Eastern Multimedia Company
IMS
Data Exporter (As Run File Interface 3X1)
Specifications
V 1.0.1

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Table Of Contents

CH - 1033 CHESEAUX, SWITZERLAND +41.21.732.03.11 +41.21.732.03.00

List of figures

List of tables

CH - 1033 CHESEAUX, SWITZERLAND +41.21.732.03.11 +41.21.732.03.00

1 Introduction

1.1 Purpose

This document defines the Nagravision Data Exporter XML As Run file interface, that is, the generated format of the as-run schedule 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 as-run information. 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

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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.

In the context of as-run reports, only the periodic triggering is relevant. Since the exported data reflects the effective status of a past schedule, no change notification is required.

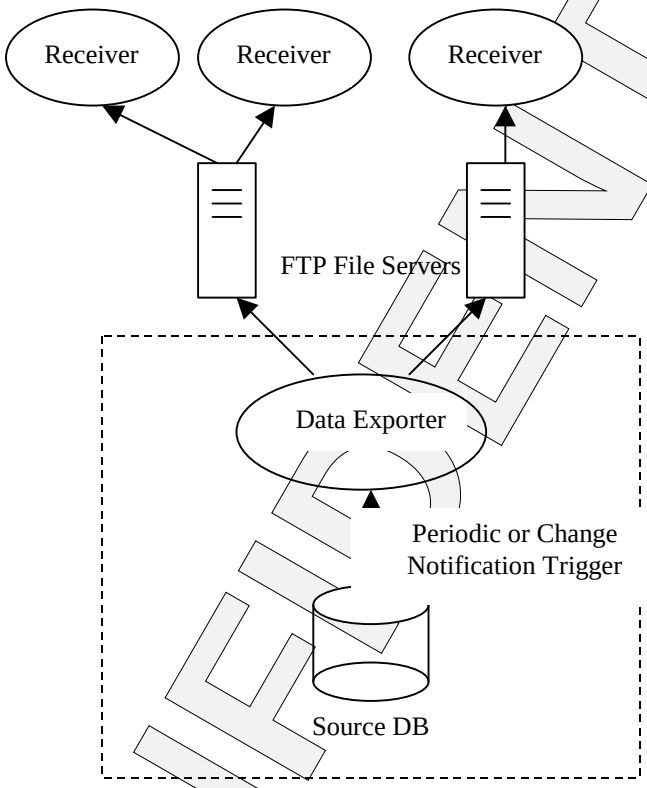

Fig. 2-1 System Interface

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3 Formal Interface Specification

The following XML Document Type Definition (DTD) specifies the XML As Run 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 done in that direction (XML Schemas), Nagra currently addresses this issue by means of a separate document, the DTD extension (section 3.2).

The As Run Data DTD addresses three different goals, covered by specific nested XML elements:

```
1) <Event>              Report Planned Events & Products Schedule
2)  <PlayedEvent>       Report Effective Played Events Schedule
3)   <PlayedSubEvent>   Report detailed On Air Media Server As-Run clips
```

If the IMS system does not control any Media Server(s), no `<PlayedEvent>` or `<PlayedSubEvent>` data is available, since in that case IMS does not manage any effective as-run information. Only the originally planned schedule is provided as pseudo as-run information.

If the IMS system does control some Media Server(s), `<PlayedEvent>` info and optionally `<PlayedSubEvent>` info are available.

`<PlayedEvent>` info is typically used by the target system to determine if a specific PPV product can be considered as successfully played, and thus charged to subscribers.

`<PlayedSubEvent>` info is typically used as a detailed chronological log of the effective On-Air played clips. It can be used to determine what was exactly broadcast at any past point in time.

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3.1 DTD (AsRunData.dtd)

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

<!-- ============================================================= -->
<!-- Nagra As Run Data - XML Document Type Definition - v 1.0.0    -->
<!--                                                               -->
<!--      (c) 2000-2001 Nagravision S.A. - All rights reserved     -->
<!-- ============================================================= -->

<!--
  History:

     v 1.0.0, March 2001:
       - As Run 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.
-->

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

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

<!ELEMENT AsRunData (ProviderInfo, ScheduleData?)>
<!ATTLIST AsRunData creationDate CDATA #REQUIRED>

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

<!-- ============================================================= -->
<!-- SCHEDULE DATA SECTION                                         -->
<!-- ============================================================= -->

<!-- ScheduleData: reports the as-run played event schedule for a given
     period in the past on the given channels.
-->

<!ELEMENT ScheduleData (ChannelPeriod*)>

<!-- ============================================================= -->
<!-- Schedule ChannelPeriod sub-section                            -->
<!-- ============================================================= -->

<!-- ChannelPeriod: reports the as-run played schedule on a channel for a
     given period of time. The <ChannelId> uniquely identifies the channel.
     The Event list is chronologically ordered.
-->

<!ELEMENT ChannelPeriod (ChannelId, Event*)>
<!ATTLIST ChannelPeriod beginTime CDATA #REQUIRED>
<!ATTLIST ChannelPeriod endTime CDATA #REQUIRED>

<!-- ChannelId: Uniquely identifies the channel.
-->
```


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

<!-- Event: reports the original scheduling of an event and, if available,
     the effective <PlayedEvent> play-out information.
-->

<!ELEMENT Event (EventId?, PreviewTime?, EpgProduction, SingleEventProduct?,
                 PlayedEvent?)>
<!ATTLIST Event beginTime CDATA #REQUIRED>
<!ATTLIST Event duration CDATA #REQUIRED>

<!-- EventId: If present, uniquely identifies the event.
-->

<!ELEMENT EventId (#PCDATA)>

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

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

<!-- EpgProduction: reports the schedule unrelated information
     of an event (such as textual descriptions, ratings, ...)
-->

<!ELEMENT EpgProduction (EpgText+)>

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

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

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

<!-- ExtendedInfo: allows to report additional "custom" attributes given
     by a tag-value pair.
     Example: <ExtendedInfo name="Director">J. Cameron</ExtendedInfo>
-->

<!ELEMENT ExtendedInfo (#PCDATA)>
<!ATTLIST ExtendedInfo name CDATA #REQUIRED>

<!-- SingleEventProduct: reports the optional single-event product info
     associated to that event.
-->

<!ELEMENT SingleEventProduct (ProductId, ProdCategoryId?, GroupProductId?,
                              Production?)>

<!-- ProductId: Uniquely identifies the single-event PPV product.
-->

<!ELEMENT ProductId (#PCDATA)>
<!ELEMENT ProdCategoryId (#PCDATA)>
<!ELEMENT GroupProductId (#PCDATA)>

<!-- Production: identifies the Production and some related attributes.

     The <ProductionId> is the globally unique production identifier.
-->

<!ELEMENT Production (ProductionId, ProductionTitle, ContentProviderId?)>

<!ELEMENT ProductionId (#PCDATA)>
<!ELEMENT ProductionTitle (#PCDATA)>
<!ELEMENT ContentProviderId (#PCDATA)>

<!-- PlayedEvent: reports the effective play-out of an event.
     The "beginTime" [UTC date] & "duration" [seconds] attributes represent
```


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```
     the effective play-out data of the event.
     The "statusOk" attribute reports the consolidated play-out status,
     e.g. specifies if the event can be considered as successfully played
     or not.
-->

<!ELEMENT PlayedEvent (PlayedSubEvent*)>
<!ATTLIST PlayedEvent beginTime CDATA #REQUIRED>
<!ATTLIST PlayedEvent duration CDATA #REQUIRED>
<!ATTLIST PlayedEvent statusOk CDATA "1">

<!-- PlayedSubEvent: reports the detailed as-run playout at the asset level.
     The "beginTime/beginTimeFF" [UTC date/frames] & "duration/durationFF"
     [seconds/frames] attributes represent the effective play-out data of the
     sub-event.

     <PlayedSubEvent> are ordered chronologically within <PlayedEvent>.
-->

<!ELEMENT PlayedSubEvent (TimecodeIn, AssetId, AssetDescription?,
                          MediaServerMuxId, MediaServerId, PlayOutStatus)>
<!ATTLIST PlayedSubEvent beginTime CDATA #REQUIRED>
<!ATTLIST PlayedSubEvent beginTimeFF CDATA "0">
<!ATTLIST PlayedSubEvent duration CDATA #REQUIRED>
<!ATTLIST PlayedSubEvent durationFF CDATA "0">

<!-- TimecodeIn: Reports the mark-in offset time into the played asset.
     The element body is expressed in seconds and FF attribute in frames.
-->

<!ELEMENT TimecodeIn (#PCDATA)>
<!ATTLIST TimecodeIn FF CDATA "0">

<!-- AssetId: Uniquely identifies the asset played by the on-air Media Server.
     The "defaultAssetFlag" attribute indicates if the played Asset was the
     default Asset (which, if true, indicates that some problems occured with
     the originally scheduled asset.)
-->

<!ELEMENT AssetId (#PCDATA)>
<!ATTLIST AssetId defaultAssetFlag CDATA "0">

<!ELEMENT AssetDescription (#PCDATA)>

<!-- MediaServerMuxId & MediaServerId: Uniquely identifies respectively the
     Media Server Mux and on-air Media Server which played the asset.
-->

<!ELEMENT MediaServerMuxId (#PCDATA)>
<!ELEMENT MediaServerId (#PCDATA)>

<!-- PlayOutStatus: Specificies the status of the reported play-out.

     If <PlayOutStatus> = 1, no errors were detected and all the
     reported <PlayedSubEvent> data are valid.

     If <PlayOutStatus> != 1, errors were detected while playing the
     asset. Some of the reported <PlayedSubEvent> data might be inaccurate.
-->

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


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3.2 DTD Extension (AsRunData.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
//============================================================

AsRunData.creationDate                  DateTime      YYYYMMDDHHmmSS
ProviderId.__BODY__                     String        1 10
ProviderName.__BODY__                   String        1 80
DtdVersion.__BODY__                     String        1 20
ChannelPeriod.beginTime                 DateTime      YYYYMMDDHHmmSS
ChannelPeriod.endTime                   DateTime      YYYYMMDDHHmmSS
ChannelId.__BODY__                      String        1 20
Event.beginTime                         DateTime      YYYYMMDDHHmmSS
Event.duration                          Num           0 359999
EventId.__BODY__                        String        1 12
PreviewTime.__BODY__                    Num           0 99
PreviewTime.null                        Bool          -
EpgText.language                        Language      ISO_639_2
ShortName.__BODY__                      String        1 15
Name.__BODY__                           String        1 80
ExtendedInfo.__BODY__                   String        1 512
ExtendedInfo.name                       String        1 255
ProductId.__BODY__                      Num           1 999999999999
ProdCategoryId.__BODY__                 Num           0 99
GroupProductId.__BODY__                 Num           1 99999
ProductionId.__BODY__                   String        1 10
ProductionTitle.__BODY__                String        1 80
ContentProviderId.__BODY__              String        1 2
PlayedEvent.beginTime                   DateTime      YYYYMMDDHHmmSS
PlayedEvent.duration                    Num           0 359999
PlayedEvent.statusOk                    Bool          -
PlayedSubEvent.beginTime                DateTime      YYYYMMDDHHmmSS
PlayedSubEvent.beginTimeFF              Num           0 99
PlayedSubEvent.duration                 Num           0 359999
PlayedSubEvent.durationFF               Num           0 99
TimecodeIn.__BODY__                     Num           0 359999
TimecodeIn.FF                           Num           0 99
AssetId.__BODY__                        String        1 80
AssetId.defaultAssetFlag                Bool          -
AssetDescription.__BODY__               String        1 24
MediaServerMuxId.__BODY__               String        1 255
MediaServerId.__BODY__                  String        1 50
PlayOutStatus.__BODY__                  Num           0 9
```


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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:

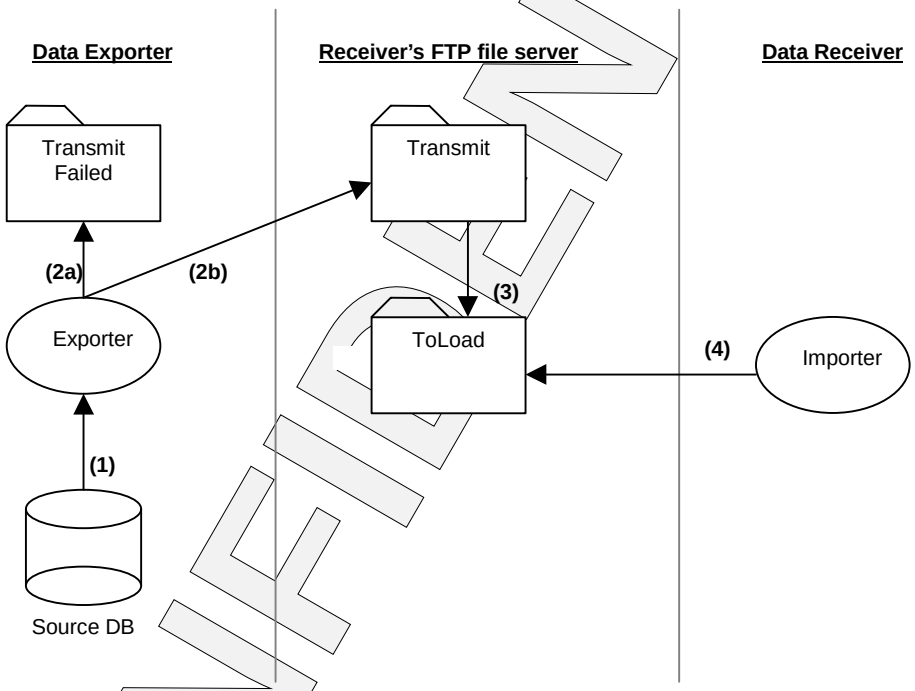

Fig. 4-1 Product File handling

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*

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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: AsRun_20000721131005.xml
```

The `prefix` is a freely configurable string.

4.2 Data Delivery Mode

The Exporter supports the following mode to deliver as-run data:

1. Periodic notification: The Data Exporter periodically delivers all as-run data within a given past Extract Time Window for a given group of Channels. The frequency of the delivery is a static parameter of the application, but is typically set to 24 hours.

The Time of Delivery and Extract Time Window are configurable parameters of the application as well.

4.3 Data Selection

4.3.1 Generalities

The As-Run Data is periodically (normally daily) exported on a configurable group of channels. The group of channels is selected either by a common type or by a list of ID's.

When existing, associated PPV single-event products are exported as well. Events without associated PPV products are however not filtered out (e.g. it is an event as-run file with product info, and not a product as-run file).

4.3.2 Extract Time Window

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

The Extract Time Window is given as follows:

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


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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 events' *Begin Time* must be included within the Extract Time Window, e.g. fulfill the following criteria:

```
(Event.beginTime >= WindowStartDate ) AND
(Event.beginTime <= WindowEndDate   )
```

Even though the configuration parameters allow full flexibility, the typical suggested configuration is:

```
WindowStartOffset = -24 Hours
WindowDuration    = 24 Hours
```

With the above configuration, an as-run file is exported every day with a one-day offset delay.

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4.3.3 Consolidation

NB: This section must not be considered as a functional requirement specification of the Media Server. In case of discrepancy between the behavior described below and the actual Media Server functionality, the relevant Media Server specification documents takes precedence.

4.3.3.1 Overview

In order to provide full redundancy, multiple Media Servers (MS) may be used in parallel to feed the NVOD services' broadcast head-end input. In the nominal case, each redundant MS is providing the same MPEG stream at the same time. Nevertheless, at any given time, only one MS output is used as effective broadcasting source. This MS is called the active MS or the on-air MS. The *on-air MS history* is logged in the IMS system.

Moreover, while it is running, each Media Server logs the effective play-out parameters of each played clip (without knowing if it is actually on-air or not). The *MS play-out* info is also logged in the IMS system.

Later on, the redundant MS play-out logs and the on-air MS history are consolidated in order to reconstruct the actual on-air as-run log of each sub-event and event. This phase is called the *consolidation*.

4.3.3.2 On-Air Media Server Switch

To function properly, the as-run consolidation procedure requires knowing which Media Server was effectively on-air at any time. Therefore, each On-Air MS switch must be accurately detected and logged. The consolidation procedure will then use the On-Air MS history to determine which MS play-out is relevant at any time.

On-air MS switch are usually detected and automatically loged (by continuously monitoring the output of the ASI switch). However, if that function is not automated, it is possible to enter MS switch info manually via the MCSM GUI.

Given the proposed sliding-window based periodic generation, if On-Air MS history (provided automatically or manually) is not regularly available up to the end of the generation window, the as-run file will still be exported, but some <PlayedEvent> info will be missing. Regeneration of the as-run file after the complete On-Air MS history has been provided will be possible, but will require manual intervention to re-trigger the generation (and possibly modify the Extract Time Window parameters).

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4.3.3.3 Sample

Fig. 4-2 illustrates how as-run info are collected by the Media Servers (MS) and consolidated in the As Run Export file.

The figure is divided in three sections:

1) The planned schedule (Events and SubEvents).
2) The effective as-run playout logged by two redundant Media Servers MS1 & MS2, and the effective On-Air Media Server information logged by the MS monitoring switch.
3) The consolidated exported as-run info (PlayedSubEvents and PlayedEvents).

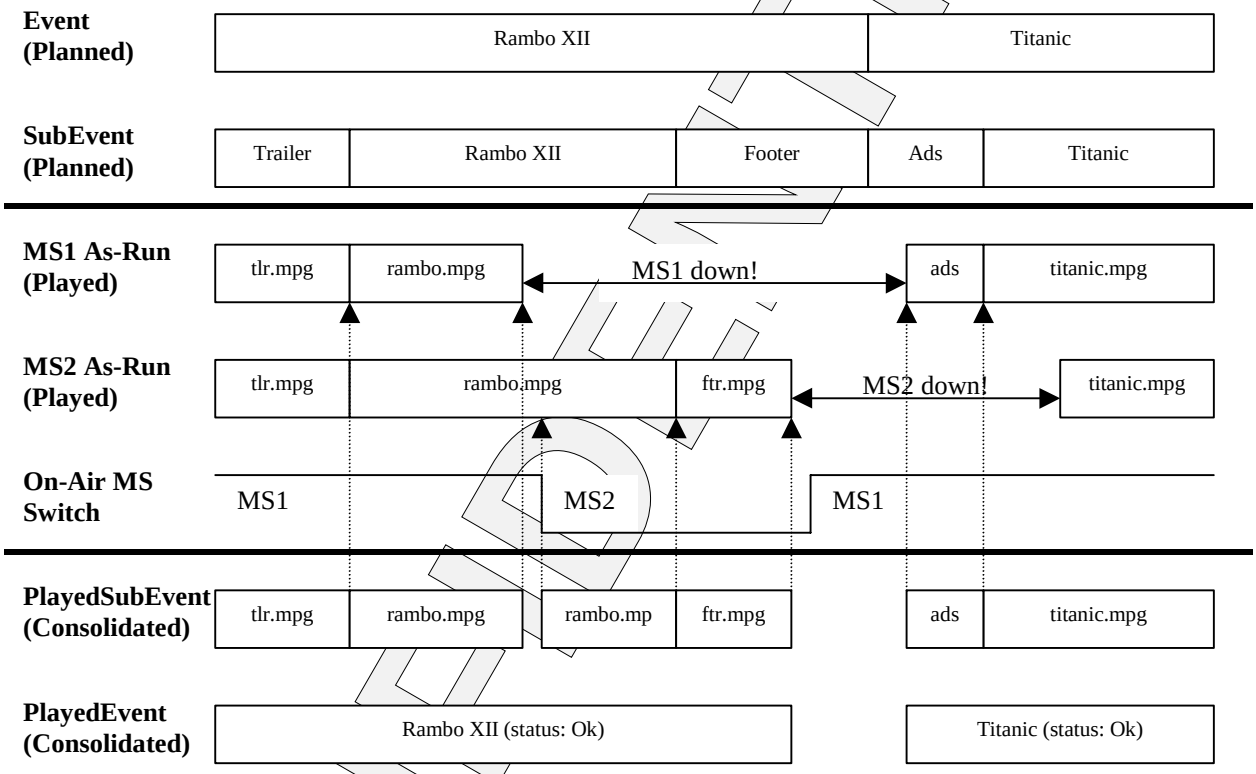

Fig. 4-2 Consolidation Sample

We can notice that the consolidated PlayedSubEvent reports the switching from MS1 to MS2 in the middle of playing Rambo XII. The normally single planned Rambo XII SubEvent is reported as two truncated PlayedSubEvents. The TimecodeIn of the second PlayedSubEvent would indicate at which point in time the MS2 took over the playing of the clip.

When the MS2 goes down as well, nothing is broadcast anymore for a while and there's a gap in the reported PlayedSubEvents. When MS1 recovers, PlayedSubEvents records resume.

On the consolidated PlayedEvent, we notice that both events are reported with status Ok, since their respective main SubEvent was successfully played.

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4.3.3.4 Consolidation Rules

The procedure merging the redundant Media Servers as-run logs and reporting the consolidated play-out status & info applies the following consolidation rules:

- The procedure consolidates all the data up to the last known on-air MS period end date. For each service, all the play-outs with a start date lower than or equals to this maximum end date are consolidated.

- The procedure consolidates the following data of the sub-events and events:

  1 Actual start date and time.
  2 Actual duration.
  3 Play status.

- Sub-events are consolidated on the basis of the play-out data of the on-air Media Server.

  Table 1 below describes the rules to consolidate sub-events data.

Field	Consolidation rule
Actual start date and time	Minimum actual start date and time of all play-outs with status OK related to the on-air Media Server and to the sub-event.
Actual duration	Sum of the actual duration of all play-outs with status OK related to the on-air Media Server and to the sub-event.
Play status	Value is OK if the status of all the play-outs related to the on-air Media Server and to the sub-event are OK, otherwise value is FAILED. If not at least one MS play-out with status OK exists, the actual start date and time as well as the actual duration are undefined.

Table 1: Sub-event consolidation rules

  NB: In cases where a problem occurs during the play-out of a clip, more than one play-out can be related to a same sub-event.

- Events are consolidated on the basis of the related consolidated sub-events. Depending on a configuration parameter, all the sub-events or only the main sub-events are taken into account for the consolidation (section 4.3.3.5).

  Table 2 below describes the rules to consolidate events data.

Field	Consolidation rule
Actual start date and time	Minimum actual start date and time of all sub-events related to the event.
Actual duration	Sum of the actual duration of all sub-events related to the event.
Play status	Value is OK if the status of all sub-events related to the event is OK, otherwise value is FAILED. If not at least one sub-event with status OK exists, the actual start date and time as well as the actual duration are undefined.

Table 2: Event consolidation rules

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4.3.3.5 Consolidation Parameters

The consolidation rules can be parameterized as follows:

Parameter	Type	Unit	Default value	Description	Impact
Accepted start gap	Numeric	Second	900	Maximum tolerated difference between the scheduled start of a sub-event and the actual start of the first play-out related to this sub-event.	If the condition is not fulfilled, the sub-event play status will be set to FAILED.
Accepted end gap	Numeric	Second	900	Maximum tolerated difference between the scheduled end of a sub-event and the actual end of the last play-out related to this sub-event.	If the condition is not fulfilled, the sub-event play status will be set to FAILED.
Accepted FAILED play-out	Numeric	Second	10	Maximum tolerated duration of a play-out having a play status equal to FAILED that won't affect the status of the related sub-event. This situation should normally only occur in case of MS switch.	If the condition is not fulfilled, the sub-event play status will be set to FAILED.
Accepted no active MS	Numeric	Second	10	Maximum tolerated gap during which no active MS info is available. In other words, tolerated gap during which it is not possible to determine which was the active MS.	If the condition is not fulfilled, the sub-event play status will be set to FAILED.
Accepted no play-out gap	Numeric	Second	10	Maximum tolerated gap during which no play-out data is available at all for both MS.	If the condition is not fulfilled, the sub-event play status will be set to FAILED.
Consolidate main sub-event only	Boolean	-	0	Flag indicating if the events play-out are consolidated on the basis of the main sub-events only (1) or on the basis of all the sub-events (0).	Take into account main sub-events only or all the sub-events for the consolidation of the events data.

Table 3: Consolidation parameters

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5 Samples

5.1 As-Run Light export file (no Media Server)

This file reports the originally planned schedule info. There aren't any effective play-out info since IMS does not control the Media Server.

```
<!DOCTYPE AsRunData SYSTEM "AsRunData.dtd">
<AsRunData creationDate="20000721160000">
  <ProviderInfo>
    <ProviderId>Nagra</ProviderId>
    <ProviderName>NagraVision S.A.</ProviderName>
    <DtdVersion>1.0.0</DtdVersion>
  </ProviderInfo>
  <ScheduleData>
    <ChannelPeriod beginTime="20010322005000" endTime="20010323002000">
      <ChannelId>NVOD1</ChannelId>
      <Event beginTime="20010322005000" duration="7200">
        <EventId>123000</EventId>
        <PreviewTime>3</PreviewTime>
        <EpgProduction>
          <EpgText language="eng">
            <Name>Rambo XII</Name>
            <ExtendedInfo name="Actors">S. Stallone</ExtendedInfo>
          </EpgText>
        </EpgProduction>
        <SingleEventProduct>
          <ProductId>311500</ProductId>
          <ProdCategoryId>1</ProdCategoryId>
          <Production>
            <ProductionId>FR123000</ProductionId>
            <ProductionTitle>Rambo XII</ProductionTitle>
            <ContentProviderId>FR</ContentProviderId>
          </Production>
        </SingleEventProduct>
      </Event>
      <Event beginTime="20010322025000" duration="7200">
        <EventId>123001</EventId>
        <PreviewTime>3</PreviewTime>
        <EpgProduction>
          <EpgText language="eng">
            <Name>Rambo XII</Name>
            <ExtendedInfo name="Actors">S. Stallone</ExtendedInfo>
          </EpgText>
        </EpgProduction>
        <SingleEventProduct>
          <ProductId>311501</ProductId>
          <ProdCategoryId>1</ProdCategoryId>
          <Production>
            <ProductionId>FR123000</ProductionId>
            <ProductionTitle>Rambo XII</ProductionTitle>
            <ContentProviderId>FR</ContentProviderId>
          </Production>
        </SingleEventProduct>
      </Event>
    </ChannelPeriod>
  </ScheduleData>
</AsRunData>
```


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5.2 As-Run Standard export file

This file reports the originally planned schedule info and, additionally, the consolidated as-run <PlayedEvent> info (marked in bold).

```
<!DOCTYPE AsRunData SYSTEM "AsRunData.dtd">
<AsRunData creationDate="20000721160000">
  <ProviderInfo>
    <ProviderId>Nagra</ProviderId>
    <ProviderName>NagraVision S.A.</ProviderName>
    <DtdVersion>1.0.0</DtdVersion>
  </ProviderInfo>
  <ScheduleData>
    <ChannelPeriod beginTime="20010322005000" endTime="20010323002000">
      <ChannelId>NVOD1</ChannelId>
      <Event beginTime="20010322005000" duration="7200">
        <EventId>123000</EventId>
        <PreviewTime>3</PreviewTime>
        <EpgProduction>
          <EpgText language="eng">
            <Name>Rambo XII</Name>
            <ExtendedInfo name="Actors">S. Stallone</ExtendedInfo>
          </EpgText>
        </EpgProduction>
        <SingleEventProduct>
          <ProductId>311500</ProductId>
          <ProdCategoryId>1</ProdCategoryId>
          <Production>
            <ProductionId>FR123000</ProductionId>
            <ProductionTitle>Rambo XII</ProductionTitle>
            <ContentProviderId>FR</ContentProviderId>
          </Production>
        </SingleEventProduct>
        <PlayedEvent beginTime="20010322005003" duration="7197" statusOk="1"/>
      </Event>
      <Event beginTime="20010322025000" duration="7200">
        <EventId>123001</EventId>
        <PreviewTime>3</PreviewTime>
        <EpgProduction>
          <EpgText language="eng">
            <Name>Rambo XII</Name>
            <ExtendedInfo name="Actors">S. Stallone</ExtendedInfo>
          </EpgText>
        </EpgProduction>
        <SingleEventProduct>
          <ProductId>311501</ProductId>
          <ProdCategoryId>1</ProdCategoryId>
          <Production>
            <ProductionId>FR123000</ProductionId>
            <ProductionTitle>Rambo XII</ProductionTitle>
            <ContentProviderId>FR</ContentProviderId>
          </Production>
        </SingleEventProduct>
        <PlayedEvent beginTime="20010322025001" duration="7202" statusOk="1"/>
      </Event>
    </ChannelPeriod>
  </ScheduleData>
</AsRunData>
```


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5.3 As-Run Full export file (including as-run on-air clips)

This file reports the originally planned schedule info, the consolidated as-run <PlayedEvent> info and, additionally, the effective as-run on-air clips played by the Media Server (marked in bold).

```
<!DOCTYPE AsRunData SYSTEM "AsRunData.dtd">
<AsRunData creationDate="20000721160000">
  <ProviderInfo>
    <ProviderId>Nagra</ProviderId>
    <ProviderName>NagraVision S.A.</ProviderName>
    <DtdVersion>1.0.0</DtdVersion>
  </ProviderInfo>
  <ScheduleData>
    <ChannelPeriod beginTime="20010322005000" endTime="20010323002000">
      <ChannelId>NVOD1</ChannelId>
      <Event beginTime="20010322005000" duration="7200">
        <EventId>123000</EventId>
        <PreviewTime>3</PreviewTime>
        <EpgProduction>
          <EpgText language="eng">
            <Name>Rambo XII</Name>
            <ExtendedInfo name="Actors">S. Stallone</ExtendedInfo>
          </EpgText>
        </EpgProduction>
        <SingleEventProduct>
          <ProductId>311500</ProductId>
          <ProdCategoryId>1</ProdCategoryId>
          <Production>
            <ProductionId>FR123000</ProductionId>
            <ProductionTitle>Rambo XII</ProductionTitle>
            <ContentProviderId>FR</ContentProviderId>
          </Production>
        </SingleEventProduct>
        <PlayedEvent beginTime="20010322005003" duration="7197" statusOk="1">
          <PlayedSubEvent beginTime="20010322005003" beginTimeFF="9" duration="242" durationFF="23">
            <TimecodeIn FF="0">30</TimecodeIn>
            <AssetId defaultAssetFlag="0">ads103.mpg</AssetId>
            <AssetDescription>Advertisement</AssetDescription>
            <MediaServerMuxId>Mux3</MediaServerMuxId>
            <MediaServerId>PrimaryMS</MediaServerId>
            <PlayOutStatus>1</PlayOutStatus>
          </PlayedSubEvent>
          <PlayedSubEvent beginTime="20010322005406" beginTimeFF="7" duration="6605" durationFF="0">
            <TimecodeIn FF="0">0</TimecodeIn>
            <AssetId defaultAssetFlag="0">rambo.mpg</AssetId>
            <AssetDescription>Rambo XII</AssetDescription>
            <MediaServerMuxId>Mux3</MediaServerMuxId>
            <MediaServerId>PrimaryMS</MediaServerId>
            <PlayOutStatus>1</PlayOutStatus>
          </PlayedSubEvent>
          <PlayedSubEvent beginTime="20010322024411" beginTimeFF="7" duration="350" durationFF="5">
            <TimecodeIn FF="0">20</TimecodeIn>
            <AssetId defaultAssetFlag="0">trailers.mpg</AssetId>
            <AssetDescription>Trailers</AssetDescription>
            <MediaServerMuxId>Mux3</MediaServerMuxId>
            <MediaServerId>PrimaryMS</MediaServerId>
            <PlayOutStatus>1</PlayOutStatus>
          </PlayedSubEvent>
        </PlayedEvent>
      </Event>
    </ChannelPeriod>
  </ScheduleData>
</AsRunData>
```


—— END OF DOCUMENT ——

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