appear in the Base application of Global configuration.

![Set Up Addressable DHCT Configuration](image)

**Changing from Global to Addressable Configuration**

If **Power On Keys** is configured as **Global**, it can later be changed to an Addressable configuration.

1. From the Global/General Settings tab, ensure the Power On Keys feature is checked. This enables the Addressable configuration.
2. The Power On Keys option is now displayed in the General Settings on each set-top box.

**Note:** The original, Global configuration value will be used until the Power On Keys option in General Settings is reconfigured from each set-top box.
Upgrade From AS 3.5 or Earlier

Important: If you are upgrading from a version earlier than AS 3.6, be aware of the following:

- The existing value of **Numeric Keys Power On DHCT** (this includes Power Key Only, Power and Numeric Keys) is retained as the staging parameter value.

- The existing Addressable/Staging>Base Application>**Numeric Keys Power On DHCT** toggle button has been changed to a **Keys Power On DHCT** Combo List.

- The **Power On Keys** option is enabled and set to Addressable (**not** Global) by default.
Configure Power On Channel Options

Some service providers set all of their set-tops to tune to a specific channel (often channel 2) whenever the set-top box is powered on. Other service providers allow their subscribers to choose the channel that they want to see when the set-top box is powered on. These settings are controlled through the Set Up DHCT Configuration window, on the Base Application tab and the General Settings tab.

In SR 4.4.1, you can change the power-on channel that is set for most of your subscribers without affecting the subscribers who have chosen a different power-on channel for themselves.

Configuring Power On Channel Options Globally

Follow these steps to configure the power-on channel feature globally:

1. On the main screen, click Server Applications > DHCT Config. The DHCT Configure window opens.
2. Click Global. The Set Up Global DHCT Configuration window opens.
3. Click the General Settings tab.

**Important:** Do not click Save yet. Once you click Save, your subscribers can no longer specify a power-on channel from the set-top menu. To minimize this disruption, follow these steps as written.

5. Click the Base Application tab.
Chapter 7  Enabling Power On Features

6 Select **Power On Channel Selective Override**. This setting allows you to send power-on channel updates to most of your subscribers without affecting subscribers who have chosen their own power-on channel.

![Options]

7 Use the Power On Channel fields on the Base Applications tab to set the default power-on channel.

8 Click **Save**.

9 Click the **General Settings** tab again, and re-select **Power On Channel**.

10 Click **Save**.

11 Click **Cancel** to close the Set Up Global DHCT Configuration window.

**Configuring Power On Channel Selective By Hub**

If necessary, you can also configure the power-on channel and the power-on channel selective override features differently for individual hubs.

In order to configure the power-on channel options by hub, you must first be sure that the global configuration is cleared. Otherwise, the power-on channel options will not appear on the Hub configuration window.

Follow these steps to configure the power-on channel selective override feature for a specific hub.

1 On the main screen, click **Server Applications > DHCT Config**. The DHCT Configure window opens.

2 Click **Global**. The Set Up Global DHCT Configuration window opens.

3 Click the **General Settings** tab.
4  De-select Power On Channel.

5  Click Save to apply the changes, then click Cancel to close the window.

6  In the DHCT Configure window, click Hub. The DHCT Configure window shows a list of your hubs.

7  Click Select Hub-Specific Items. The Select Hub Specific Items window opens.

8  Click the Base Application tab.

9  Select Power On Channel. This setting allows you to configure the power-on channel options for a specific hub.
Chapter 7  Enabling Power On Features

10 Click Save to apply the changes and close the window.
11 Click Hub, and select the hub that you want to configure.
12 Does the table indicate that the configuration for that hub is hub-specific?
   - If yes, click Edit. The Set Up Hub DHCT Configuration window opens.
   - If no, click New Hub-Specific. The Set Up Hub DHCT Configuration window opens.
13 Click the Base Application tab.
14 Select Power On Channel Selective Override.

Use the Power On Channel fields to set the default power-on channel.
16 Click Save to apply your changes, and click Cancel to close the window.
17 Do you want to allow subscribers to change their power-on channel options from the set-top box?
   - If yes, go to step 19.
   - If no, then you are finished with this procedure.
18 From the DHCT Configure Prompt window, click Global. The Set Up Global DHCT Configuration window opens.
19 Click the General Settings tab.
20 De-select Power On Channel.
21 Click Save to apply the changes, then click Cancel to close the window.
Enabling Tracing on the Application Server

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

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

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- View the Log Files............................................................. 95
Enabling Logging

**Important:** If you set your logging levels too high, you could raise your Application Server load levels to unacceptable levels. You should only adjust these logging levels if you are troubleshooting a specific problem.

Using the `applogLvl` Utility

You can use the `applogLvl` utility to view and change logging levels from a command line on the Application Server as `dncs` user in order to support troubleshooting activities. Execute these commands from the `/dvs/appserv/bin` directory.

The following commands are available:

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>applogLvl</code></td>
<td>Displays the current logging level for all processes.</td>
</tr>
<tr>
<td><code>/export/home/dncs&gt;applogLvl</code></td>
<td></td>
</tr>
<tr>
<td><code>appUIsServer</code></td>
<td>+EM +AL +CR +ER +WA -NO -IN -DE -PE -PI -ZIP</td>
</tr>
<tr>
<td><code>HCT</code></td>
<td>+EM +AL +CR +ER +WA -NO -IN -DE -PE -PI -ZIP</td>
</tr>
<tr>
<td><code>ipgServerEng</code></td>
<td>+EM +AL +CR +ER +WA -NO -IN -DE -PE -PI -ZIP</td>
</tr>
<tr>
<td><code>applogLvl &lt;processname&gt;</code></td>
<td>Displays the current logging level for the specified process.</td>
</tr>
<tr>
<td><code>/export/home/dncs&gt;applogLvl ppvServer</code></td>
<td>ppvServer +EM +AL +CR +ER +WA -NO -IN -DE -PE -PI -ZIP</td>
</tr>
<tr>
<td><code>applogLvl &lt;processname&gt; +&lt;level&gt;</code></td>
<td>Turns on a logging level for the specified process.</td>
</tr>
<tr>
<td><code>/export/home/dncs&gt;applogLvl ppvServer +NO</code></td>
<td>ppvServer +EM +AL +CR +ER +WA +NO -IN -DE -PE -PI -ZIP</td>
</tr>
<tr>
<td><code>applogLvl &lt;processname&gt; -&lt;level&gt;</code></td>
<td>Turns off a logging level for the specified process.</td>
</tr>
<tr>
<td><code>/export/home/dncs&gt;applogLvl ppvServer -NO</code></td>
<td>ppvServer +EM +AL +CR +ER +WA -NO -IN -DE -PE -PI -ZIP</td>
</tr>
<tr>
<td><code>applogLvl -h</code></td>
<td>Provides a help output for the <code>applogLvl</code> utility.</td>
</tr>
</tbody>
</table>
View the Log Files

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

- The files in /var/log/dncsLog only contain error messages and process start/stop messages. The Application Server automatically deletes these log files after three days.
- The files in /dvs/appserv/tmp contain all of the process output that is captured. The Application Server automatically deletes these log files after seven days.

The Logger Utility

The Application Server includes a utility called Logger that manages the size, name, and placement of the log files in the /dvs/appserv/tmp directory.

Logger creates a new log file for each traced process every day or when the previous log file reaches a pre-determined size; these log files are stored for seven days.

When Logger creates a new log file, it closes and compresses the old file using the gzip utility, which renames the compressed file to include a .gz extension.

Viewing the Log File

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

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

Log File Naming Conventions

Log files for individual processes are stored in the /dvs/appserv/tmp directory. The file name of the log for an individual process is the name of the process followed by a 3-digit counter. For example, the file name for the ppvServer log might be ppvServer.000. After this log file reaches the maximum size, a new file called ppvServer.001 will be created.
Customer Information

If You Have Questions

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

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