Eastern Multimedia Company
IMS
Data Exporter (XML File Interface) 2X1
Specification
Issue 1.0.0

Table Of Contents

1 Introduction

1.1 Purpose

This document defines the Nagravision Data Exporter XML Product file interface, that is, the generated format of the products information transmitted to the target system, using the XML standard [2]. This document is mainly intended to software developers and designers.

In addition to the XML file format specification, this document also contains the functional specification of the exportation interface.

1.2 Overview

This document describes the generated format of the XML files containing product information (subscription and/or PPV). These files are extracted from the IMS database and generated by the Data Exporter.

XML has been chosen to formalize the data definition for the following reasons:
- It is a widely accepted standard.
- It allows extensions without impacting previous implementations (backward compatibility).
- The format specification is directly usable by the application (no inconsistencies).
- The specification can be customized (to some extent) without changing the software.
- The format is easily readable without any particular tools.
- Data can be converted to HTML and displayed by a standard Internet browser.

1.3 Notational Conventions

- A new concept, component, function etc. that is introduced the first time in the text is defined in the corresponding section and the corresponding term appears in *italic* type.
- XML specifications and other formal specifications appear in `Courier` font.

1.4 Definitions, Acronyms, and Abbreviations

Acronym Abbreviation	Definition
CAS	Conditional Access System
DTD	Document Type Definition
DVB	Digital Video Broadcasting. (www.dvb.org)
EPG	Electronic Program Guide
IMS	Information Management System (www.nagra.com)
ISO	International Organization for Standardization. (www.iso.ch)
SMS	Subscriber Management System
XML	Extensible Markup Language (www.w3.org/xml)

1.5 References

[1] DVB, Specifications for Service Information (SI) in DVB systems, EN 300 468 v1.3.1, 1998-02

[2] W3C, Extensible Markup Language (XML) 1.0, REC-xml-19980210

2 Software Interface overview

2.1 System Interface

The Data Exporter may export files towards one or several *FTP file servers*, hosting files for one or several *Receivers*.

The exporter can be triggered either by a configurable periodic timer or by specific change notification triggers. When triggered, the exporter will extract the relevant data from the DB, format it and generate the file.
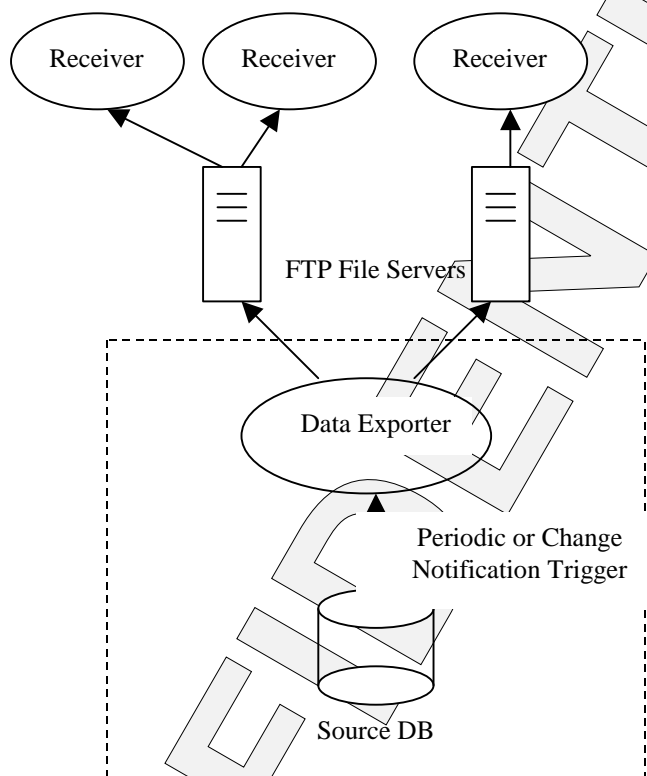

Fig. 2-1 System Interface

3   Formal Interface Specification

The following XML Document Type Definition (DTD) specifies the XML Product Data Exporter file format.

It is important to highlight that the XML 1.0 standard [2] does not allow the specification of fields' lengths and types. While some standardisation efforts are being made in that direction (XML Schemas), Nagra currently addresses this issue by means of a separate document, the DTD extension (section 3.3).

Note that a DataDictionary DTD containing generic D-TV XML element definitions have been defined (to allow sharing common elements with other DTDs). The main ProductManagementData DTD thus includes the DataDictionary DTD.

3.1 DTD (DataDictionary.dtd)

```
<?xml version="1.0" encoding="UTF-8"?>

<!-- ================================================================ -->
<!-- Nagra Data Dictionary - XML Elements Definition - v 1.0.0        -->
<!--                                                                  -->
<!--       (c) 2000-2001 Nagravision S.A. - All rights reserved       -->
<!-- ================================================================ -->

<!-- ================================================================ -->
<!-- DOCUMENT PROVIDER                                                -->
<!-- ================================================================ -->

<!ELEMENT ProviderInfo (ProviderId, ProviderName, DtdVersion?)>
<!ELEMENT ProviderId (#PCDATA)>
<!ELEMENT ProviderName (#PCDATA)>
<!ELEMENT DtdVersion (#PCDATA)>

<!-- ================================================================ -->
<!-- COMMON DATA ELEMENTS SECTION                                     -->
<!-- ================================================================ -->

<!ELEMENT ErrorInfo (#PCDATA)>
<!ATTLIST ErrorInfo errorCode CDATA #IMPLIED>

<!-- ParentalRating: specifies the minimum advised age for viewing the event.
-->

<!ELEMENT ParentalRating (#PCDATA)>

<!-- PreviewTime: defines the free preview time (in minutes) of events.
-->

<!ELEMENT PreviewTime (#PCDATA)>
<!ATTLIST PreviewTime null CDATA "0">

<!-- ================================================================ -->
<!-- PRODUCTION DATA ELEMENTS SECTION                                 -->
<!-- ================================================================ -->

<!ELEMENT ProductionId (#PCDATA)>
<!ELEMENT ProductionTitle (#PCDATA)>
<!ELEMENT BillingDescription (#PCDATA)>
<!ELEMENT MovieStudio (#PCDATA)>
<!ELEMENT ContentProviderId (#PCDATA)>
<!ELEMENT UserContentCategory (#PCDATA)>

<!-- ================================================================ -->
<!-- PRODUCT DATA ELEMENTS SECTION                                    -->
<!-- ================================================================ -->

<!ELEMENT ProductId (#PCDATA)>
```

```
<!ELEMENT ProductType EMPTY>
<!ATTLIST ProductType productKind CDATA #REQUIRED>
<!ATTLIST ProductType impulsiveFlag CDATA #IMPLIED>
<!ATTLIST ProductType specialPpv CDATA #IMPLIED>

<!ELEMENT ProductStatus EMPTY>
<!ATTLIST ProductStatus suspendedFlag CDATA #IMPLIED>
<!ATTLIST ProductStatus soldFlag CDATA #IMPLIED>
<!ATTLIST ProductStatus purchasableFlag CDATA #IMPLIED>

<!ELEMENT ProductName (#PCDATA)>
<!ELEMENT ProductDescription (#PCDATA)>

<!ELEMENT SalePeriod EMPTY>
<!ATTLIST SalePeriod beginTime CDATA #REQUIRED>
<!ATTLIST SalePeriod endTime CDATA #REQUIRED>

<!ELEMENT ValidityPeriod EMPTY>
<!ATTLIST ValidityPeriod beginTime CDATA #REQUIRED>
<!ATTLIST ValidityPeriod endTime CDATA #REQUIRED>

<!ELEMENT ProductCategory (#PCDATA)>

<!ELEMENT EpgPrice (#PCDATA)>
<!ATTLIST EpgPrice moneyUnit CDATA #IMPLIED>

<!-- ============================================================ -->
<!-- PRICING DATA ELEMENTS SECTION                                -->
<!-- ============================================================ -->

<!ELEMENT MovieStudioPriceExcl (#PCDATA)>
<!ELEMENT SubscriberPriceIncl (#PCDATA)>
<!ELEMENT SubscriberPriceExcl (#PCDATA)>
<!ELEMENT TapingPrice (#PCDATA)>

<!-- ============================================================ -->
<!-- CHANNEL DATA ELEMENTS SECTION                                -->
<!-- ============================================================ -->

<!ELEMENT ChannelId (#PCDATA)>
<!ELEMENT ChannelNumber (#PCDATA)>
<!ELEMENT ChannelGenre (#PCDATA)>
<!ELEMENT ChannelClass (#PCDATA)>

<!-- ChannelText: defines several text attributes of a channel.
     The language attribute is the text's language.
-->

<!ELEMENT ChannelShortName (#PCDATA)>
<!ELEMENT ChannelProviderName (#PCDATA)>
<!ELEMENT ChannelName (#PCDATA)>
<!ELEMENT ChannelDescription (#PCDATA)>

<!-- ============================================================ -->
<!-- EVENT DATA ELEMENTS SECTION                                  -->
<!-- ============================================================ -->

<!ELEMENT EventId (#PCDATA)>
<!ELEMENT EventType (#PCDATA)>

<!-- EpgText: defines several text attributes of an event.
     The language attribute is the text's language.
-->

<!ELEMENT ShortName (#PCDATA)>
<!ELEMENT Name (#PCDATA)>
<!ELEMENT ShortDescription (#PCDATA)>
<!ELEMENT Description (#PCDATA)>

<!-- Rating: defines basic rating attributes of an event.
     The stars rating gives an overall quality rating of the
     event.
     The MPAA rating specifies the minimum advised age for
```

```
         viewing the event according MPAA standard.
         The expanded rating is a bitmap specifiying the detailed
         characteristics of the event, such as nudity, sex, violence...
-->

<!ELEMENT Rating EMPTY>
<!ATTLIST Rating stars CDATA #IMPLIED>
<!ATTLIST Rating mpaa CDATA #IMPLIED>
<!ATTLIST Rating expanded CDATA #IMPLIED>

<!-- DvbContent: defines the DVB content of an event
     according to DVB standard [1].
-->

<!ELEMENT DvbContent (Content, User)>

<!ELEMENT Content EMPTY>
<!ATTLIST Content nibble1 CDATA #REQUIRED>
<!ATTLIST Content nibble2 CDATA #REQUIRED>

<!ELEMENT User EMPTY>
<!ATTLIST User nibble1 CDATA #REQUIRED>
<!ATTLIST User nibble2 CDATA #REQUIRED>
```

3.2 DTD (ProductManagementData.dtd)

```
<?xml version="1.0" encoding="UTF-8"?>

<!-- ================================================================== -->
<!-- Product Management Data - XML Document Type Definition - v 1.2.0 -->
<!--                                                                    -->
<!--       (c) 2000-2001 Nagravision S.A. - All rights reserved       -->
<!-- ================================================================== -->

<!--
  History:

     v 1.2.0, February 2001:
        - Product Data Export version

  References:

     [1] DVB, Specifications for Service Information (SI) in DVB systems,
         EN 300 468 v1.3.1, 1998-02

  Note for XML beginners:

     - Nothing besides an XML element means exactly 1 instance.
     - "?" besides an XML element means 0 or 1 instance.
     - "*" besides an XML element means 0 or more instance(s).
     - "+" besides an XML element means 1 or more instance(s).

  General Remarks:

     - Unless explicitely specified, all dates are in UTC time.
-->

<!-- ================================================================== -->
<!-- INCLUDES                                                           -->
<!-- ================================================================== -->

<![INCLUDE[<!ENTITY % Dictionary SYSTEM "DataDictionary.dtd">%Dictionary;]]>

<!-- ================================================================== -->
<!-- DOCUMENT ROOT                                                      -->
<!-- ================================================================== -->

<!-- ProductManagementData: The XML document root element.         -->

<!ELEMENT ProductManagementData (ProviderInfo,
                               (ProductPeriodicNotification |
                                ProductChangeNotification  ) )>
```

```
<!ATTLIST ProductManagementData creationDate CDATA #REQUIRED>


<!-- ================================================================ -->
<!-- Notification Section                                            -->
<!-- ================================================================ -->


<!-- ProductPeriodicNotification: Notify a periodic product report.

     The notification contains a ProductReportRequest (e.g. the product
     selection criteria) and a ProductReportReply (e.g. the complete list
     of products matching this criteria).
-->

<!ELEMENT ProductPeriodicNotification (ProductReportRequest,
                                       ProductReportReply)>

<!-- ProductChangeNotification: Notify a change product report.

     The notification contains a list of new or modified products, as well
     as a list of deleted products.
-->

<!ELEMENT ProductChangeNotification (DeletedProductionData?, ProductionData?,
                                     DeletedProductData?, ProductData?)>
<!ELEMENT DeletedProductionData (ProductionId*)>
<!ELEMENT DeletedProductData (ProductId*)>


<!-- ================================================================ -->
<!-- Product Report Section                                          -->
<!-- ================================================================ -->


<!-- ProductReportRequest: Request a list of products matching the
     given selection criteria.

     The "details" attribute allows to specify the level of details of
     the data return by the reply:

     - low  : Only the products are return without any details about the
              events of a PPV product or the channels of a subscription
              product.
     - high : All data are returned.
-->

<!ELEMENT ProductReportRequest (SalePeriod?, ProductId*, ProductType?,
                                ProductStatus?)>
<!ATTLIST ProductReportRequest details CDATA "high">

<!-- ProductReportReply: Return a list of productions/products matching the
     requested selection criteria.
-->

<!ELEMENT ProductReportReply (ProductionData?, ProductData?)>
<!ELEMENT ProductionData (Production*)>
<!ELEMENT ProductData (Product*)>


<!-- ================================================================ -->
<!-- Production section                                              -->
<!-- ================================================================ -->

<!ELEMENT Production (ProductionId, ProductionTitle?, BillingDescription?,
                      MovieStudio?, ContentProviderId?, ParentalRating?,
                      UserContentCategory?)>


<!-- ================================================================ -->
<!-- Product section                                                 -->
<!-- ================================================================ -->

<!ELEMENT Product (ProductId, ProductType, ProductStatus, ProductText+,
                   SalePeriod, ProductCategory*, EpgPrice, Pricing*,
                   ProductionId?, GroupProductId?, (PpvData | SubscriptionData))>

<!-- ProductText: defines several text attributes of a product.
     The language attribute is the text's language.
-->
```

ImsDex2X1Spe010000.Pub.doc, 29/05/01

CH - 1033 CHESEAUX, SWITZERLAND   ☎+41.21.732.03.11   🖷+41.21.732.03.00

```
<!ELEMENT ProductText (ProductName, ProductDescription?)>
<!ATTLIST ProductText language CDATA #REQUIRED>

<!-- Pricing: Defines additional pricing information.
-->

<!ELEMENT Pricing (MovieStudioPriceExcl?, SubscriberPriceIncl?,
                   SubscriberPriceExcl?)>
<!ATTLIST Pricing billAccountUnit CDATA #IMPLIED>

<!-- PpvData: Defines attributes specific to PPV products.
-->

<!ELEMENT PpvData (ValidityPeriod, Event*)>

<!-- SubscriptionData: Defines attributes specific to subscription products.
-->

<!ELEMENT SubscriptionData (ALaCarte?, Channel*)>
<!ATTLIST SubscriptionData allowPpvEventsFlag CDATA #REQUIRED>

<!ELEMENT ALaCarte EMPTY>
<!ATTLIST ALaCarte aLaCarteChannelsCount CDATA #REQUIRED>

<!-- ================================================================ -->
<!-- Event section                                                    -->
<!-- ================================================================ -->

<!ELEMENT Event (EventId, PreviewTime?, EpgText+, ParentalRating?,
                 Rating?, DvbContent*, ChannelId?, ChannelNumber?)>
<!ATTLIST Event beginTime CDATA #REQUIRED>
<!ATTLIST Event duration CDATA #REQUIRED>

<!-- EpgText: defines several text attributes of an event.
     The language attribute is the text's language.
-->

<!ELEMENT EpgText (ShortName?, Name, Description?)>
<!ATTLIST EpgText language CDATA #REQUIRED>

<!-- ================================================================ -->
<!-- Channel section                                                  -->
<!-- ================================================================ -->

<!ELEMENT Channel (ChannelId, ChannelNumber?, ChannelText+)>

<!-- ChannelText: defines several text attributes of a channel.
     The language attribute is the text's language.
-->

<!ELEMENT ChannelText (ChannelShortName, ChannelName?, ChannelDescription?)>
<!ATTLIST ChannelText language CDATA #REQUIRED>
```

3.3 DTD Extension (ProductManagementData.cfg)

```
//=========================================================
// XML DTD extension
//=========================================================
//
// Supported base types are:
//
//    Bool         -
//    Num          minVal maxVal
//    Hex          minLen maxLen
//    Real         maxUnits maxDecimals
//    String       minLen maxLen
//    Enum         val1 val2 val3 ...
//    DateTime     formatType
//    Language     formatType

//=========================================================
// ElementName.AttributeName          Type          Range
```

```
//=============================================================
```

Field	Type	Range
ALaCarte.aLaCarteChannelsCount	Num	0 999
BillingDescription.__BODY__	String	1 35
ChannelClass.__BODY__	Num	0 15
ChannelDescription.__BODY__	String	1 150
ChannelGenre.__BODY__	Num	0 255
ChannelId.__BODY__	String	1 20
ChannelName.__BODY__	String	1 80
ChannelNumber.__BODY__	Num	0 65535
ChannelProviderName.__BODY__	String	1 50
ChannelShortName.__BODY__	String	1 20
ChannelText.language	Language	ISO_639_2
Content.nibble1	Hex	1 1
Content.nibble2	Hex	1 1
ContentProviderId.__BODY__	String	1 2
Description.__BODY__	String	1 250
DtdVersion.__BODY__	String	1 20
EpgPrice.__BODY__	Real	5 2
EpgPrice.moneyUnit	String	3 3
EpgText.language	Language	ISO_639_2
ErrorInfo.__BODY__	String	1 1024
ErrorInfo.errorCode	Num	-1 99
Event.beginTime	DateTime	YYYYMMDDHHmmSS
Event.duration	Num	0 359999
EventId.__BODY__	String	1 12
EventType.__BODY__	Enum	P S F O
MovieStudio.__BODY__	String	1 10
MovieStudioPriceExcl.__BODY__	Real	5 2
Name.__BODY__	String	1 80
ParentalRating.__BODY__	Num	0 15
PreviewTime.__BODY__	Num	0 99
PreviewTime.null	Bool	-
Pricing.billAccountUnit	Enum	A U
ProductCategory.__BODY__	Num	0 255
ProductDescription.__BODY__	String	1 250
ProductId.__BODY__	Num	1 999999999999
ProductManagementData.creationDate	DateTime	YYYYMMDDHHmmSS
ProductName.__BODY__	String	1 80
ProductReportRequest.details	Enum	low high
ProductStatus.purchasableFlag	Bool	-
ProductStatus.soldFlag	Bool	-
ProductStatus.suspendedFlag	Bool	-
ProductText.language	Language	ISO_639_2
ProductType.impulsiveFlag	Bool	-
ProductType.productKind	Enum	All PPV Sub
ProductType.specialPpv	Bool	-
ProductionId.__BODY__	String	1 10
ProductionTitle.__BODY__	String	1 80
ProviderId.__BODY__	String	1 10
ProviderName.__BODY__	String	1 80
Rating.expanded	Hex	4 4
Rating.mpaa	Num	0 20
Rating.stars	Real	2 1
SalePeriod.beginTime	DateTime	YYYYMMDDHHmmSS
SalePeriod.endTime	DateTime	YYYYMMDDHHmmSS
ShortDescription.__BODY__	String	1 128
ShortName.__BODY__	String	1 15
SubscriberPriceExcl.__BODY__	Real	5 2
SubscriberPriceIncl.__BODY__	Real	5 2
SubscriptionData.allowPpvEventsFlag	Bool	-
TapingPrice.__BODY__	Real	5 2
User.nibble1	Hex	1 1
User.nibble2	Hex	1 1
UserContentCategory.__BODY__	Hex	1 2
ValidityPeriod.beginTime	DateTime	YYYYMMDDHHmmSS
ValidityPeriod.endTime	DateTime	YYYYMMDDHHmmSS

CH - 1033 CHESEAUX, SWITZERLAND   ☎+41.21.732.03.11   🖷+41.21.732.03.00

4 Data Exporter Functional Specification

4.1 File Handling

4.1.1   File Provision

As shown in section 2.1, the Data Exporter uses specific FTP File Servers to upload export files. The Exporter accesses this file server using a dedicated user account and directory to store the files.

When no remote file server is required or needed, export files may be directly stored on the localhost (where the Exporter is running). A valid localhost user account is however still needed in that case for the Exporter to store the files locally.

The following figure shows the subdirectory structure required by the Exporter and the operational steps of file processing:
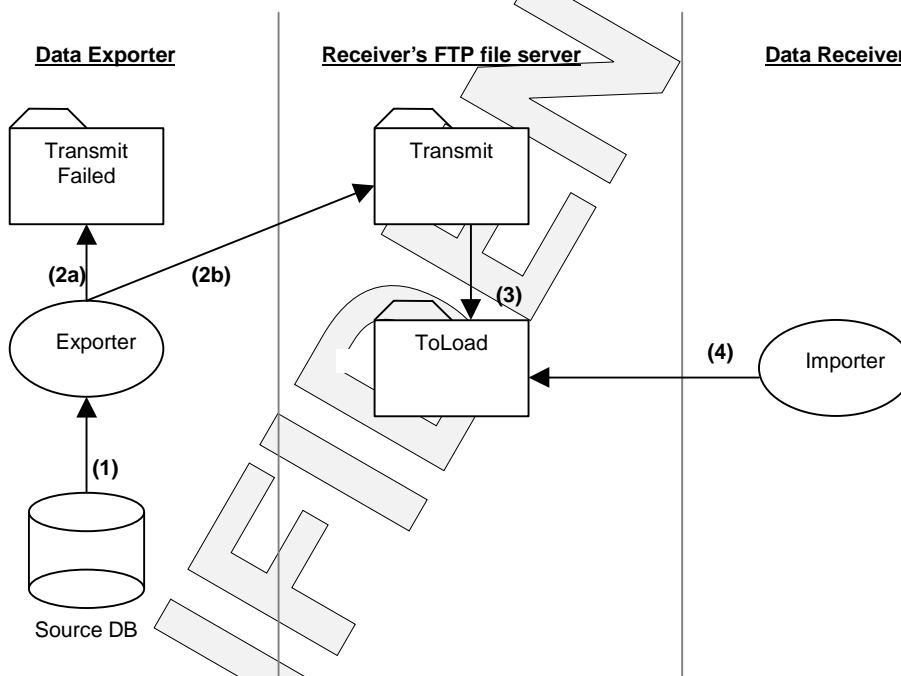
Fig. 4-1 Product File handling

1) The generation of a new export file is triggered by a periodic timer or by notification from a third party. The Exporter fetches the data from the DB, formats it and stores the resulting file locally.

2) The Exporter attempts to upload the new file onto the remote FTP file server. If it fails (after a couple of retries), the export file is moved in the local *TransmitFailed* directory (2a) for logging purposes, otherwise, if it succeeds, the file is temporarily stored on the remote *Transmit* directory (2b). The goal of the transient storage in the *Transmit* directory is to prevent the target *Receiver* seeing the file before the FTP transfer is fully completed.

3) At file transfer's completion (which may take a while if the file is big and the connection bitrate low!), the Exporter moves the import file into the *ToLoad* directory (using *FTP rename*

command, which is instantaneous). That way, we ensure the *Receiver* won't see a file before it has been fully transferred.

4) The *Receiver* periodically polls the server for new files to import. If a new file is found, it downloads it for processing.

The rest of the processing depends on the *Receiver* implementation. At this stage, the Data Exporter does not support any kind of success/failure acknowledgement file processing. It is up to the *Receiver* to decide what kind of error logging mechanism is implemented when processing an export file, but if a problem occurs, triggering of a new export file will require manual intervention.

Note: the *Exporter* does not manage the purge of generated files, for the good reason that it doesn't know if the *Receiver* (or someone else) still needs to access them.

4.1.2   File Naming Convention

The export files comply with the following naming convention (the date field contains the file creation date in GMT time):

```
prefix + "_" + YYYYMMDDHHmmSS + ".xml"
```

Example: PpvProd_20000721131005.xml

The `prefix` is a freely configurable string.

4.2 Data Delivery Mode

The Exporter supports the following modes to deliver products:

1. Periodic notification: The Data Exporter periodically delivers all products intersecting a given Extract Time Window. The frequency of the delivery is a static parameter of the application.

2. Notification of changes: New or updated products are immediately delivered when a change occurs.

These 2 modes are complementary and should generally be used simultaneously.

The *periodic notification* allows to fully synchronize the products matching the extraction rule (see section 4.3) between the source (IMS) and the target (SMS). Unfortunately, this comes at the cost of big data files and extended processing time, since many unchanged products are transferred and unnecessarily re-synchronized every time.

On the other hand, the *change notification* approach provides a responsive and light synchronization mechanism by sending only the products having effectively changed. The downside is a decreased robustness against synchronization failures.

Therefore, combining both mechanisms provides optimal results.

4.3 Data Selection

4.3.1 Generalities

The products concerned are *published products* only.

The Exporter can be configured to export PPV-only, subscription-only or both.

4.3.2 Extract Time Window

An *Extract Time Window* is defined to limit the amount of product data transferred within each periodic notification delivery.

The Extract Time Window is given as follows:

```
WindowStartDate   = CurrentDay + WindowStartOffset
WindowEndDate     = WindowStartDate + WindowDuration
```

The `WindowStartOffset` and `WindowDuration` are static parameters of the Exporter (expressed in minutes). The CurrentDay parameter corresponds to the day of generation at UTC time 00:00:00.

Selected products' *Sale Period* must have an intersection with the Extract Time Window, e.g. fulfill the following criteria:

```
(SalePeriodBeginDate <= WindowEndDate   ) AND
(SalePeriodEndDate   >= WindowStartDate )
```

PPV products without any program (for example, a new season ticket product) or subscription products without any channel will be taken into account, but the product will have no associated program / channel reported.

5 Samples

5.1 ProductPeriodicNotification export file (PPV products)

```xml
<?xml version="1.0" encoding="ASCII"?>
<!DOCTYPE ProductManagementData SYSTEM "ProductManagementData.dtd">
<ProductManagementData creationDate="20010216105500">
  <ProviderInfo>
    <ProviderId>IMS Nagra</ProviderId>
    <ProviderName>IMS Nagravision S.A.</ProviderName>
    <DtdVersion>1.2.0</DtdVersion>
  </ProviderInfo>
  <ProductPeriodicNotification>
    <ProductReportRequest>
      <SalePeriod beginTime="20010101000000" endTime="20010201000000"/>
      <ProductType productKind="PPV"/>
    </ProductReportRequest>
    <ProductReportReply>
      <ProductionData>
        <Production>
          <ProductionId>35000</ProductionId>
          <ProductionTitle>Titanic</ProductionTitle>
          <BillingDescription>Description Production 1</BillingDescription>
          <MovieStudio>Studio X</MovieStudio>
          <ContentProviderId>NA</ContentProviderId>
          <ParentalRating>10</ParentalRating>
          <UserContentCategory>2f</UserContentCategory>
        </Production>
        <Production>
          <ProductionId>35001</ProductionId>
          <ProductionTitle>Star Wars Trilogy</ProductionTitle>
          <BillingDescription>Description Production 2</BillingDescription>
          <MovieStudio>Studio Y</MovieStudio>
          <ContentProviderId>NA</ContentProviderId>
          <ParentalRating>12</ParentalRating>
          <UserContentCategory>1a</UserContentCategory>
        </Production>
      </ProductionData>
      <ProductData>
        <Product>
          <ProductId>523</ProductId>
          <ProductType productKind="PPV" impulsiveFlag="1" specialPpv="0"/>
          <ProductStatus suspendedFlag="0" soldFlag="1"/>
          <ProductText language="eng">
            <ProductName>Titanic</ProductName>
            <ProductDescription>Titanic description</ProductDescription>
          </ProductText>
          <SalePeriod beginTime="20001120090000" endTime="20001130000000"/>
          <ProductCategory>3</ProductCategory>
          <EpgPrice>6.99</EpgPrice>
          <Pricing billAccountUnit="U">
            <MovieStudioPriceExcl>3.99</MovieStudioPriceExcl>
            <SubscriberPriceIncl>6.99</SubscriberPriceIncl>
            <SubscriberPriceExcl>5</SubscriberPriceExcl>
          </Pricing>
          <ProductionId>35000</ProductionId>
          <PpvData>
            <ValidityPeriod beginTime="20001124000000" endTime="20001202000000"/>
            <Event beginTime="20001129233000" duration="1800">
              <EventId>300575</EventId>
              <EpgText language="eng">
                <ShortName>Titanic</ShortName>
                <Name>Titanic</Name>
              </EpgText>
              <DvbContent>
                <Content nibble1="1" nibble2="0"/>
                <User nibble1="2" nibble2="0"/>
              </DvbContent>
              <ChannelNumber>102</ChannelNumber>
            </Event>
          </PpvData>
        </Product>
```

```xml
<Product>
  <ProductId>248</ProductId>
  <ProductType productKind="PPV" impulsiveFlag="0" specialPpv="0"/>
  <ProductStatus suspendedFlag="0" soldFlag="0"/>
  <ProductText language="eng">
    <ProductName>Star Wars Trilogy</ProductName>
    <ProductDescription>The Star Wars Trilogy</ProductDescription>
  </ProductText>
  <SalePeriod beginTime="20001201143206" endTime="20001201143208"/>
  <ProductCategory>5</ProductCategory>
  <EpgPrice>29.99</EpgPrice>
  <Pricing billAccountUnit="U">
    <MovieStudioPriceExcl>20.99</MovieStudioPriceExcl>
    <SubscriberPriceIncl>29.99</SubscriberPriceIncl>
    <SubscriberPriceExcl>27.50</SubscriberPriceExcl>
  </Pricing>
  <ProductionId>35001</ProductionId>
  <PpvData>
    <ValidityPeriod beginTime="20001125000000" endTime="20001129000000"/>
    <Event beginTime="20001126193000" duration="1800">
      <EventId>300423</EventId>
      <EpgText language="eng">
        <ShortName>Star War I</ShortName>
        <Name>Star War I</Name>
      </EpgText>
      <DvbContent>
        <Content nibble1="1" nibble2="0"/>
        <User nibble1="2" nibble2="0"/>
      </DvbContent>
      <ChannelNumber>102</ChannelNumber>
    </Event>
    <Event beginTime="20001126200000" duration="1800">
      <EventId>300424</EventId>
      <EpgText language="eng">
        <ShortName>Star War II</ShortName>
        <Name>Star War II</Name>
      </EpgText>
      <DvbContent>
        <Content nibble1="1" nibble2="0"/>
        <User nibble1="2" nibble2="0"/>
      </DvbContent>
      <ChannelNumber>102</ChannelNumber>
    </Event>
    <Event beginTime="20001126203000" duration="1800">
      <EventId>300425</EventId>
      <EpgText language="eng">
        <ShortName>Star War III</ShortName>
        <Name>Star War III</Name>
      </EpgText>
      <DvbContent>
        <Content nibble1="1" nibble2="0"/>
        <User nibble1="2" nibble2="0"/>
      </DvbContent>
      <ChannelNumber>102</ChannelNumber>
    </Event>
  </PpvData>
</Product>
<Product>
  <ProductId>1047</ProductId>
  <ProductType productKind="PPV" impulsiveFlag="1" specialPpv="0"/>
  <ProductStatus suspendedFlag="0" soldFlag="0"/>
  <ProductText language="eng">
    <ProductName>Scooby Doo IPPV</ProductName>
    <ProductDescription>Scooby Doo IPPV</ProductDescription>
  </ProductText>
  <SalePeriod beginTime="20001221153100" endTime="20001222153100"/>
  <EpgPrice>12.99</EpgPrice>
  <PpvData>
    <ValidityPeriod beginTime="20001220000000" endTime="20001223000000"/>
    <Event beginTime="20001221080000" duration="1800">
      <EventId>301225</EventId>
      <EpgText language="eng">
        <ShortName>Scooby Doo</ShortName>
        <Name>Scooby Doo</Name>
```

ImsDex2X1Spe010000.Pub.doc, 29/05/01

CH - 1033 CHESEAUX, SWITZERLAND ☏+41.21.732.03.11 🖹+41.21.732.03.00

```
            <Description>More ghostly and ghoulish goings...</Description>
          </EpgText>
          <ChannelNumber>3008</ChannelNumber>
        </Event>
      </PpvData>
    </Product>
  </ProductData>
</ProductReportReply>
  </ProductPeriodicNotification>
</ProductManagementData>
```

5.2 ProductPeriodicNotification export file (Subscription products)

```
<?xml version="1.0" encoding="ASCII"?>
<!DOCTYPE ProductManagementData SYSTEM "ProductManagementData.dtd">
<ProductManagementData creationDate="20010213103448">
  <ProviderInfo>
    <ProviderId>IMS Nagra</ProviderId>
    <ProviderName>IMS Nagravision S.A.</ProviderName>
    <DtdVersion>1.2.0</DtdVersion>
  </ProviderInfo>
  <ProductPeriodicNotification>
    <ProductReportRequest>
      <SalePeriod beginTime="20010101000000" endTime="20010201000000"/>
      <ProductType productKind="Sub"/>
    </ProductReportRequest>
    <ProductReportReply>
      <ProductData>
        <Product>
          <ProductId>842</ProductId>
          <ProductType productKind="Sub" impulsiveFlag="0" specialPpv="0"/>
          <ProductStatus suspendedFlag="0" soldFlag="0"/>
          <ProductText language="eng">
            <ProductName>MTV Subscription</ProductName>
            <ProductDescription>MTV Subscription</ProductDescription>
          </ProductText>
          <SalePeriod beginTime="20001211165654" endTime="20011211165654"/>
          <EpgPrice>0</EpgPrice>
          <SubscriptionData allowPpvEventsFlag="0">
            <Channel>
              <ChannelId>MTV</ChannelId>
              <ChannelNumber>102</ChannelNumber>
              <ChannelText language="eng">
                <ChannelShortName>MTV</ChannelShortName>
                <ChannelName>Music TV</ChannelName>
                <ChannelDescription>Music TV</ChannelDescription>
              </ChannelText>
            </Channel>
          </SubscriptionData>
        </Product>
        <Product>
          <ProductId>244</ProductId>
          <ProductType productKind="Sub" impulsiveFlag="0" specialPpv="0"/>
          <ProductStatus suspendedFlag="0" soldFlag="0"/>
          <ProductText language="eng">
            <ProductName>BBC Package</ProductName>
            <ProductDescription>BBC Subscription Package</ProductDescription>
          </ProductText>
          <SalePeriod beginTime="20001201130315" endTime="20011201130315"/>
          <EpgPrice>0</EpgPrice>
          <SubscriptionData allowPpvEventsFlag="0">
            <Channel>
              <ChannelId>BBC1</ChannelId>
              <ChannelNumber>103</ChannelNumber>
              <ChannelText language="eng">
                <ChannelShortName>BBC1</ChannelShortName>
                <ChannelName>BBC1</ChannelName>
              </ChannelText>
            </Channel>
            <Channel>
              <ChannelId>BBC2</ChannelId>
              <ChannelNumber>104</ChannelNumber>
              <ChannelText language="eng">
```

```
          <ChannelShortName>BBC2</ChannelShortName>
          <ChannelName>BBC2</ChannelName>
        </ChannelText>
      </Channel>
    </SubscriptionData>
  </Product>
  <Product>
    <ProductId>818</ProductId>
    <ProductType productKind="Sub" impulsiveFlag="0" specialPpv="0"/>
    <ProductStatus suspendedFlag="0" soldFlag="0"/>
    <ProductText language="eng">
      <ProductName>TV5 Sub</ProductName>
      <ProductDescription>TV5 Sub</ProductDescription>
    </ProductText>
    <SalePeriod beginTime="20001201170844" endTime="20011201170844"/>
    <EpgPrice>0</EpgPrice>
    <SubscriptionData allowPpvEventsFlag="0">
      <Channel>
        <ChannelId>TV5</ChannelId>
        <ChannelNumber>110</ChannelNumber>
        <ChannelText language="eng">
          <ChannelShortName>TV5</ChannelShortName>
          <ChannelName>TV5</ChannelName>
        </ChannelText>
      </Channel>
    </SubscriptionData>
  </Product>
    </ProductData>
  </ProductReportReply>
  </ProductPeriodicNotification>
</ProductManagementData>
```

5.3 ProductChangeNotification export file

```
<?xml version="1.0" encoding="ASCII"?>
<!DOCTYPE ProductManagementData SYSTEM "ProductManagementData.dtd">
<ProductManagementData creationDate="20001214160000">
  <ProviderInfo>
    <ProviderId>IMS Nagra</ProviderId>
    <ProviderName>IMS NagraVision S.A.</ProviderName>
    <DtdVersion>1.1.1</DtdVersion>
  </ProviderInfo>
  <ProductChangeNotification>
    <DeletedProductionData>
      <ProductionId>34000</ProductionId>
      <ProductionId>34005</ProductionId>
    </DeletedProductionData>
    <ProductionData>
      <Production>
        <ProductionId>35000</ProductionId>
        <ProductionTitle>Production 1</ProductionTitle>
        <BillingDescription>Description Production 1</BillingDescription>
        <MovieStudio>Studio 1</MovieStudio>
        <ContentProviderId>NA</ContentProviderId>
        <ParentalRating>10</ParentalRating>
        <UserContentCategory>4</UserContentCategory>
      </Production>
    </ProductionData>
    <DeletedProductData>
      <ProductId>5000</ProductId>
      <ProductId>5005</ProductId>
    </DeletedProductData>
    <ProductData>
      <Product>
        <ProductId>10000</ProductId>
        <ProductType productKind="PPV" impulsiveFlag="1"/>
        <ProductStatus suspendedFlag="0" soldFlag="0"/>
        <ProductText language="eng">
          <ProductName>Game 1</ProductName>
          <ProductDescription>Description Game 1</ProductDescription>
        </ProductText>
        <ProductText language="fra">
          <ProductName>Jeu 1</ProductName>
```

```
        <ProductDescription>Description Jeu 1</ProductDescription>
      </ProductText>
      <SalePeriod beginTime="20001213190000" endTime="20001218193000"/>
      <ProductCategory>1</ProductCategory>
      <EpgPrice>3.99</EpgPrice>
      <Pricing billAccountUnit="A">
        <MovieStudioPriceExcl>1.99</MovieStudioPriceExcl>
        <SubscriberPriceIncl>3.99</SubscriberPriceIncl>
        <SubscriberPriceExcl>3.45</SubscriberPriceExcl>
      </Pricing>
      <ProductionId>35000</ProductionId>
      <PpvData>
        <ValidityPeriod beginTime="20001217190000" endTime="20001219193000"/>
        <Event beginTime="20001218190000" duration="1800">
          <EventId>100000</EventId>
          <PreviewTime>5</PreviewTime>
          <EpgText language="eng">
            <ShortName>Name 1</ShortName>
            <Name>Name Event 1</Name>
            <Description>Description Event 1</Description>
          </EpgText>
          <ParentalRating>10</ParentalRating>
          <DvbContent>
            <Content nibble1="3" nibble2="1"/>
            <User nibble1="3" nibble2="a"/>
          </DvbContent>
          <ChannelNumber>10</ChannelNumber>
        </Event>
      </PpvData>
    </Product>
    <Product>
      <ProductId>20000</ProductId>
      <ProductType productKind="Sub" impulsiveFlag="0"/>
      <ProductStatus suspendedFlag="0" soldFlag="1"/>
      <ProductText language="eng">
        <ProductName>Bouquet 1</ProductName>
        <ProductDescription>Description Bouquet 1</ProductDescription>
      </ProductText>
      <ProductText language="fra">
        <ProductName>Bouquet 1</ProductName>
        <ProductDescription>Description Bouquet 1</ProductDescription>
      </ProductText>
      <SalePeriod beginTime="19990101000000" endTime="20031231235959"/>
      <ProductCategory>2</ProductCategory>
      <EpgPrice>129.99</EpgPrice>
      <SubscriptionData allowPpvEventsFlag="1">
        <Channel>
          <ChannelId>800</ChannelId>
          <ChannelNumber>10</ChannelNumber>
          <ChannelText language="eng">
            <ChannelShortName>Short name BBC 1</ChannelShortName>
            <ChannelName>Name BBC 1</ChannelName>
            <ChannelDescription>Description BBC 1</ChannelDescription>
          </ChannelText>
        </Channel>
        <Channel>
          <ChannelId>810</ChannelId>
          <ChannelNumber>20</ChannelNumber>
          <ChannelText language="eng">
            <ChannelShortName>Short name Euronews</ChannelShortName>
            <ChannelName>Name Euronews</ChannelName>
            <ChannelDescription>Description Euronews</ChannelDescription>
          </ChannelText>
        </Channel>
      </SubscriptionData>
    </Product>
  </ProductData>
 </ProductChangeNotification>
</ProductManagementData>
```

—— END OF DOCUMENT ——