

PRODUCT BUILDER

2.x.x

User Guide

ISSUE 2.0

INFORMATION MANAGEMENT SYSTEM

EMC

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Acronyms and abbreviations

Term	Definition	Description
BST	British Summer Time	See DST in this table
cf.,	<i>confer</i> , compare	
CA System	Conditional Access System	
DST	Daylight Saving Time	cf., Glossary
E.g.,	Exempli gratia	For example...
EPG	Electronic Program Guide	cf., Glossary
GUI	Graphical User Interface	cf., Glossary
I.e.,	Id est	That is ...
IMS	Information Management System	cf., Glossary
NASPSID		CAS information linked to a service
NB.	Nota bene	Means "Note".
no., nos.,	Number, numbers	
PBL	Product Builder	The application described in this guide
PPV	Pay Per View	
PPVNB		CA System information linked to a program
SC	Shared Content	Items shared between more than one Product
SMS	Subscribers Management System	
TBW	To Be Written	Indicates this document is an advanced issue (i.e., further information is intended in a future issue).
V	Version	Software Version No.

Table 1 Acronyms and abbreviations

For your notes

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1. Introduction

This document provides guidance to use the NagraVision Product Builder (PBL) application (Software Version 2.x.x or later)¹. PBL is an application that runs in windows, under a Windows 95 or Windows NT 4.0 environment, which is used in conjunction with a NagraVision Conditional Access System (CA System).

The role of the Product Builder is to automatically generate the authorization information (Rights) that will be sent accordingly to the user smart card of a subscriber(s) based on the logical specification of a *product*. Where a *product* is defined as a set of program items and/or service items that are combined for sell as one complete item. (Also see § 3.1 p 13).

PBL is designed to permit a person with a minimum of system knowledge to design products through an easy to use Graphical User Interface (GUI).

1.1 Audience

This guide is directed at persons that have a basic understanding of the following:

1. the NagraVision CAS
2. Pay TV terminology
3. Window's terminology and GUIs
4. Use of Windows

1.2 How to use this guide

To use PBL you do not need to read this guide from cover to cover—because some information is only reference material, therefore depending on your needs make your choice from the following list:

- *Strongly recommended*—PBL: Principles, concepts and definitions, see § 3 p 21.
- Quick start—Building simple products, see § 2 p 15.
(NB. Also covers: Product & domain deletion and Publishing...)
- Preferences and general use (E.g., Default settings & common operations) § 4 p 37.
- Tools (E.g., Calendars, Finder, Operation log, etc.), see § 5 p 39
- Editors (E.g., Domain, Generators, PPV, Subscription etc.), see § 6 p 49.
- Building advanced products, see § 7 p 61.
- Troubleshooting, see § 8 p 63.
- Maintenance, see § 9 p 65.

Note

- This guide assumes that Product Builder has been installed.
- Some details of PBL windows are not described because the GUI is self-explanatory.

¹ Up issues of this document will accompany PBL.

1.3 Further reading

- [1] Product Builder Overview.
- [2] Windows User Guide (e.g., Documentation supplied with your operating system).

1.4 Conventions used in this guide

1.4.1 For windows

Item	Description
Menu commands	In bold type : e.g., Select Save .
Field names, radio buttons and check boxes	In bold type : e.g., Select the Needs publishing check box.
Items selected in a list box	Items selected are shown: e.g., inverted
Unselected items appear normal (I.e., non-inverted)	Items unselected are shown without any treatment.

1.4.2 Pull-quotes

CAUTION

Provides information to avoid: Undesirable effects or indication that an operation or action could give unexpected results or is irreversible or unrecoverable event (e.g., data loss etc...).

Important

Indicates: information that must not be ignored when carrying out some task(s).

Note

Indicates: further information, advice or exceptions etc...

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Provides information by way of a "TIP" to carry out a task more effectively or efficiently.



Indicates advice, which if not observed may result in injury and/or equipment damage.

2. Quick start

2.1 Introduction

This chapter provides you with the basics to build simple products. However, be aware that although this may seem an easy approach they are pitfalls—So please see **CAUTION**:

CAUTION

It is ***strongly recommended*** that before building products, you read and understand: Shared-content and publishing (See § 3 “Principles” p 21). One reason for this is that PBL can only warn of certain problems with your data when you attempt to publish a product. Hence, ignoring this caution means you may have to rework your data or delay product availability.

2.2 How to build Pay Per View & Subscription products

2.2.1 General

Pay Per View (PPV) and Subscription products use similar procedures.

2.2.2 Pay Per View products

To make a new PPV product requires that you use the Pay Per View product editor (See § 6.6 p 54). This editor is started from any **Finder** window, from the **File** menu, then **New** submenu and **Pay Per View** command. The PPV editor window will appear named “* New Pay Per View”, where the “*” (asterisk) means that the data in the window is not saved—enter a meaningful name in the **NAME** field.

Enter any comments that you think useful about this product in the **Notes** field (NB. This field is freeform, i.e., any alphanumerical data).

Enter a number of your choice in the **Customer ID** field (Mandatory):

- 1 – 9,999,999 for an impulse product.
- 10,000,000 – 999,999,999,999 for a non-impulse product.

If you have bouquets named (Right-hand-side of editor towards the top) and want this product included, click the check box to the right of the **Bouquet** name (or names) accordingly (A check mark will appear).

Modify **Saleable between & and** fields for the period that the product will be available for sale.

Enter **EPG Name** and **EPG Price** (NB. EPG stands for “Electronic Program Guide”).

If this is intended to be an impulsive product check the **Impulsive product** check box (NB. Remember this affects the number range requirement for the **Customer ID** field).

Click on the **Calendar** icons to set the **Begin** and **End** times for the PPV event.

Now switch to a **Finder** to search for the PPV event (Select **PPV event** on the Finder's drop-down list) you need to have in this product. Select the event in the list and copy it (From **Edit** menu, select **Copy** command). Now switch back to the PPV editor and paste (From **Edit** menu, select **Paste** command) the event into the list at the bottom of the window.

Now save: From **File** menu select the **Save** command.

2.2.3 Subscription products

To make a new Subscription product requires that you use the Subscription product editor (See § 6.5 p 53). This editor is started from any **Finder** window, from the **File** menu, then **New** submenu and **Subscription** command. The Subscription editor window will appear named “* New Subscription”, where the “*” (asterisk) means that the data in the window is not saved—enter a meaningful name in the **NAME** field.

From here on the procedure is similar to that required for a PPV product (see § 2.2.2, except read “PPV” as “Subscription”). NB. Fields that are not applicable to Subscription products appear grayed.

2.3 Working with Domains

2.3.1 General

A domain is the environment in which generators (see § 2.4 p 17) are created to build products from the services set up by you.

2.3.2 How to create a domain

Start from any **Finder** window. On the **File** menu, select **New** submenu and then **Domain** command. A new **Domain** editor window will appear named “* New Domain”, where the “*” (asterisk) means that the data in the window is not saved—enter a meaningful name in the **NAME** field.

Enter the time interval for the domain using **begin** and **end** fields (NB. Use the **calendar** buttons associated with each field for ease).

Specify the list of services covered by the domain using a copy & paste or drag & drop operation between the Service Finder and the Service list in the top-right-hand side of the domain editor window.

Now save: From **File** menu select the **Save** command (NB. The asterisk disappears from the domain's name).

2.3.3 How to delete a domain

Start from any **Finder** window and select **Domain** from drop-down list (Located centrally placed towards the top of the window). Start a find for the domain in question and then select it from the **found** list.

On the **Edit** menu select the **Delete** command: An operation log appears, that provides gives the status of each stage of this (possibly lengthy) process. When the process finishes a prompt appears for confirmation to complete or cancel the operation.

2.4 How to create generators

2.4.1 General

You create generators within the named domain where you wish to use them (i.e., To work in an existing domain open it from the Finder or when starting new—see § 2.3.2 “How to create a domain” p 16).

2.4.2 All-day by service generator

In the domain editor, on the **Generator** menu, select **New All Day By Service** command. A new all-day by service generator appears in the generator list at the bottom left of the window. (NB. Double-click the name if you wish to change it.)

For the generator’s details, click its name and these will appear to the right of the generator list. (NB. To the right of this is a list box that contains the products built by the generator.)

Edit the default period of time covered by the generator if you wish (Also see note). Then add services to the list of services to be covered by the generator using a copy & paste or drag & drop operation between the domain's service list and the generator’s list.

Note

1. If the product duration is changed one-day it will have the effect of transforming this generator into a Multi-hour Series generator.
2. The message “Event boundaries will not be checked” is normal for all-day by service generators (NB. The reason for this is beyond the scope of this chapter).

If you wish, you may change the product’s default price (NB. The default price is set in **Preferences...** submenu, from the **Tools** menu).

Now save: From **File** menu select the **Save** command.

Now generate products: On the **Generator** menu select the **Generate** command. The products that are generated will appear in the product list, where if you wish you could modify the price and name.

Now use **Save** command to accept the products or **Revert To Saved** command (On **File** menu)—If you wish to cancel the operation.

2.4.3 All-day by title generator

In the domain editor, on the **Generator** menu, select **New All Day By Title** command. A new all-day by title generator appears in the generator list at the bottom left of the window. (NB. Double-click the name if you wish to change it.)

For the generator’s details, click its name and these will appear to the right of the

generator list. (NB. To the right of this is a list box that contains the product built by the generator.)

You can adjust the period of time covered by the generator slightly for DST or start of broadcast day—To do this check the **user adjusted** check box.

If you wish, you may change the product's default price (NB. The default price is set in **Preferences...** submenu, from the **Tools** menu).

In the **Event Title** list box select a title for the product. (NB. If there are no titles listed it means that no events are currently available for period the generator is set to.

Now save: From **File** menu select the **Save** command.

Now generate the product: On the **Generator** menu select the **Generate** command. Only one product will be generated and it will appear in the product list, where if you wish you could modify the price and name.

Now use **Save** command to accept the products or **Revert To Saved** command (On **File** menu)—If you wish to cancel the operation.

2.4.4 Multi-hour series generator

In the domain editor, on the **Generator** menu, select **New Multi Hour Series** command. A new multi hour series generator appears in the generator list at the bottom left of the window. (NB. Double-click the name if you wish to change it.)

For the generator's details, click its name and these will appear to the right of the generator list. (NB. To the right of this is a list box that contains the products built by the generator.)

Edit the default period of time covered by the generator if you wish.

Select the product duration from **Product duration** drop-down list (Also see note).

Add services to the list of services to be covered by the generator using a copy & paste or drag & drop operation between the domain's service list and the generator's list.

Note

3. If a one-day duration is set it will have the effect of transforming this generator into an all-day by service generator.
4. The event boundaries will be checked. If an event is outside of the boundary you will be warned with a prompt to include or to exclude the event from the product.

If you wish, you may change the product's default price (NB. The default price is set in **Preferences...** submenu, from the **Tools** menu).

Now save: From **File** menu select the **Save** command.

Now generate products: On the **Generator** menu select the **Generate** command. The products that are generated will appear in the product list, where if you wish you could modify the price and name.

Now use **Save** command to accept the products or **Revert To Saved** command (On **File**

menu)—If you wish to cancel the operation.

2.4.5 Single-event generator

Only one single-event generator exists in a domain and it is automatically created by PBL. (NB. Double-click the name if you wish to change it.)

You can adjust its price if you wish.

Now generate products (See **CAUTION**): On the **Generator** menu select the **Generate** command. The products that are generated will appear in the product list, where if you wish you could modify the price and name.

CAUTION Only run this generator after you are sure that you have completed building products with all the other generators in the domain.

2.5 Publishing products

2.5.1 General

To make a product available for sale it has to be published. The procedure is similar for products in a domain or individually (e.g., PPV or Subscription products). Depending on your needs see:

- § 2.5.2 “How to publish products built in a domain” p 19
- § 2.5.3 “How to publish PPV & Subscription products” p 19

Note You may make some types of modifications to published products. However, you must republish the product to make the changes available in the product currently up for sale.

2.5.2 How to publish products built in a domain

From a Finder select **Domain** on the drop-down list. If you know the name enter it in the **Name** field, click **Find** button.

Click the domain you wish to publish from the found list.

To publish, from the **File** menu select the **Publish** command. An **Operation log** window appears displaying the publishing operations and their status (this may take some time).

When the operation completes click the **Confirm** button to accept the operation or click **Cancel** button to reject the operation.

2.5.3 How to publish PPV & Subscription products

From a Finder select **Product** on the drop-down list. Select **Pay Per View** (or **Subscription** accordingly) on the **Type** drop-down list. If you know the PPV (or subscription) name enter it in the **Name** field, click **Find** button.

Click the PPV product you wish to publish from the found list.

To publish, from the **File** menu select the **Publish** command. An **Operation log** window appears displaying the publishing operations and their status (this may take some time).

When the operation completes click the **Confirm** button to accept the operation or click **Cancel** button to reject the operation.

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3. Principles

The main purpose and aim of the NagraVision Product Builder application is to simplify the definition of products, without the need for in-depth system knowledge. This application does achieve its aim with the exception of the Right product type that by its very nature inherently requires advanced system knowledge.

3.1 What is a product?

A product within the context of a pay-TV system, is the management of permissions (rights) grouped together to provide an end-user or subscriber access to specific streams of program material, whether this material be audio, visual or audio-visual. This can also be extended and adapted to offer additional items in line with typical commercial practice: E.g., attaching service bonuses like pizzas, communication products (telephones), magazines, circulars etc.

The basis of this system is the management of these streams through the encryption of the original signal. This is done in such a way, that an end-user can receive program material by the use of a smart card and a purpose-built decoder.

3.2 Product types— Summary

Product	Description	Comments
Single-event and Multi-event	<p>A Single-event product is supplied containing only one service or program item.</p> <p>A Multi-event product is supplied:</p> <ul style="list-style-type: none"> • All-day by service • All-day by title across multiple services • Multi-Hour Series by service 	<p>These products are automatically built with user settable generator tools within a PBL domain. Where a domain is set-up by a user to cover a period of broadcast material from one (or more) service and its events.</p> <p>NB. Many non-overlapping domains can be created.</p> <p>– See § 3.3 p 22 for details.</p>
Pay Per View	A Pay Per View (PPV) product is supplied as a set of Programs/Items).	<p>A package product</p> <p>– See note.</p>
Right	A Right product is supplied with services, programs or both.	A versatile product, which requires an in-depth working knowledge of the system.
Season ticket	A season ticket is a product that has specific collection of events, e.g., the games played by a particular club during a season.	<p>A customizable collection of events across one or more services</p> <p>– See § 3.4 p 27 for details.</p>
Subscription	A Subscription product is supplied as a group of Services (Items).	<p>A package product</p> <p>– See note.</p>

Table 2 Product types—Summary

Note

Both Subscription and PPV products are package products, that is, products that are supplied with multiple items within a single package. Since the management of these two product types is essentially the same, no distinction is made between them in this guide.

3.3 Domains and product generators

CAUTION

Before publishing products from domains you must first build and load other product types into the IMS database (e.g., Season Tickets).

3.3.1 Overview

The concept of PBL domain (described in § 3.3.2) was conceived to ease the day-to-day management of product building. In particular this concept reduces the amount of labor required to enter product data by automatically building particular products types from a given period of broadcast material (i.e., single/multi-event—see Table 2).

Furthermore, this concept incorporates a checking system that warns when potential problems arise from users' work. Hence helping users avoid committing erroneous information in to the system or from spending too much time working in error.

How the PBL domain concepts improves productivity and the efficiency:

1. A user is able to focus on building products for particular periods (e.g., weekdays, weekends, special holidays ...)
2. Certain parameters can be duplicated from an existing domain in to a new domain, which gives a measure of consistency—hence reducing errors. Furthermore, for regular events these can be copied over and reduce the amount of work required, as well as minimizing errors.
3. At the end of a user can build session single products automatically from unused services or event. Thus ensuring that any event that has been overlooked is made available to the subscribers.

3.3.2 Domain described

The PBL domain can be described as environment that contains tools (Product generators see § 3.3.3) to automatically build products from a given period (time interval) of broadcast material. Where the domain broadcast material consists of a service or services and where different products are built to specification of a corresponding generator.

PBL provides four types of product generators for use in a domain. One generator is automatically created (single-event) by PBL and the others are only created by command of the user. PBL does not limit the number of generators that can be created in a domain. Furthermore, a generator can be set to operate over a differing time intervals and services provided within a domain. Hence, PBL provides flexibility to build a variety of products.

The domain concept requires some rules:

1. A service or event in any domain can only being sold by one product at a time (See note). This avoids duplication and overlap of product definitions.
2. A domain may not overlap with another domain.
3. Where the product type permits an event to run across the boundaries of one or more domains it is by definition only associated with the domain that covers the beginning time of the event.

Note

Season tickets are an exception. I.e., It is permitted to include events in products of this type from outside of the domain.

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To put the domain principle into context Fig. 3.1 and Fig. 3.2 cover the same period of broadcast material. Where Fig. 3.1 covers the period with a mix of multiple domains and other products and Fig. 3.2 showing one domain covering six non-contiguous services.

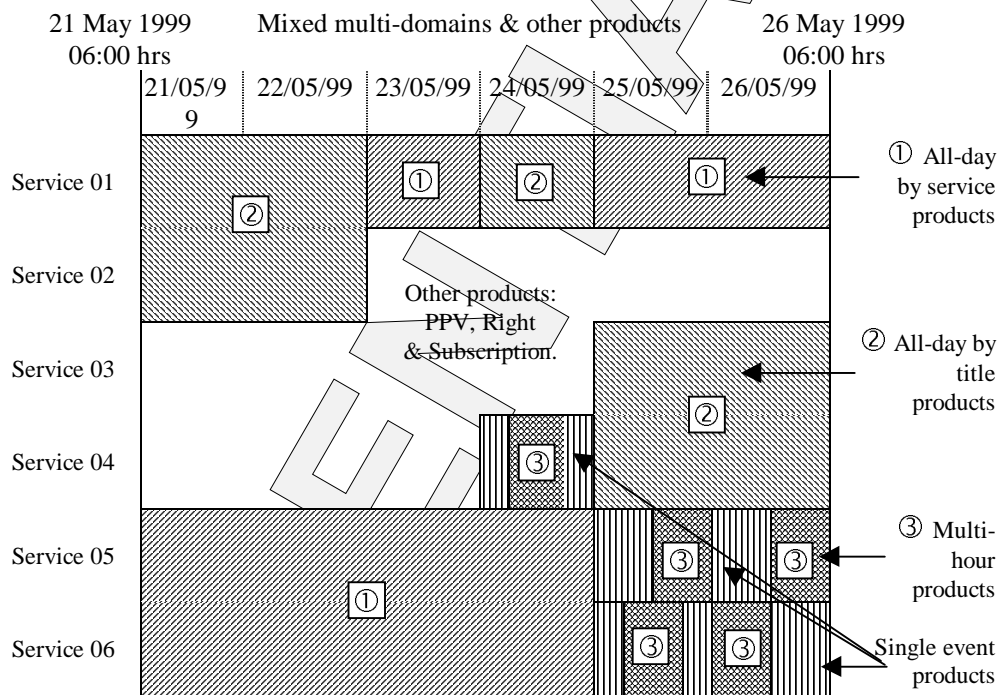


Fig. 3.1 Mixed multi-domains & other non-generated products

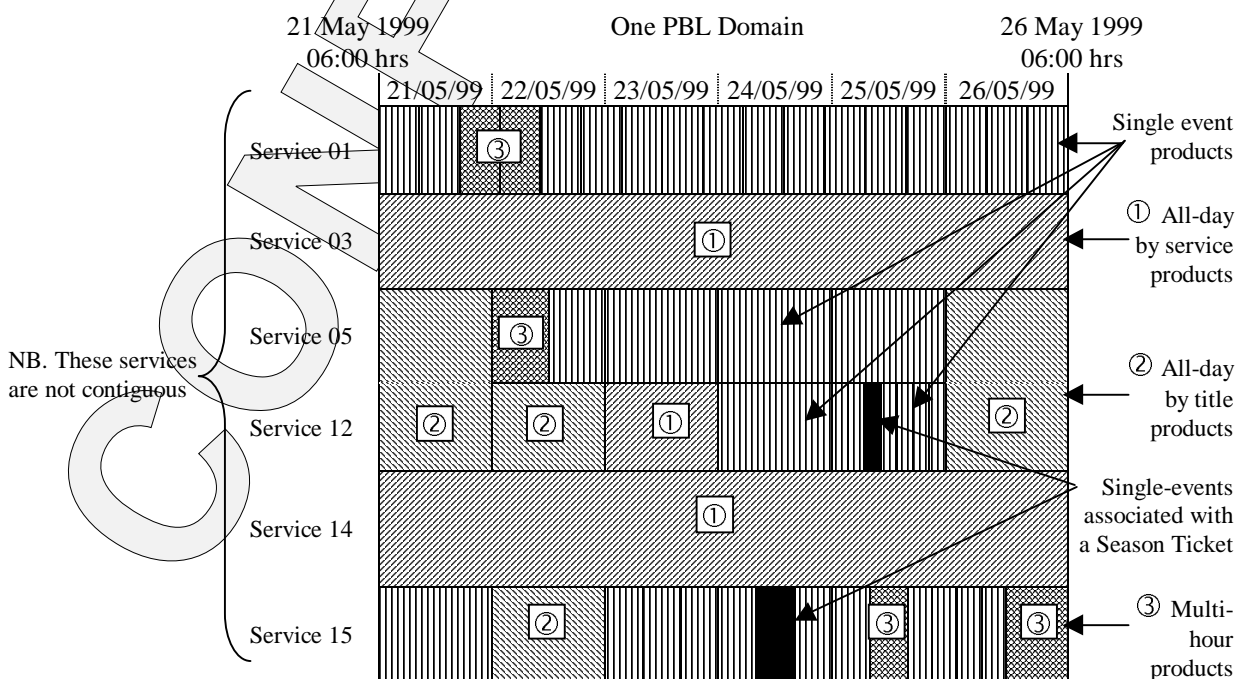


Fig. 3.2 Products generated in a single domain

Note

In Fig. 3.2 combinations of other PBL domains or PBL product editors (i.e., PPV, Subscriber or Right) could be managing services 02, 04, 06-11 and 13, or be pending user assignment.

3.3.3 Product generators described

Overview

All product generators are the tools that automatically build products to particular user specifications within a named PBL domain (Also see § Fig. 3.1 and Fig. 3.2). There are four types of generators available that can be adjusted to suit the product requirements within each PBL domain.

All-Day by Service products generator

An all-day by service product generator builds products that sells all the events within a one day period (default) on one service (Also see § Fig. 3.2). A generator may also be used to include more than one service, however, only one product will be built for each additional service.

For flexibility the generator can be adjusted by one day periods to cover more than one day when used in a domain that covers multiple days and furthermore, more than one generator of this type can be included in a domain. Thus providing the capacity to make common products by weekdays and weekends for example.

All-Day by Title products generator

An all-day by title product generator builds a product that sells all the events with the same specified title (e.g., A film title, a series or soap opera...) within a one day period (default) on one or more services (Also see § Fig. 3.2).

For flexibility the generator can be adjusted to cover more than one day when used in a domain that covers multiple days and furthermore, more than one generator of this type can be included in a domain. Thus providing the capacity to make common products by weekdays and weekends for example.

Multi-hour series products generator

A multi-hour series product generator builds products that sell all the events that fit exactly within a 1-hr or 2/3/4/6/12-hrs period (See note) on one or more services (Also see § Fig. 3.2).

A warning is given when an event does not fit exactly into the boundaries of the period set (This could occur when the events of a service do not align with the period of the generator—or an incorrect duration was entered). In this case the solution is either to adjust the multi-event time period include the event or to leave the event to be included within the range of single-event products (see later).

For flexibility the generator can be adjusted to cover more than one day when used in a domain that covers multiple days and furthermore, more than one generator of this type can be included in a domain. Thus providing the capacity to make common products by weekdays and weekends for example.

Note

This generator also provides an option to adjust its period to one day. Which by definition

will transform the generator into an all-day by service product generator.

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Single-event products generator

A single-event product generator builds products that sell only one event (See Fig. 3.2). Its use is to build products from the events not used by all the other generators within the domain. Hence it ensures that no event from the available broadcast material is left unavailable to the subscribers.

By definition one generator of this type must exist in a domain therefore it is automatically created by PBL. Also because only one generator of this type is needed in a domain—no provision is made to create another.

Furthermore, because of its purpose this generator must be run after the work is completed with all the other generators within the domain.

3.3.4 Time period defaults and time presentation

For convenience a domain (and all its generators—except for the single-event type) have user configurable defaults for its start and duration. However, for flexibility the domain can be fine-tuned to take into consideration Daylight Saving Time (DST) or changes to the normal start/end of the broadcast day. Furthermore, to avoid confusion the user has time information presented in local time, adjusted accordingly to incorporate DST.

3.4 Season ticket products

CAUTION

Always build season tickets before you commit the events for the ticket to the IMS database.

A season ticket is a customizable product that contains a collection of events over one or more services. This product by definition is not impulse-purchasable, although the events that are included with ticket could be single-event impulse products.

Note that care has to be taken when building this type of product requires ensuring that the *event capacity* allocation is sufficient to include additional events in the future. For example a series of games could be extended that require additional events (e.g., when a game results in draw or game is suspended because of weather conditions, where in both cases another game is scheduled to be included in the series).

3.5 Shared Content—Items assigned to more than one product

Items can be assigned to more than one product at a time, thus creating Shared Content (SC) between particular products. This makes items available to more than one product at the same time and consequently a particular item cannot be assigned to more than one SC; nor can a SC include SC. An example of the latter is shown in Fig. 3.3.

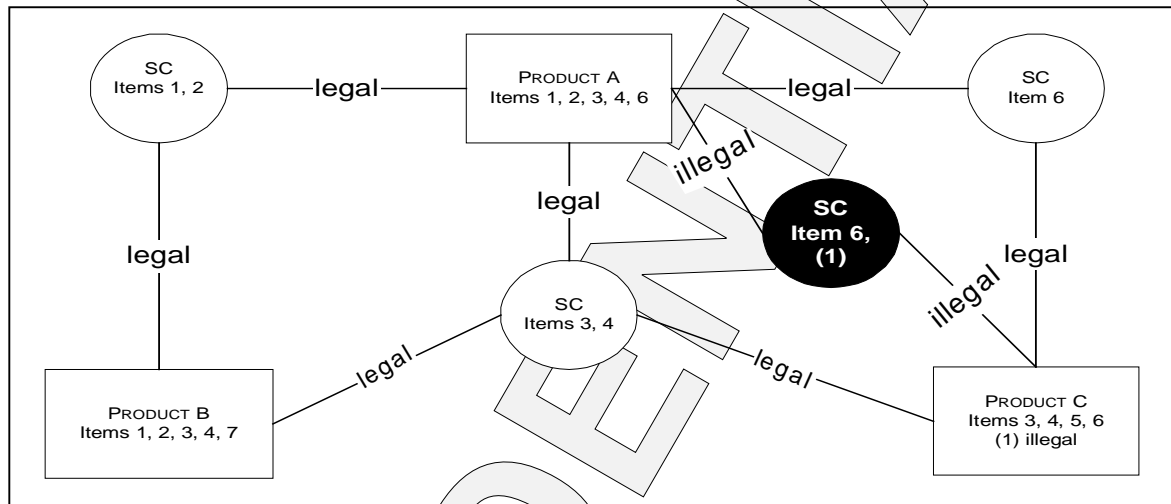


Fig. 3.3 Products with “Shared Content” (legal & illegal)

3.6 Product capacity—Maximum No. of items per product

3.6.1 General

Each product has a capacity that limits the maximum number of items that it can contain following its publication (i.e. for the duration of its life span). This can be set explicitly by you or computed implicitly by the PBL when the product is created. Also, see § 3.6.3.

3.6.2 Shared content

The general case of product capacity also applies to Shared Content. Likewise, this can be set explicitly or computed implicitly. Also, see § 3.6.3.

3.6.3 Products with Shared Content (SC)

A product's capacity includes the capacity of any shared content. Referring to Fig. 3.3, assume that: Products A, B and C have a capacity of 10, 8 and 20 respectively. Now given that “A” has as shared content of 2 items with “B”, 1 item with “C”, and 2 items with “B” and “C”; Then “A” can contain 5 items for exclusive sell (i.e., $10 - 2 - 1 - 2 = 5$). Similarly for: B ($8 - 2 - 2 = 4$) and C ($20 - 2 - 1 = 17$).

3.7 Product life cycle

A product can assume a number of states during its life cycle, from being created at the start, through publication, modification and republishing, and finally deletion when it has no further use. Each state and operation may have prerequisites and/or limitations, all of which need to be understood to manage products effectively.

A product has two basic states to be operated on “published” and “unpublished”. Each of these states, have similar operations available (e.g., Attribute modification, adding and removing items...) with differing effects and limitations or prerequisites—these are described in the following subsections.

Publishing (See § 3.7.3 p 32) a new product or republishing a product may have a major effect on the operations that can be carried out; therefore it is recommended that you ensure that your requirements are fully considered and implemented before publication.

3.7.1 States & Operations

A product's states and their corresponding operations are summarized in Fig. 3.4.

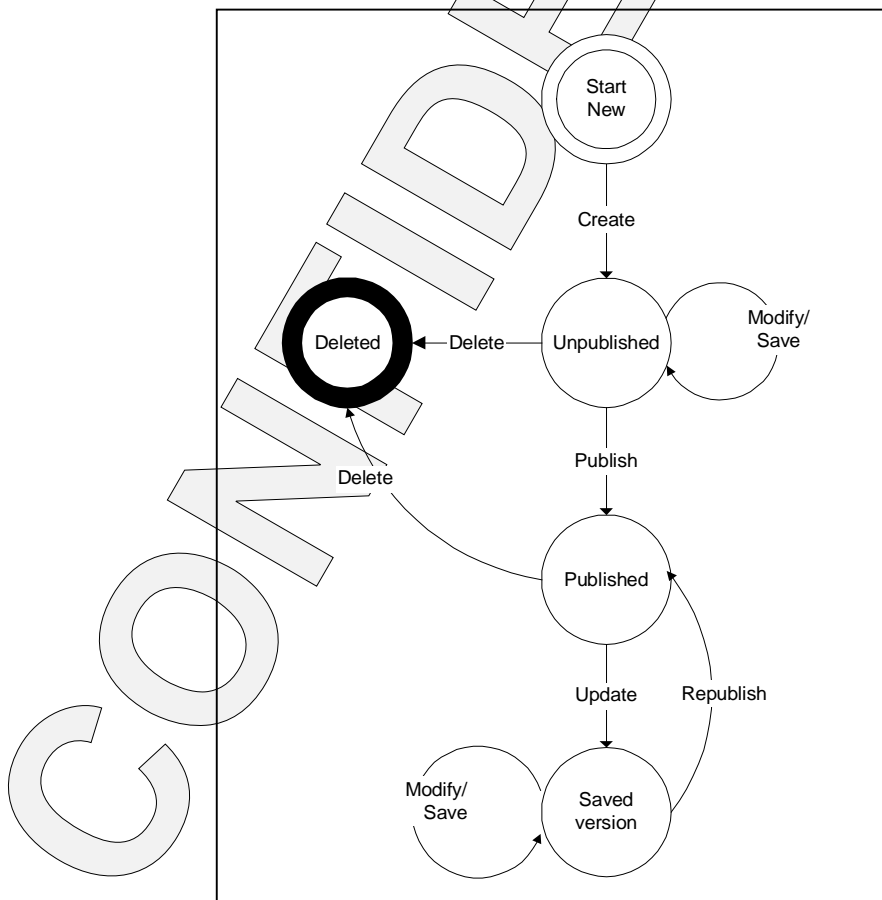


Fig. 3.4 Product life cycle

Note

Updating a published product creates an instance of the product called “saved version”,

which will replace the current product when successfully published (i.e., its republication).

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3.7.2 Operations on an unpublished product

General

All types of edits and modifications can be made on an unpublished product.

Attributes' modifications

No restriction is applied to the resetting or modification of a product's attributes, i.e., Name, Sale Period, EPG info, notes, capacity, validity period, bouquet selections and 'Allow PPV Access' flag.



Manually setting the capacity is useful when item(s) that will be sold by the product are currently unavailable in the database. This technique reserves space for items for subsequent addition to a published product, as and when they become available.

Adding items

There are no restrictions to adding an item(s) to the list of items sold by the product. The addition automatically extends the product's capacity.

The same items can be added to more than one product, the implications of these multiple inclusions will only be taken into account at publication.

Adding an item that is sold by another published product is possible and will define a new-shared-content between the unpublished product and the published one. However, keep in mind that this operation may require a large number¹ of rights to be assigned to the new product.

Removing items

There are no restrictions to removing an item sold by the product. The implications of removing an item that is sold by another product will only be taken into account at publishing time.

Deletion

An unpublished product can be deleted at any time.

Operations on unpublished shared contents

Shared contents connecting unpublished products can be edited.

¹ No limit is applied to the number of rights, although three is considered the maximum.

3.7.3 Publishing overview

Publishing is the operation that validates a product's definition (i.e., Subscription, PPV or Right) and makes it available for transactions in the system.

Due to the design of the system, once a product is published, some constraints are enforced on subsequent modifications.

Whether a modification is allowed on a published product can be determined using this rule of thumb: if the modification implies a modification of a product's associated rights—then the modification cannot be applied. The reason for this is that once a product is published, it is considered sold, and its associated rights may already have been sent to the smart cards of the users who subscribed to it. Modifying these rights would imply that the rights are resent to each and every individual subscriber—this must be done by the Subscriber Management System (SMS), which is costly.

If a published product is modified, it has to be republished in order to make the modifications active. Whether the new publication succeeds or not depends on the particular case; this is clarified in the subsections later, i.e., by describing modifications to a distinct product state and its corresponding effect on the publishing operation. Publishing related products: products that sell the same items are always published together to ensure the integrity of the operation. Thus publishing a product will automatically publish the products it is related to, directly or indirectly (if product A is related to product B and B to C, then A, B and C will be published together).

3.7.4 Operations on a published product

General

Modifications on a published product are restricted to those operations that do not imply a change in the generated rights of the product or one of the products related to it.

Attributes modifications

The following can be modified: **Name**, **Sale period**, **EPG info**, **Bouquet** selection and product **Notes**.

The following cannot be modified: **Capacity** and '**Allow PPV Access**' flag.

Note

The validity period can be modified, with the implication that a special message has to be generated for broadcast to all smart cards (NB. Not implemented yet).

Adding items

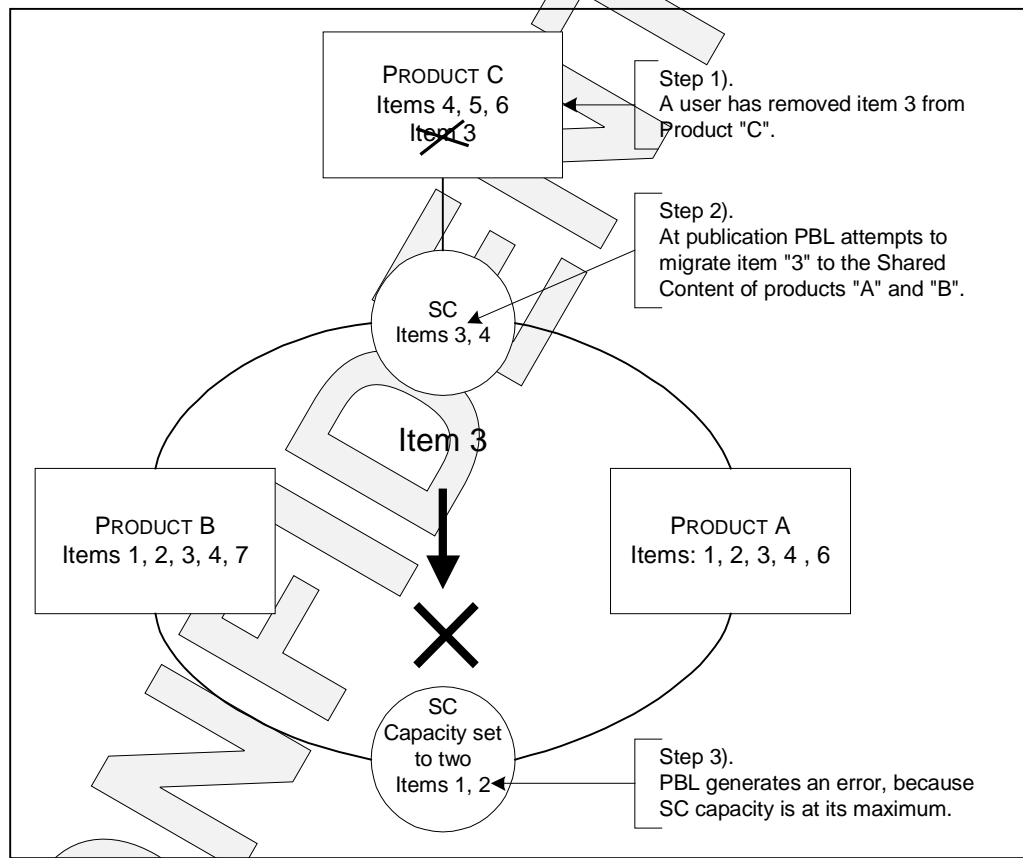
There are no restrictions to adding items if the maximum capacity of the product is not exceeded. Also adding the same item to more than one product is permitted within the limit set for the products' shared content (See note later).

Note

This limit will not be checked until publication due to a restriction of the current interface.

Removing items

There are no restrictions to removing items **Up for sale** by a product. However, the result of removing an item will only be taken into account at publication.



CAUTION

Adding (or removing) an item that belongs to more than one product could imply that a shared content item(s) has to be moved to another shared content. This may cause an error(s) at publication (See Fig. 3.5, when item 3 is removed from Product 'C' PBL generates an error).

Fig. 3.5 How an error is correctly generated when removing a SC item

Deletion

Deleting a product can be done at any time, rendering it instantly unsaleable and without shared items, it is deleted from the database. If it does share items, it is marked for deletion, leaving it visible to PBL, but uneditable.

A product marked for deletion is only completely deleted when the product(s) with which it shares an item is directly or indirectly marked for deletion.

Operations on published shared contents

Shared contents connecting published products cannot be edited.

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3.8 Product management

PBL in itself should not present you with too many difficulties if you understand how you are going to manage your products. As a rule when designing products, keep in mind future requirements or potential changes to your products. This requires that you consider and have a clear understanding of your marketing requirements in advance of publishing your products in the Conditional Access System (CAS).

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4. Preferences and general use

This chapter describes the general use of PBL: data entry management, data output sort order and its windows operations.

4.1 Preferences set up

You can set up your preferences by selecting from any **Finder** window's **Tools** menu the **Preferences...** command. Selecting this command makes the **Preferences** dialogue box appear. This dialogue box is self-explanatory and offers the following:

- Invalid event detection (By information contained in an event's title).
- Products' prices defaults.
- Domains' time related defaults (I.e., Start of day and duration).

4.2 General Windows operations

PBL uses the common Windows operating principles, for example:

Use of mouse and keyboard to switch windows and to select the features of the PBL.

Selection of items in list boxes: Using mouse, keystrokes and/or mouse and keystroke combinations. For multiple-selections, hold Shift key and click on required items.

Cut, Copy & Paste and drag & drop. Use these methods to save time and increase accuracy when working with data between windows.

4.3 Menu commands

4.3.1 Save versus Revert to Saved

The command **Save** writes modifications to the database.

The command **Revert to Saved** discards all edits since a **Save** command was issued or all the edits made in the current session of the editor window that is active.

Note

As a safeguard against inadvertent actions, unintended loss of previous settings (or new modifications) or accidental deletion of item(s), a prompt for confirmation will appear—providing the possibility to cancel, or to continue with the operation.

4.3.2 Window title bar: Changed data indication (*)

When data is changed the window's name in the title bar is prefixed with an asterisk. E.g., If the name was 'BBC' it would change to '* BBC' (when data entry or changed modification has been successful. The asterisk disappears when the data is saved (I.e., following the use of the **Save** command).

4.4 Data management

4.4.1 General

Checking the integrity of data is an important aspect of the management of a database. The PBL ensures (when possible) that erroneous data is filtered out and an error message generated when data is entered in to a field. Furthermore, during publishing operations before submitted updates to the database.

4.4.2 Entry

Data fields

There are distinct types of data entry fields:

1. Alphanumeric
2. Date
3. Date and time
4. Numerical

Data checks and error messages

When data is entered PBL checks its integrity when a User attempts to move to another field or leave the field, to perform some other action. If the data is incorrect, a dialogue box will appear indicating the nature of the error.

Wildcards (Alphanumeric string substitution)

The purpose of wildcards (asterisks "*" and question marks "?"), is a labor saving tool to permit a search for items with similar structure, i.e., to find a group of items in the Finder (See Fig. 5.6 p 46). Wildcards are restricted in PBL to any alphanumeric field (e.g., **Name & Short Name**) For example, entering "BBC*" in a **Name** field will make a search all items whose **Name** starts with "BBC"; Similarly for "B?C*" using "?" as a character substitute.

4.4.3 Output

In list box views items are sorted in ascending numeric or alphanumeric orders in the left-hand column in list boxes.

5. Tools

This chapter describes the Product Builder User “tools” and their respective functions.

Note: See § 6 “Editors” p 49, for details on product editors, domain editor and product generators.

5.1 Calendars

On many editors and domain generators a pop-up calendar (See Fig. 5.1) is provided for consistent and less error prone entry of date and time information. A calendar appears with a click on a **calendar** icon button. These icons have been logically placed adjacent to the date/time field to which they are associated.

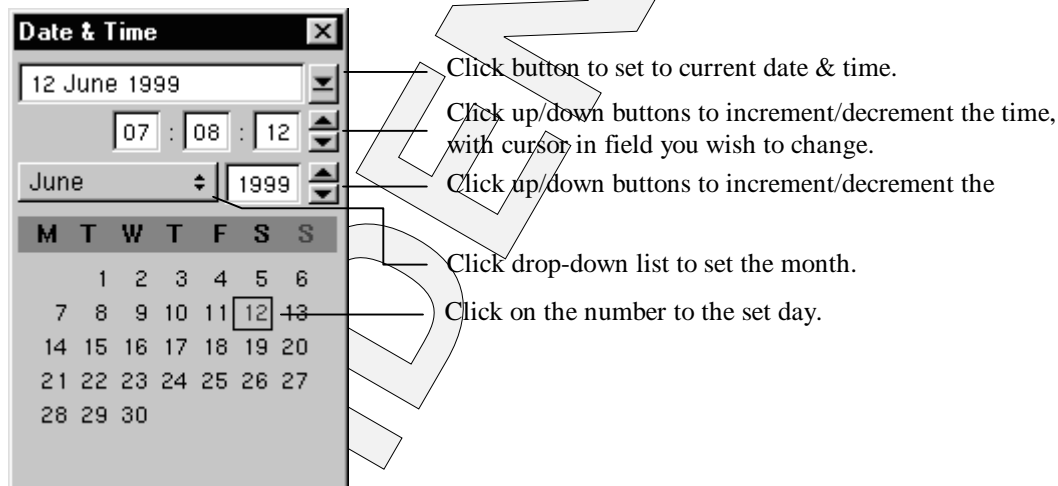


Fig. 5.1 Pop-up calendar

5.2 Domain duplicator

This is a labor saving feature, it duplicates a domain with a new start date. Following this you can modify to suit the requirements of another period of time. Furthermore, copying a domain reduces errors!

To duplicate a domain, open the domain that you want to duplicate and from the **Generate** menu, select the **Duplicate** command. The **Domain duplicator** window appears as shown in (see

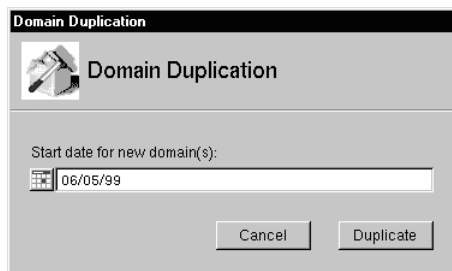


Fig. 5.2). Click the **Calendar** icon to select a start date and click the **Duplicate** button.

Fig. 5.2 Domain duplicator window

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5.3 Operation log

5.3.1 Overview

When a **Delete domain** command, **Delete product** command, **Generate** command or **Publishing** command is issued an **Operations log** window (See Fig. 5.3) appears, which details the progress of the operations and their status.

5.3.2 Window described

The **Operations log** window shown in Fig. 5.3 automatically appears when a **Publishing** command is issued.

When the operation ends click **Confirm** button to accept the operation or click **Cancel** button to reject the operation.

Fig. 5.3 Operation log (Publishing) window

Four check boxes at the bottom of the window control the type of information displayed and log functionality. When a box is checked (Starting from left to right) the following information will be displayed:

- Information (Terse listing—Normal operations).
- Warnings.
- Halt on error (See note).
- Debugging information (Verbose operation listing).

To readily identify the information in the log against each check box, the corresponding icon appears in the left-hand column of the log list box.

Note

In Fig. 5.3 the **Confirm** button is grayed. This is because the operation was halted when an error was detected (See last line).

5.4 Related packages window

This is PBL's principal window and preferred method of starting editors and product management in general.

5.4.1 Overview—graphical view of Product(s)

The principal benefit of this window view is that you can more readily see the relationship between products with shared content. It is also easier to determine which products are: **Up for sale**, **Needs publishing** or are marked **Deleted**. This is particularly helpful to examine the states and determine the effect that a modification would have in advance of carrying out an operation. (See legend, below its main menu in Fig. 5.4.)

5.4.2 Starting

Use the Finder to locate the product you wish to inspect and select it. From **Tools** menu, select **Show Related Packages** command and the **Related Packages** window appears (See Fig. 5.4).

5.4.3 Window described

The Related products window only has one view, see Fig. 5.4 (Simple) and (More advanced) and later accompanying descriptions.



Fig. 5.4 Related packages window (One item shown)

The icon for **Jamboree** indicates a subscription product that **Needs publishing**.

To edit a product shown in this window double-click its icon and the corresponding editor will appear.

Note

Also see Fig. 5.5 p 43.

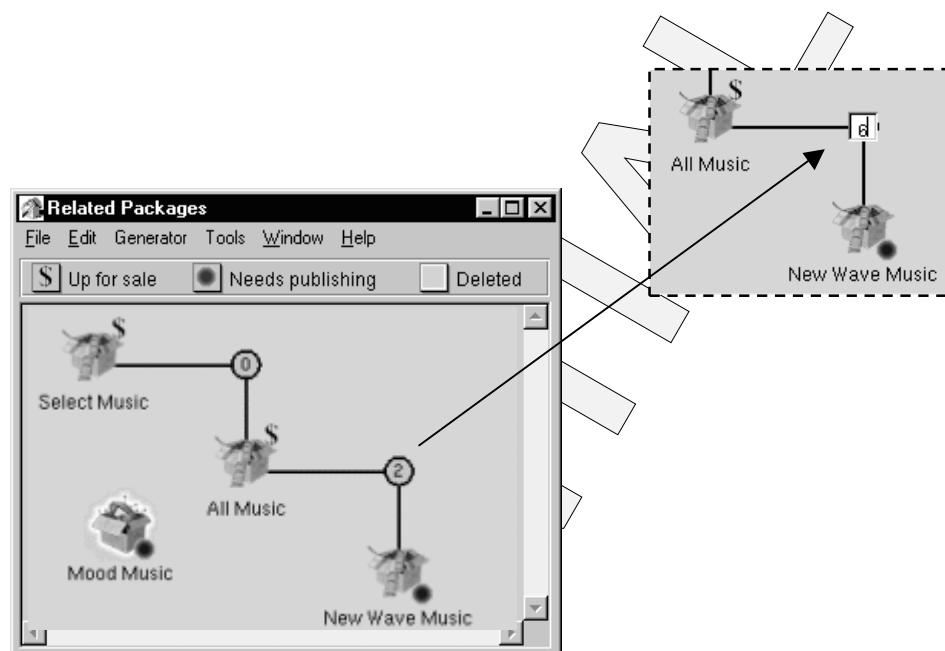


Fig. 5.5 Related Packages window (Multiple items shown)

When you have worked on many products this view may become crowded, however, you organize the window to your liking by dragging the icons around the window with a mouse. (Also, you can remove products from the view).

Selection of multiple products is carried out by holding down the left-hand mouse button and dragging the mouse pointer over the area of the product of interest.

At the intersection of products with shared content, an icon indicates the number of shared content. In the case when a product has never been published, clicking on the shared content icon it opens an editable field (See region enclosed with dotted line).

5.5 Finder windows

Finder(s) provide you with the principal way to search for items stored in the database or as a means to initiate product or domain editing (or review) or publishing.

5.5.1 Overview

The "Finder" searches for and retrieves particular information from potentially thousands of items (records) stored in the database. Its principal use is to search for items that require review or modification—this is achieved by selecting a specific item in the Finder's list box.

The Finder dialogue box view changes depending on the object type that is being used in the search, i.e., Domain, Product, Service or PPV event (See § 5.5.4 p 45). Furthermore, you can have more than one Finder window open at a time, this permits you to have window available for each object type as you work.

Note

All Finders support the use of "wildcards", see: § 4.4.2 subsection "Wildcards (Alphanumeric string substitution)" p 38.

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5.5.2 Starting

A Finder is always available when starting PBL. However, you can have more than one Finder window open at a time. To start another instance the **Finder**, from the **Tools** menu of most PBL windows select **Finder** command.

5.5.3 Searching for an item or items

To make a search you enter criterion or criteria in the Finder data entry boxes and click the **Find** button. If you initiate a search without any criteria all items applicable for the selected Finder windows. In order to reduce the search time in large databases a message is displayed to offer the possibility to get **Fetch All** records, or to limit the search to a default number (preset in PBL).



Entering more specific criterion/criteria will reduce the size of the found list.

CAUTION

Avoid the use of **Fetch All** as it could cause the system to reach the limit of its memory resources. (If this does occur without the appropriate action of a User this could lead to system instability with the potential of losing part or all of the current session's work). Also, if a large list is generated you will find it inconvenient, or impractical to scroll through the list.

5.5.4 Windows described

General

There are four variations of a Finder window:

1. Domain Finder..... see p 46
2. Product Finder see p 46
3. Service Finder..... see p 47
4. PPV Event Finder see p 47

Each of the above can be opened as separate instances of Finder, from any Finder or alternatively you can just change the Finder by selecting the type you wish from the drop-down list by name.

Domain Finder

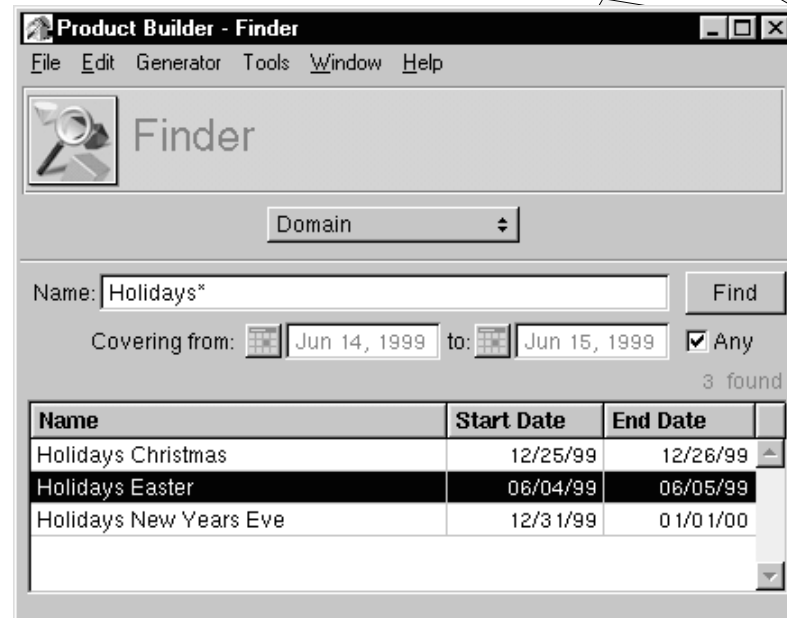


Fig. 5.6 Finder Domain window

Product Finder

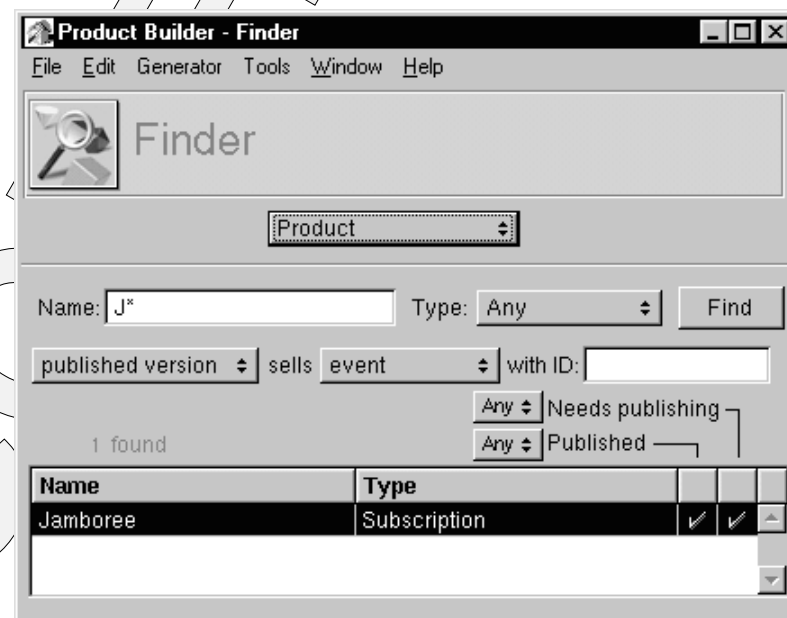


Fig. 5.7 Finder Product window

Service Finder

Id	Short name	Name	NASPSID
14	bbc1	BBC One	5

Fig. 5.8 Finder Service window

PPV Event Finder

Id	S. Id	Name	Start	Dur.	PPVNB
949	77	Bond #48	Jun 24 22:00	02:00:00	159
950	77	Bond #49	Jun 25 00:00	02:00:00	160
951	77	Bond #50	Jun 25 02:00	02:00:00	161

Fig. 5.9 Finder PPV Event window

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6. Editors

PBL provides editors that are customized and adapted for editing, modifying, manipulating and automatically generating products and their related items.

6.1 Groups listed

The PBL provides three distinct groups of editors as follows:

1. Domain..... For details see § 6.2 p 49
2. Product For details see § 6.4 p 52
3. Utility For details see § 6.8 p 58

6.2 Domain editor

6.2.1 Overview

The domain editor incorporates product generators, for details see § 6.3 p 50.

6.2.2 Starting

Start from any **Finder** window. On the **File** menu, select **New** submenu and then **Domain** command.

6.2.3 Window described

The domain editor window is shown in Fig. 6.1. The top panel deals with the settings of the domain and the bottom panel shows the details of the currently selected generator.

Top panel, left-hand-side is where the scope of the domain and its name are set.

Top panel, right-hand-side is the list services that have been associated with the domain by a user (these are copied & pasted or dragged & dropped from the Finder).

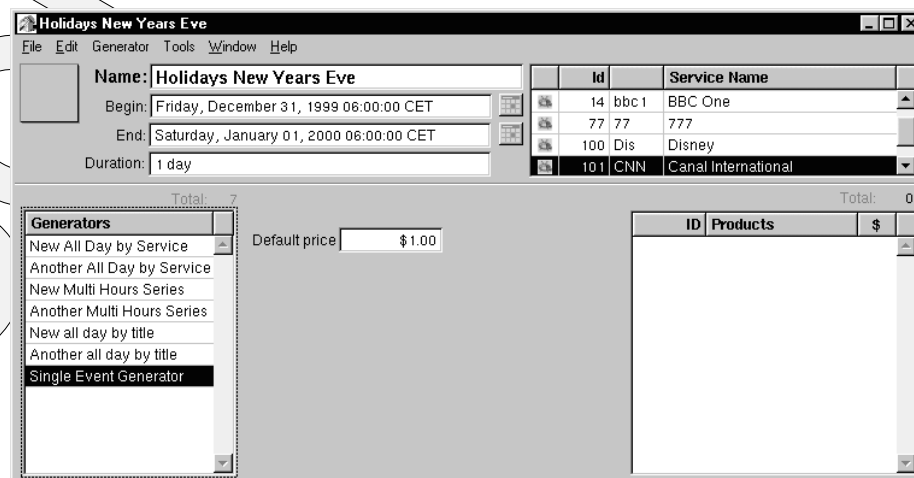


Fig. 6.1 Domain editor window

6.3 Product generator editors

6.3.1 Overview

There are four product generators, all of which are displayed in the bottom panel of the domain editor:

1. All-Day by Service..... For details see § 6.3.3 p 50
2. All-Day by Title..... For details see § 6.3.4 p 50
3. Multi-hour series For details see § 6.3.5 p 51
4. Single-Event..... For details see § 6.3.6 p 51

6.3.2 Starting

All generators are accessed and/or created from the Domain editor, see § 6.2 p 49 for details.

6.3.3 All-Day by Service

Generators: Total: 7

- New All Day by Service
- Another All Day by Service
- New Multi Hours Series
- Another Multi Hours Series
- New all day by title
- Another all day by title
- Single Event Generator

Start: Friday, December 31, 1999 06:00:00 CET
End: Saturday, January 01, 2000 06:00:00 CET

Default price: \$15.00
Product duration: 1 day

Events boundaries will not be

Id	Service
----	---------

ID	Products	\$
----	----------	----

Total: 0

Fig. 6.2 All-day by service generator panel

6.3.4 All-Day by Title

Generators: Total: 7

- New All Day by Service
- Another All Day by Service
- New Multi Hours Series
- Another Multi Hours Series
- New all day by title
- Another all day by title
- Single Event Generator

End: Saturday, January 01, 2000 06:00:00 C
☒ User adjusted

Default price: \$10.00

Event Title	Bond #
Bond # 1	
Bond # 10	
Bond # 100	
Bond # 10 1	
Bond # 102	
Bond # 103	

ID	Products	\$
----	----------	----

Total: 0

Fig. 6.3 All-day by title generator panel

6.3.5 Multi-hour series

Total: 7

Generators

- New All Day by Service
- Another All Day by Service
- New Multi Hours Series**
- Another Multi Hours Series
- New all day by title
- Another all day by title
- Single Event Generator

Start: Friday, December 31, 1999 06:00:00 CET

End: Saturday, January 01, 2000 06:00:00 CET

Default price: \$5.00

Product duration: 6 hours

Events boundaries will be

Id	Service
100	Disney

ID	Products	\$
----	----------	----

Total: 0

Fig. 6.4 All-day by title generator panel

6.3.6 Single-Event

Holidays New Years Eve

File Edit Generator Tools Window Help

New All Day By Service Ctrl+Shift+S

New Multi Hour Series Ctrl+Shift+M

New All Day By Title Ctrl+Shift+T

Generate Ctrl+G

Duplicate

Generators

- New All Day by Service
- Another All Day by Service
- New Multi Hours Series
- Another Multi Hours Series
- New all day by title
- Another all day by title
- Single Event Generator**

Default price: \$1.00

Id	Service Name
14	bbc 1 BBC One
77	77 777
100	Dis Disney
101	CNN Canal International

ID	Products	\$
----	----------	----

Total: 0

Fig. 6.5 Single-Event generator panel

6.4 Product Editors

6.4.1 Starting

Each editor is started from Finder (See § 5.5 p 43).

6.4.2 Listed

The list that follows indicates all PBL's product editors:

1. Subscription For details see § 6.5 p 53
2. Pay Per View For details see § 6.6 p 54
3. Right For details see § 6.7 p 55

6.4.3 Common fields

All product editors have the same fields in the upper part of their windows, see Fig. 6.6 p 24 and later description.

6.4.4 Common editing operations

Copy, cut & paste

Principally copy and paste operations are used to copy programs and services from the Finder to the editor windows. NB. These commands are located on the **Edit** menu (or you can use standard Windows keystrokes).

Drag & drop

TBW

Date & time

For consistent date and time data entry see § 5.1 "Calendars" p 39.

6.5 Subscription product editor

6.5.1 Overview

This editor is used to define products that sell a set of services.

6.5.2 Window described

The Subscription product editor only has one view, see Fig. 6.6 and later description.

Product editor

File Edit Generator Tools Window Help

Name: **Jamboree** Customer ID: 10000009

Notes: This is a subscription product. Identified by the icon top left.

Saleable between: 06/12/1999 05:43:3 and: 07/14/1999 05:43:3E

EPG Name: EPG Price:

☐ Impulsive product

Service capacity: 10 ☒ Allow PPV access 4 Services

Id	Short Name	Name	NASPSI
14	bbc 1	BBC One	5
100	Dis	Disney	6
101	CNN	Canal International	0
102	HBO	Home Box Office	7

Fig. 6.6 Subscription product editor window

Upper part of editor: Includes product **Name**, **Saleable between: and:** (the up for sale period), **Notes** (free formatted text for the use by a product designer). For information on EPG information and Bouquets, see note below.

Note

- **EPG Name and EPG Price:** represents the product in the EPG.
- **Bouquet selection:** represents the list of bouquets in which the product is made available (If a bouquet exists in the IMS database). Double-click region to the right of its name to include the product in a bouquet(s).

Lower part of editor: The maximum number of services contained in this product can be set explicitly, as well as giving permission to the end user to view the PPV programs shown on the included services at no extra charge (Allow PPV access).

The list of services included in the product can be edited using the lower part of the window. Services can be added using copy-paste operation from the Finder. This list of services need not be exhaustive if the maximum number of services sold by the product has been specified. Indeed, the list of services can be modified even after the product has been sold, and the end-user will benefit from these changes instantly without needing the information on his smart card to be updated by the system.

6.6 Pay Per View product editor

6.6.1 Overview

This editor is used to define products that sell a set of programs.

6.6.2 Window described

The Pay Per View product editor only has one view, see Fig. 6.7 and later description.

The screenshot shows a software window titled 'Bond' with a menu bar (File, Edit, Generator, Tools, Window, Help). The main area contains several input fields and a table. The 'Name' field is 'Bond', 'Customer ID' is '999', and 'Notes' is 'James Bond'. The 'Saleable between' field shows a date range from '06/13/1999 11:51:0' to '06/13/1999 11:51:04'. The 'EPG Name' is 'James Bond' and 'EPG Price' is '3.00'. There is a checked checkbox for 'Impulsive product'. Below these is a section for 'Event capacity', 'Begin' date ('Jun 10, 1999'), 'End' date ('Jul 07, 1999'), and '1 Events'. A table at the bottom lists events with columns: Id, Service, Short Name, Name, Start, Dur., and PPVNB. The table contains one row: Id 905, Service 77, Short Name Bond, Name Bond #4, Start Jun 21 06:00, Dur. 02:00:00, and PPVNB 135.

Id	Service	Short Name	Name	Start	Dur.	PPVNB
905	77	Bond	Bond #4	Jun 21 06:00	02:00:00	135

Fig. 6.7 Pay Per View product editor window

Upper part of editor: See Fig. 6.6 p 53.

Lower part of editor:

The maximum number of programs that will be sold by this product can be set explicitly as well as the actual period of validity of the product (which is different from the sale period).

The list of programs included in the product can be edited using the lower part of the window. This list of programs need not be exhaustive if the maximum number of programs sold by the product has been specified. Indeed, the list of programs can be modified even after the product has been sold, and the end-user will benefit from these changes instantly without needing the information on his smart card to be updated by the system.

6.7 Right product editor

The Right Product editor is described here for completeness, as it is not normally used.

6.7.1 Overview

This editor is for use, as a last resort if the other product types cannot meet your product's requirements. However, an example of its use is to create a product that sells both services and programs, with each having different validity dates.

Note

No details are provided here to design right products, as it is beyond the scope of this guide.

CAUTION

Use of this editor could cause undesirable results, system instability or failure. Therefore, the use of this editor must be restricted to experienced users with advanced system knowledge.

6.7.2 Windows described

The right editor consists of three views: Definition, Event CAS and Service CAS, see Fig. 6.8 and Fig. 6.9 p 57 and corresponding later descriptions.

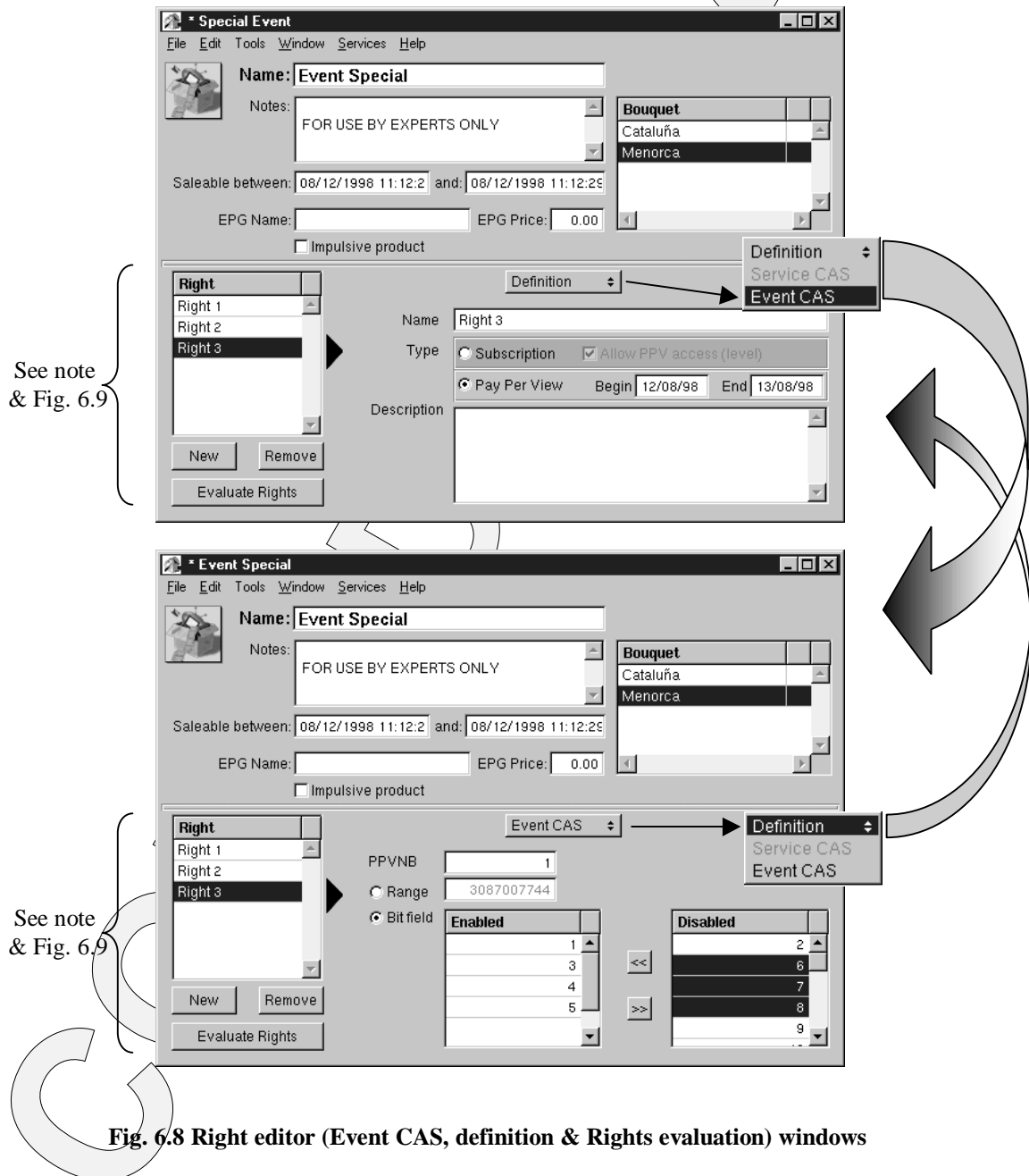


Fig. 6.8 Right editor (Event CAS, definition & Rights evaluation) windows

Note

Observe the bottom right-hand quadrant of the window and see the changes that occur when selecting between the following options (Also see Fig. 6.9 p 57):

1. Drop-down list (I.e., **Definition**, **Event CAS** & **Service CAS**).
2. **Range** and **Bit field** radio buttons.

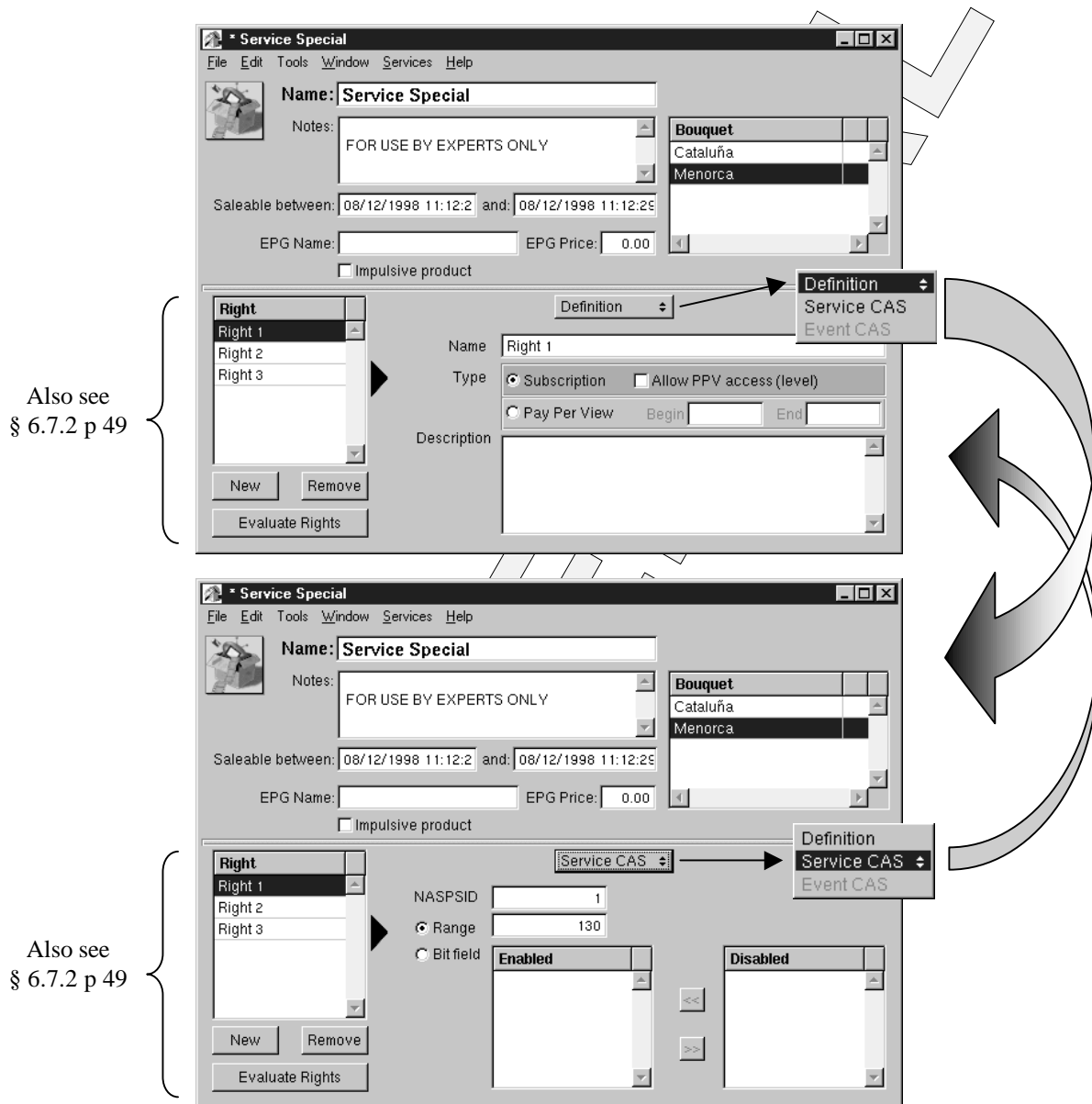


Fig. 6.9 Right editor (Service CAS & definition) windows

Upper part of editor: See Fig. 6.6.

Lower part of editor: The rights defining the product are listed in the table located in the lower left-hand corner of the window. The definition of a selected right is shown to the right of the list. The drop-down list to the right of the list selects the contents of the dialogue box below it. The first dialogue box defines the right's nature and the others define its contents depending on its type (i.e., NASPSID or PPVNB range/bitfield).

6.8 Utility editors

Utility editors are only described here for completeness, as it is unlikely that you would ever use them. Their purpose is to permit low-level editing CAS information.

6.8.1 Listed

PBL provides the following utility editors:

1. Programs For details see § 6.9 p 58
2. Services For details see § 6.10 p 59

6.9 Programs CAS editor

6.9.1 Overview

The Program CAS editor permits the modification of the CAS information of a particular program(s).

6.9.2 Window described

The Program CAS editor window only has one view, see Fig. 6.10 and later description.

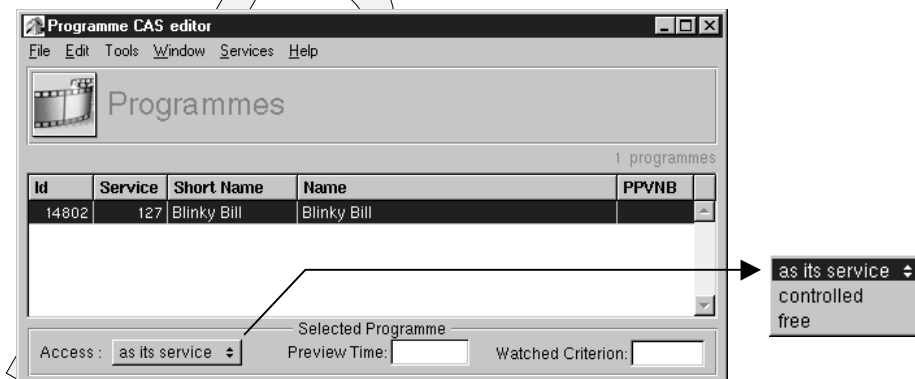


Fig. 6.10 Programs CAS editor window

With this editor the following can be modified:

1. CAS information (PPVNB)
2. Access type to “as its service” or “controlled” or “free”
3. Preview Time
4. Watched criterion

6.10 Services CAS editor

6.10.1 Overview

The Services CAS editor permits the modification of the CAS information of particular services.

6.10.2 Window described

The Services CAS editor window only has one view, see Fig. 6.11 and later description.

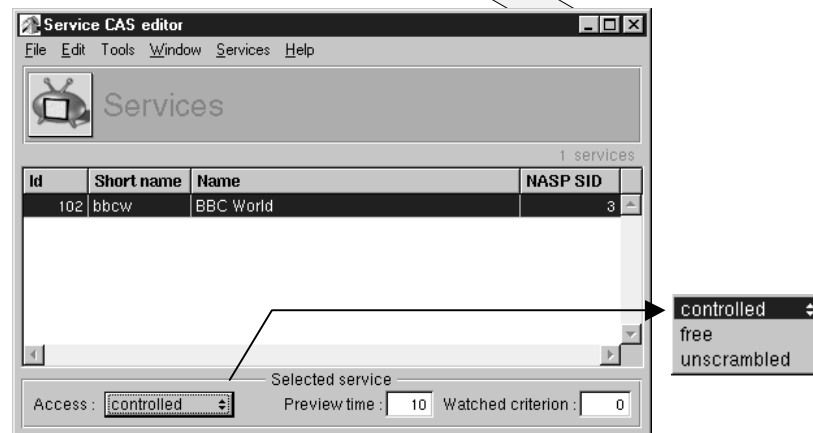


Fig. 6.11 Services CAS editor window

With this editor the following can be modified:

1. CAS information (NASPSID)
2. Access type to “controlled” or “free” or “unscrambled”
3. Preview Time
4. Watched criterion

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7. Building advanced products

7.1 Season Ticket

TBW

7.2 Right product

TBW

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8. Troubleshooting

8.1 General

Problems with this application in itself will not be resolved by making an attempt at low-level investigations, and in all cases no remedial action can be affected to the PBL's application elements. Therefore, your best course of action may be to report your problem to NagraVision as soon as possible (See § 9 "Maintenance" p 65). However, before taking the latter step see § 8.3 p 63.

CAUTION

No attempt to manipulate the system should be made to solve a real or apparent problem.

8.2 Questions & Answers

8.2.1 I'm getting errors messages

Novice users

Are you attempting an operation that is causing a valid error message?
If you cannot answer this question satisfactorily contact your supervisor, or consult with an experienced user.

8.2.2 A button I want to use won't work (i.e., grayed)

This means that you want to do something where the conditions set up are either incorrect or inappropriate for the operation, for example:

- The **Find Products selling this Program** button or **Find Products selling this Service** button are grayed—This means that you most likely have more than one item selected in the **found** list, therefore, you must just **click** the item you want information on.

8.3 Repetitive or persistent problems

Experienced users

1. Have you read the online release notes, located in **Product Builder** program group?
2. Refer to § 9 "Maintenance" p 65 if a problem persists or manifests itself regularly.

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9. Maintenance

9.1 Product support

Your entitlement to troubleshooting support and maintenance assistance is bound to the contractual terms and conditions that you agreed with NagraVision.

9.2 General

Product Builder needs no regular maintenance to maintain its performance.

9.3 Functional anomalies

9.3.1 Reporting anomalies to NagraVision

Before contacting NagraVision, please note down:

1. Version of Product Builder (See **About Information** below)
2. Precise details of your problem
3. Content of error messages
4. Manipulation that led to the problem.

About Information

The version of PBL can be found on any PBL **Help** menu—Click **About Product Builder...**

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10. Glossary

	Term(s)	Definition
	Access type: as its service	TBW
	Access type: controlled	TBW
	Access type: free	TBW
	Access type: unscrambled	TBW
	Anomaly, Anomalies	TBW
	Attributes	TBW
BST	British Summer Time	See Daylight Saving Time
	Bouquet	TBW
	CAS information NASPSID	TBW
	CAS information PPVNB	TBW
	Close (-ing)	TBW
CAS	Conditional Access System	TBW
	Customer ID	TBW
DST	Daylight Saving Time	(Also Daylight time) time as adjusted to achieve longer evening daylight, especially in summer, by setting clocks one hour ahead of Standard Time
	Domain	TBW
	Editor	TBW
EPG	Electronic Program Guide	TBW
	Event	TBW
	Event capacity	TBW
	Exit (-ing)	TBW
	Fields	TBW
	Focus	TBW
GUI	Graphical User Interface	A visual way of interacting with a computer using items such as windows, icons, and menus. (Also, see Icon.)
	Icon	A symbol or graphic representation on a VDU screen of a program, option, or window, especially one of several for selection. (Also, see Iconify.)
	Iconify (-ies, -ied).	Reduce (a window on a VDU screen) to a small symbol or graphic representation of itself so as to make room on the screen for other windows. (Also, see Icon.)
	Impulsive product	TBW
IMS	Information Management System	TBW
	Item	TBW
	Life cycle	TBW
	Operation(s)	TBW
	Package Aggregate	Now an obsolete term
PPV	Pay Per View (PPV)	TBW
	Pay Per View product	TBW
PDF .pdf	Portable Document Format	TBW
	Preview time	TBW
	Product	TBW
	Program	TBW
	Program capacity	TBW
	Publishing (a product)	Publishing is the operation that validates a product's

Term(s)		Definition
		definition (i.e., Subscription, PPV or Right) and makes it available for transactions in the system.
	Related products	TBW (Note: Replaces the Package Aggregate)
	Right	TBW
	Right product	TBW
	Scrambled	TBW
	Service capacity	TBW
	Services	TBW
	Session	TBW
SC	Shared Content	TBW
	Start (Starting)	TBW
	State(s)	TBW
	standard time	A uniform time for places in approximately the same longitude, established in a region or country by law or custom.
	subscriber	TBW
	Subscriber Management System (SMS)	TBW
	Subscription	TBW
	Subscription product	TBW
	Unpublished product	TBW
	Up for sale	TBW
	Watched criterion	TBW
	Wildcards	TBW
	window(s)	TBW
	Windows	Proprietary operating system from Microsoft®

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