



Picture Archiving and Sharing Standard

A Joint Initiative

PASS(EVERPLAY) Originating/Authoring System Requirements



VERSION 1.101

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Fuji Photo Film Co., Ltd., Konica Minolta Photo Imaging, Inc., Eastman Kodak Company

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Document History

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1.0. PASS Overview

The Picture Archiving and Sharing Standard (PASS) is a digital imaging industry initiative that will allow consumers to easily save, print, playback, and share digital images in ways that were not accomplished easily or reliably before.

The current version of the PASS specification suite includes:

PASS Logical Disc Specification 1.10 (LDS)

PASS Originating and Authoring System Requirements 1.10 (O/A)

PASS Receiving and Playback System Requirements 1.10 (R/P)

The LDS includes a complete overview, definitions, and reference list for all documents in the specification suite. The LDS also includes XML references that are necessary for understanding the other documents. Readers are encouraged to become familiar with the LDS prior to reviewing this document.

2.0. Introduction to the PASS Originating and Authoring System Requirements

The Originating and Authoring System Requirements (O/A) defines the requirements for the creation of a PASS medium in terms of functionality. The O/A does not define any particular user-interface; however, to illustrate the functional requirements, some examples may be provided. The O/A also describes in detail the method of migrating one or more entire PASS Digital Volumes into a single new PASS Digital Volume.

2.1. Organization of the Originating and Authoring System Requirements

PASS uses special descriptor files ('manifests') that are defined by the MusicPhotoVideo Specification (MPV) of Optical Storage Technology Association (OSTA). These manifest files are defined in detail in the PASS Logical Disc Specification.

The O/A specifically describes

- a) Input and manipulation methods for digital assets;
- b) Creating manifest files;
- c) Creating a PASS Digital Volume; and
- d) Migrating older materials to a new PASS Digital Volume.

3.0. PASS directory structure

The LDS describes two configurations of directory structures: the PASS Recommended Directory Structure (RDS) or the PASS Open Directory Structure (ODS). See PASS LDS section 6 for detailed information on both the RDS and ODS.

When the O/A system supports both configurations, system operators are able to select the most appropriate structure for the PASS Digital Volume being created.

If migration functions are supported, the RDS format must be used. Migration is defined in section 9 of this specification.

4.0. Input of PASS digital assets

4.1. Input assets from various media

The PASS O/A system may support as many types of storage devices as possible with various types of card readers and adapters.

DSC memory cards are expected to be the most common input media. There are a variety of DSC memory cards, including SmartMedia, xD-Picture Card, CompactFlash, SD memory card, and MemoryStick. Camera phones use miniSD and MemoryStick Duo.

In many cases optical discs may also be used as input media. They are written by legacy retail services and by users with PCs. There are a variety of optical disc formats, including CD-R, DVD-R/RW, DVD+R/RW, and DVD-RAM.

Scanners may also be used when users bring in photo negatives and prints to convert to a PASS Digital Album. Creating PASS Digital Volumes by scanning is optional. Additionally the removable media accepted by a particular PASS O/A system may contain a PASS Digital Volume that might also serve as an input to an O/A system.

- The PASS O/A system must have a minimum of one input device to read asset files in the media that users would typically provide.

4.2. Input asset file types

Files referenced by any PASS manifest(s) as PASS asset files must be of the file types listed in section 4 of LDS version 1.1. Other files of any file type may be recorded on the PASS Digital Volume media but will not be considered part of the PASS Digital Volume.

- The O/A system must convert assets as necessary to the file formats described in section 4.0 of LDS to describe asset files as simple asset types and compound asset types permitted by PASS.
- When adhering to the PASS recommended directory structure, the O/A system must create and name the simple assets as described in section 6 of LDS. If a migration function is in process, the O/A system must discover, read, and process the simple assets currently existing on the PASS Digital Volumes being migrated.

4.3. Input asset metadata

The input file may contain metadata, such as from a DSC (Exif format). This metadata should be preserved. In addition, certain metadata are used by the PASS system and must be either defined or located by the O/A system.

- The O/A system may be capable of inputting metadata.
- The O/A system must be capable of locating metadata if any exists within the input files.
- The O/A system must look specifically for <dig35:ROLL> metadata. The <dig35:ROLL> metadata must be copied into the mpvpCtrl:ShowRotated element according to the following rules.
 - When an asset has a <dig35:ROLL> metadata where the value is corresponding to 0, 90, or 180, the O/A system must copy the value to mpvpCtrl:ShowRotated ControlProperties.
 - When an asset has a <dig35:ROLL> metadata where the value is -90, the O/A system must convert the metadata to 270 and copy the value to mpvpCtrl:ShowRotated ControlProperties.
 - When an asset has a <dig35:ROLL> metadata with any value other than 0, 90, [-90], or 180, the O/A system should round the value to the nearest 90 degree increment and then copy the rounded value to mpvpCtrl:ShowRotated ControlProperties.

4.4. Simple asset file types

In PASS, <mpv:Still>, <mpv:Video>, and <mpv:Audio> are permitted as simple asset types. File formats to handle asset files of these three asset types are described in section 4.0 of LDS.

- The O/A system may be capable of creating compound assets from one or more individual simple assets.

4.5. Compound assets

The PASS specification includes the following three kinds of image data defined in OSTA MPV as compound assets:

StillWithAudio

One still image file and one (or more) audio file(s).

StillMultishotSequence

Multiple (two or more) still images captured sequentially within short time; like a burst shot image.

StillPanoramaSequence

Multiple (two or more) still images captured with an intention to create a panorama.

5.0. Creating derivative (rendition) files for assets

Typically, still image assets of a PASS Digital Volume are the images from digital still cameras (DSC) and high-resolution scanners. These are generally too large for viewing on TVs and other consumer devices commonly in use today. In the PASS specification, derivative files may be stored in addition to original files. In PASS, screen and thumbnail files are permitted.

- The O/A system may create derivative files following requirements described in section 4 5.3. of the LDS1.10.
- The O/A system must create and name the derivative and original files as described in section 6 of LDS, when writing RDS.
- The O/A system must create derivative files with the same rotation from <dig35:ROLL> as the original assets.
- If a migration function is in process, the O/A system must discover, and copy the assets currently existing on the PASS Digital Volumes being migrated. Additionally, the O/A system must discover, update, and record the manifest files that are migrated.

6.0. Creating PASS manifest files

Three categories of XML documents are used in PASS. These documents, which adhere to the MPV specifications, are called "manifests". Refer to section 3 of LDS.

MPV manifests defined for use by PASS are:

- Index manifest file (PASSIDX.PVM)
- Default album manifest file(s)
- Custom album manifest file(s)

6.1. Creating manifest files according to the PASS Recommended Directory Structure (RDS)

6.1.1. Index manifest

- The O/A system must be capable of creating an index manifest file that identifies all other PASS manifest files on the PASS Digital Volume.
- The O/A system must create only one index manifest named "PASSIDX.PVM" which must be located in the root directory of PASS Digital Volume.
- The O/A system must implement the required MPV and PASS XML elements and metadata values permitted by PASS in the index manifest file as described in the LDS and the MPV Core Specification and MPV Basic Profile.

6.1.2. Default album manifest

- The O/A system must be capable of creating default album manifest files.
- The O/A system must create one or more default album manifest files named according to naming conventions outlined in section 6 of LDS.
- The O/A system must create one default album manifest file in each asset roll directory when implementing according to the RDS structure.
- The O/A system must describe the references to the all asset files included in the particular asset roll directory in the default album manifest.
- The O/A system must implement the required MPV and PASS XML elements and metadata values permitted by PASS in default album manifest files as described in the LDS and the MPV Core Specification and MPV Basic Profile.

An example of the procedure of making a default album manifest for RDS is outlined below.

1) Define asset list

The O/A system describes references to the asset files included in a particular asset roll directory in a default album manifest. When created, this becomes the asset list for the album.

Asset lists are identified by a system-generated asset list ID (<pass:assetlistID>).

2) Edit asset metadata

The O/A system adds metadata to each asset referenced in a default album manifest file. See information in Appendix B describing asset metadata creation.

3) Edit album metadata

The system generates metadata for the title and date for a digital album.

The system generates these automatically for each album. Manual input may also be used to input the information.

When there is no title and date information provided by users, the system may generate a new title by date information. In this case, a title may format to "YYYY.MM.DD-YYYY.MM.DD" where the first is the earliest and the second is the latest captured date of assets included in the album manifest.

When there is no asset date information (such as happens with film-scanned images), the system may create a unique title by combining "Album" and a number ("001", "002") resulting in an ordered set of titles such as "Album001" and "Album002."

4) Define background music

An <mpv:Audio> asset file may be defined as background music for a default or custom album.

The O/A system may identify audio file(s) and define them as the background music

for an album. The same audio file may be used with multiple custom or default albums. A default album may have multiple audio files

5) Define transition and duration

The O/A system may define transitions for each of the assets in an entire album. The recommended types of transition used in PASS are: barWipe, irisWipe, clockWipe and snakeWipe (refer to section 3 of the LDS).

In addition, the O/A system may specify the interval in an album for transition change. The duration of playback time may also be determined automatically by the PASS O/A system or by user input.

The O/A system may define transition and duration information that is applied to each asset reference in an album as common control metadata (CCM).

In addition, the O/A system may define transition and duration for a particular asset reference in an album that will override any common control metadata values that are in place.

(Refer to LDS Section 3.2.4.)

6.1.3. Custom album manifest

- The O/A system may create custom album manifest files by selecting assets from a PASS Digital Volume based on operator's judgment or users' requests.
- The O/A system must create zero or more custom album manifest file(s) named according to naming conventions outlined in section 6 of LDS1.10.
- Custom album manifest files must be located in the "ALBUMS" directory for RDS only.
- The O/A system must support all required MPV and PASS XML elements and metadata values as defined for custom album manifests. (Refer to section 3 of LDS.)
- If a migration function is in process, the O/A system must discover, read, and process any custom album manifest files currently existing on the PASS Digital Volumes being migrated. When a custom album refers to assets in an Asset Roll directory, the entire Asset Roll directory with all of its contents must be

migrated even if the custom album does not reference all of the contents in the Asset Roll directory. It is not permitted to migrate only part of an Asset Roll directory. When a custom album references files in the RDS “SHARED” directory, single assets may be copied into the destination volume’s “SHARED” directory.

6.2. Creating manifest files according to the PASS Open Directory Structure (ODS)

6.2.1. Index manifest

- The O/A system must be capable of creating an index manifest file that identifies all other PASS manifest files on the PASS Digital Volume.
- The O/A system must create only one index manifest named "PASSIDX.PVM" in the root directory of PASS Digital Volume.

6.2.2. Default album manifest

- The O/A system must be capable of creating a minimum of one default album manifest file. Multiple default album manifests may be created.
- When created, default album manifest files must have a “.PVM” file extension.
- The O/A system must create default album manifest files that are exclusive to each other. PASS assets described by one default album manifest may not be redundantly described by any other default album manifest. A particular asset must be included in one default album only.

6.2.3. Custom album manifest

- The O/A system may create custom album manifests by identifying assets from a PASS Digital Volume based on operator’s judgment or users’ requests.
- The O/A system must be able to create zero or more custom album manifest file(s) that have a “.PVM” file extension.

7.0. Create a PASS Digital Volume

- The O/A system must be capable of creating a PASS Digital Volume, which is described in PASS LDS as the “Generic name for a particular storage medium that contains the data structures described in this [LDS] standard.”
- The O/A system may write a PASS Digital Volume to any removable media type that supports a file system.
- The O/A system may verify the medium after writing.

8.0. Video album (Video CD or DVD-Video)

Optionally, the O/A system may convert each album defined in the album manifest(s) into videos and write them as Video CD (VCD) or DVD-Video data in the video segment of the media.

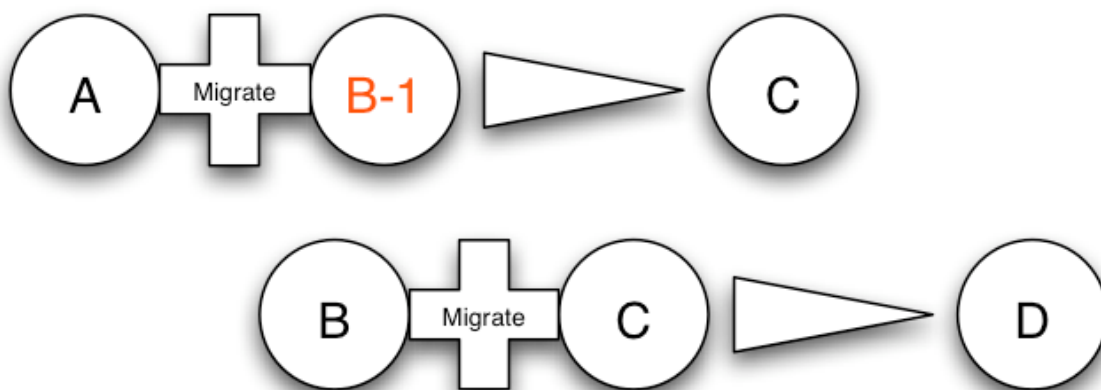
When creating video albums, the following conditions must be understood and planned for by the O/A operator:

- Image quality parameters, user interface, and versions of DVD-Videos or Video CDs are not defined in the PASS specification.
- There may be a corresponding video for each default and custom album manifest.
- The PASS image ID may be superimposed on the screen while viewing the asset. The image ID is generated by concatenating the asset list ID and the asset ID as defined in PASS LDS.
- Other effects including background music, transition, and duration are available as defined in the MPV album presentation of each album manifest.

9.0. Migration

This section describes the migration feature of a PASS-compliant system. A PASS system permits migration of one or more entire PASS Digital Volumes (or individual PASS albums) into a single new PASS Digital Volume. This is effectively a merge of distinct PASS Digital Volumes [or portions thereof] into one [new] PASS Digital Volume.

Creating the new PASS Digital Volume by selecting specific PASS albums may result in duplication of information. For example, the complete contents of digital volume A and a single album [B-1] from digital volume B are migrated to a new digital volume C. Digital volume C is then migrated with digital volume B in full. The resulting digital volume D will contain a duplication of album B-1 from digital volume B. This is illustrated below.



It is the responsibility of the O/A system to take the appropriate steps to avoid or remedy such duplication.

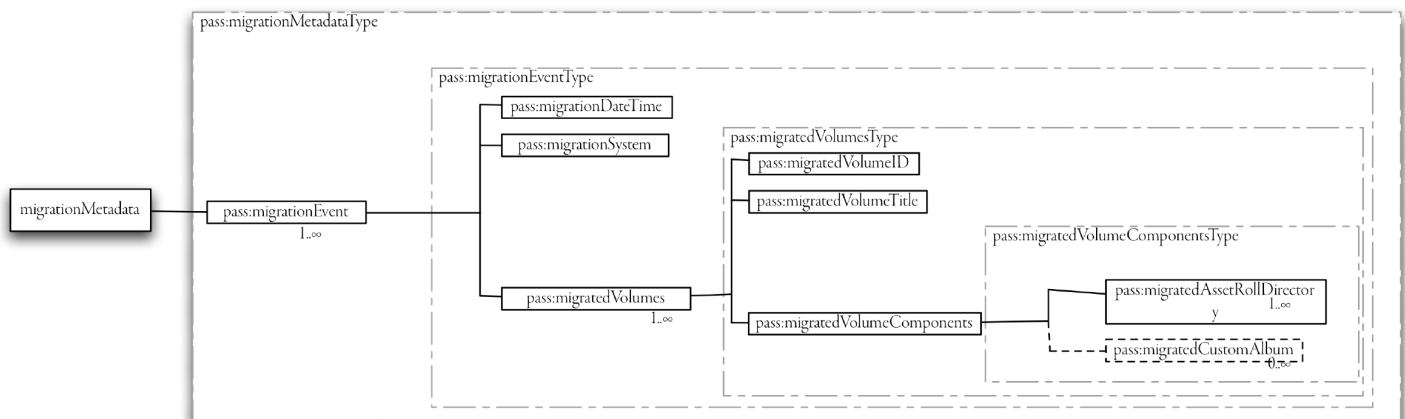
In a PASS system, a new PASS Digital Volume is recorded in each migration. The PASS system does not allow information to be appended to an existing PASS Digital Volume.

During any migration system the following points must be taken into consideration:

- The O/A system may migrate one or more PASS Digital Volume(s) that are formed following the PASS recommended directory structure to a single new PASS Digital Volume following the RDS.
- A migrated Digital Volume is one that includes migration metadata. Additionally, the

value of <pass:mediumID> should be unique from any migration source volumes and <dc:title> should be distinct from any migration source volumes.

- As a result of migration, a new PASS Digital Volume may be compliant to the most recent PASS specification regardless of the version of the migrated volumes.
- All metadata for assets and albums on the source medium must be migrated to the destination PASS Digital Volume and the consistency among metadata must be preserved.
- During migration there are specific metadata that must be added to the PASSIDX.PVM file as described in section 3 of the LDS. The migration metadata schema is outlined below.



- The quality of all asset files must be preserved during the migration process.
- In future PASS versions, as new file formats are defined, the O/A system may convert asset files to new formats under any new PASS versions.
- In future PASS versions, if new functions are defined, the originating system may apply them to migrated PASS Digital Volumes under the new PASS version.

Appendix A. PASS Disc Migration

A.1. Migration Overview

PASS has defined a process called migration where an O/A system merges some or all the content of a PASS “Source Digital Volume” into a PASS “Destination Digital Volume.” During the migration process, one or more asset roll directories of one or more source digital volumes are copied to a destination digital volume. The migration process is defined for RDS Digital Volumes only. Entire asset roll directories must be migrated. The resulting PASS Digital Volume is then checked for integrity by correcting any collisions with asset roll directory and SHARED directory file names. In addition, all the elements <mpv:LastURL> are checked for correctness and all instances of the element <pass:assetListID> are made unique across all manifests.

The LDS specification has defined specific XML elements in the PASS namespace that provides the ability to identify what components have been migrated from a source PASS Digital Volume to a destination PASS Digital Volume.

A schema fragment that illustrates the use of migration metadata elements is below.

Figure A1. Migration Metadata Schema Fragment

```
<!--Migration Metadata-->
<xs:element name="migrationMetadata" type="pass:migrationMetadataType"/>
<xs:complexType name="migrationMetadataType">
  <xs:sequence>
    <xs:element ref="pass:migrationEvent" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
<!-- migrationEvent-->
<xs:element name="migrationEvent" type="pass:migrationEventType"/>
<xs:complexType name="migrationEventType">
  <xs:sequence>
    <xs:element ref="pass:migrationDateTime"/>
    <xs:element ref="pass:migrationSystem"/>
    <xs:element ref="pass:migratedVolumes" maxOccurs="unbounded"/>
  </xs:sequence>
</xs:complexType>
```

```

<!-- migrationDateTime-->
<xs:element name="migrationDateTime" type="pass:migrationDateTimeType"/>
<!--Base Definition-->
<xs:complexType name="migrationDateTimeType">
  <xs:simpleContent>
    <xs:extension base="xs:dateTime"/>
  </xs:simpleContent>
</xs:complexType>
<!-- migrationSystem-->
<xs:element name="migrationSystem" type="pass:migrationSystemType"/>
<!--Base Definition-->
<xs:complexType name="migrationSystemType">
  <xs:simpleContent>
    <xs:extension base="xs:string"/>
  </xs:simpleContent>
</xs:complexType>
<!-- migratedComponents-->
<xs:element name="migratedVolumes" type="pass:migratedVolumesType"/>
<xs:complexType name="migratedVolumesType">
  <xs:sequence>
    <xs:element ref="pass:migratedVolumeID"/>
    <xs:element ref="pass:migratedVolumeTitle"/>
    <xs:element ref="pass:migratedVolumeComponents"/>
  </xs:sequence>
</xs:complexType>
<!-- migratedVolumeID-->
<xs:element name="migratedVolumeID" type="pass:mediumIDType"/>
<!-- migratedVolumeTitle-->
<xs:element name="migratedVolumeTitle" type="pass:migratedVolumeTitleType"/>
<!--Base Definition-->
<xs:complexType name="migratedVolumeTitleType">
  <xs:simpleContent>
    <xs:extension base="xs:string"/>
  </xs:simpleContent>
</xs:complexType>
<!-- migratedVolumeComponents-->
<xs:element name="migratedVolumeComponents" type="pass:migratedVolumeComponentsType"/>
<xs:complexType name="migratedVolumeComponentsType">

```

```

<xs:sequence>
  <xs:element ref="pass:migratedAssetRollDirectory" maxOccurs="unbounded"/>
  <xs:element ref="pass:migratedCustomAlbum" minOccurs="0" maxOccurs="unbounded"/>
</xs:sequence>
</xs:complexType>
<!-- migratedAssetRollDirectory-->
<xs:element name="migratedAssetRollDirectory" type="pass:migratedAssetRollDirectoryType"/>
<!--Base Definition-->
<xs:complexType name="migratedAssetRollDirectoryType">
  <xs:simpleContent>
    <xs:extension base="xs:string"/>
  </xs:simpleContent>
</xs:complexType>
<!-- migratedCustomAlbum-->
<xs:element name="migratedCustomAlbum" type="pass:migratedCustomAlbumType"/>
<!--Base Definition-->
<xs:complexType name="migratedCustomAlbumType">
  <xs:simpleContent>
    <xs:extension base="xs:string"/>
  </xs:simpleContent>
</xs:complexType>

```

A.2. Migration Process

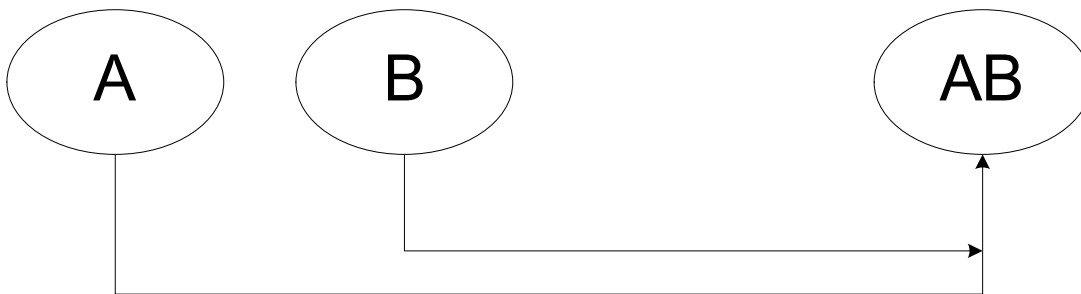
The example in this appendix is a three-step migration process. In each step the O/A performs a migration. In step one, *Source Digital Volume B* is migrated to *Destination Digital Volume A*. The result is *Digital Volume AB*. In step two, *Source Digital Volume C* is migrated to *Destination Digital Volume AB* resulting in *Digital Volume ABC*. Finally, in step three, *Source Digital Volumes D, E, & F* are migrated to *Destination Digital Volume ABC* resulting in *Digital Volume ABCDEF*. Figures A.2.1., A2.2., and A2.3. depict a fragment of the PASSIDX.PVM index manifest file that corresponds to each resultant digital album.

A.2.1. Migration Sequence

The following figures and XML code are illustrative of a common set of migration

tasks.

Figure A2. Migration Step One



Two asset roll directories from PASS Digital Volume B are migrated to a new PASS Digital Volume.

Figure A3. Migration Step One – Sample XML

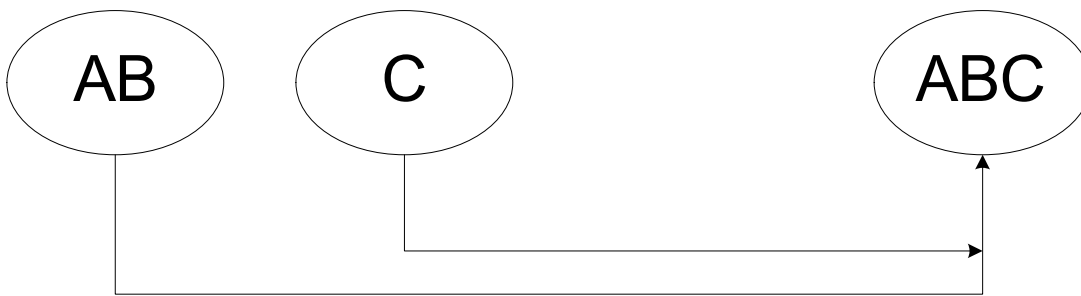
The following XML snippet provides an example of the first step in a migration process.

...

```
<!-- PASS Migration Metadata -->
<mpv:Metadata>
  <pass:migrationMetadata>
    <pass:migrationEvent>
      <pass:migrationDateTime>2005-08-18T11:00:00+09:00</pass:migrationDateTime>
      <pass:migrationSystem>My PASS Kiosk v1.1</pass:migrationSystem>
      <pass:migratedVolumes>
        <pass:migratedVolumeID>5EEDD030-4596-4B7A-9FA3-839AE8889B4F</pass:migratedVolumeID>
        <pass:migratedVolumeTitle>PASS Digital Volume B</pass:migratedVolumeTitle>
        <pass:migratedVolumeComponents>
          <pass:migratedAssetRollDirectory>AR20040807_USV30074</pass:migratedAssetRollDirectory>
          <pass:migratedAssetRollDirectory>AR20050405_288C1V5S</pass:migratedAssetRollDirectory>
        </pass:migratedVolumeComponents>
      </pass:migratedVolumes>
    </pass:migrationEvent>
  </pass:migrationMetadata>
</mpv:Metadata>
```

...

Figure A4. Migration Step Two



Two asset roll directories and one custom album are migrated from PASS Digital Volume C.

Figure A5. Migration Step Two – Sample XML

The following XML snippet provides an example of the second step in a migration process.

...

```
<!-- PASS Migration Metadata -->
<mpv:Metadata>
  <pass:migrationMetadata>
    <pass:migrationEvent>
      <pass:migrationDateTime>2005-08-18T11:00:00+09:00</pass:migrationDateTime>
      <pass:migrationSystem>My PASS Kiosk v1.1</pass:migrationSystem>
      <pass:migratedVolumes>
        <pass:migratedVolumeID>5EEDD030-4596-4B7A-9FA3-839AE8889B4F</pass:migratedVolumeID>
        <pass:migratedVolumeTitle>PASS Digital Volume B</pass:migratedVolumeTitle>
        <pass:migratedVolumeComponents>
          <pass:migratedAssetRollDirectory>AR20040807_USV30074</pass:migratedAssetRollDirectory>
          <pass:migratedAssetRollDirectory>AR20050405_288C1V5S</pass:migratedAssetRollDirectory>
        </pass:migratedVolumeComponents>
      </pass:migratedVolumes>
    </pass:migrationEvent>
    <pass:migrationEvent>
      <pass:migrationDateTime>2005-08-24T14:00:00+09:00</pass:migrationDateTime>
      <pass:migrationSystem>My PASS Kiosk v1.1</pass:migrationSystem>
      <pass:migratedVolumes>
        <pass:migratedVolumeID>DC245095-B413-4996-9912-322A879651B5</pass:migratedVolumeID>
        <pass:migratedVolumeTitle>PASS Digital Volume C</pass:migratedVolumeTitle>
        <pass:migratedVolumeComponents>
```

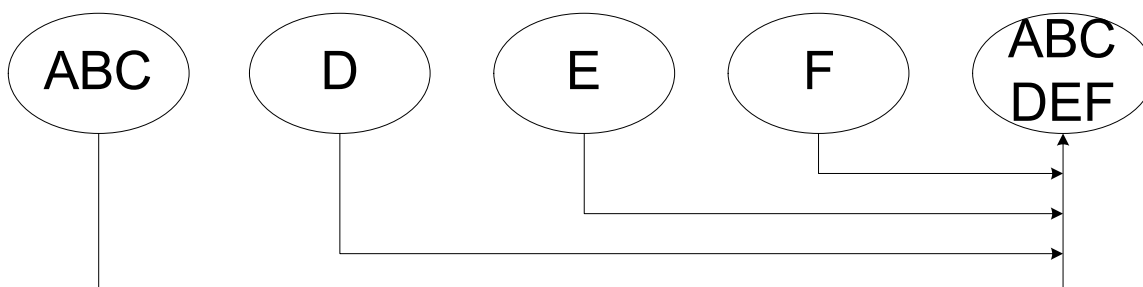
```

    <pass:migratedAssetRollDirectory>AR20050819_13BADE70</pass:migratedAssetRollDirectory>
    <pass:migratedAssetRollDirectory>AR20050823_E807729D</pass:migratedAssetRollDirectory>
    <pass:migratedCustomAlbum>PL20050823_10000001.PVM</pass:migratedCustomAlbum>
  </pass:migratedVolumeComponents>
</pass:migratedVolumes>
</pass:migrationEvent>
</pass:migrationMetadata>
</mpv:Metadata>

```

...

Figure A6. Migration Step Three



Two asset roll directories and a custom album are migrated from each of PASS Digital Volumes D, E, & F.

Figure A7. Migration Step Three – Sample XML

The following XML snippet provides an example of the third step in a migration process.

...

```

<!-- PASS Migration Metadata -->
<mpv:Metadata>
  <pass:migrationMetadata>
    <pass:migrationEvent>
      <pass:migrationDateTime>2005-08-18T11:00:00+09:00</pass:migrationDateTime>
      <pass:migrationSystem>My PASS Kiosk v1.1</pass:migrationSystem>
      <pass:migratedVolumes>
        <pass:migratedVolumeID>5EEDD030-4596-4B7A-9FA3-839AE8889B4F</pass:migratedVolumeID>
      </pass:migratedVolumes>
    </pass:migrationEvent>
  </pass:migrationMetadata>
</mpv:Metadata>

```

```

    <pass:migratedVolumeTitle>PASS Digital Volume B</pass:migratedVolumeTitle>
    <pass:migratedVolumeComponents>
      <pass:migratedAssetRollDirectory>AR20040807_USV30074</pass:migratedAssetRollDirectory>
      <pass:migratedAssetRollDirectory>AR20050405_288C1V5S</pass:migratedAssetRollDirectory>
    </pass:migratedVolumeComponents>
  </pass:migratedVolumes>
</pass:migrationEvent>
<pass:migrationEvent>
  <pass:migrationDateTime>2005-08-24T14:00:00+09:00</pass:migrationDateTime>
  <pass:migrationSystem>My PASS Kiosk v1.1</pass:migrationSystem>
  <pass:migratedVolumes>
    <pass:migratedVolumeID>DC245095-B413-4996-9912-322A879651B5</pass:migratedVolumeID>
    <pass:migratedVolumeTitle>PASS Digital Volume C</pass:migratedVolumeTitle>
    <pass:migratedVolumeComponents>
      <pass:migratedAssetRollDirectory>AR20050819_13BADE70</pass:migratedAssetRollDirectory>
      <pass:migratedAssetRollDirectory>AR20050823_E807729D</pass:migratedAssetRollDirectory>
      <pass:migratedCustomAlbum>PL20050823_10000001.PVM</pass:migratedCustomAlbum>
    </pass:migratedVolumeComponents>
  </pass:migratedVolumes>
</pass:migrationEvent>
<pass:migrationEvent>
  <pass:migrationDateTime>2005-09-12T10:00:00+09:00</pass:migrationDateTime>
  <pass:migrationSystem>My PASS Kiosk v1.1</pass:migrationSystem>
  <pass:migratedVolumes>
    <pass:migratedVolumeID>0091BAC4-D8B4-4189-A113-50C0A24D57D8</pass:migratedVolumeID>
    <pass:migratedVolumeTitle>PASS Digital Volume D</pass:migratedVolumeTitle>
    <pass:migratedVolumeComponents>
      <pass:migratedAssetRollDirectory>AR20050719_97A14694</pass:migratedAssetRollDirectory>
      <pass:migratedAssetRollDirectory>AR20050720_A049DC1B</pass:migratedAssetRollDirectory>
      <pass:migratedCustomAlbum>PL20050901_10000001.PVM</pass:migratedCustomAlbum>
    </pass:migratedVolumeComponents>
  </pass:migratedVolumes>
<pass:migratedVolumes>
  <pass:migratedVolumeID>CC893148-78B7-428F-9839-ED9C22DC7752</pass:migratedVolumeID>
  <pass:migratedVolumeTitle>PASS Digital Volume E</pass:migratedVolumeTitle>
  <pass:migratedVolumeComponents>
    <pass:migratedAssetRollDirectory>AR20050808_979B6E8F</pass:migratedAssetRollDirectory>
    <pass:migratedAssetRollDirectory>AR20050808_979B6E90</pass:migratedAssetRollDirectory>

```

```
        <pass:migratedCustomAlbum>PL20050901_10000002.PVM</pass:migratedCustomAlbum>
    </pass:migratedVolumeComponents>
</pass:migratedVolumes>
<pass:migratedVolumes>
    <pass:migratedVolumeID>F22BB299-7DF7-446E-A3E0-5ED9CA1ACEA5</pass:migratedVolumeID>
    <pass:migratedVolumeTitle>PASS Digital Volume F</pass:migratedVolumeTitle>
    <pass:migratedVolumeComponents>
        <pass:migratedAssetRollDirectory>AR20050824_A9E3FB5B</pass:migratedAssetRollDirectory>
        <pass:migratedAssetRollDirectory>AR20050830_F184F687</pass:migratedAssetRollDirectory>
        <pass:migratedCustomAlbum>PL20050901_10000003.PVM</pass:migratedCustomAlbum>

    </pass:migratedVolumeComponents>
</pass:migratedVolumes>
</pass:migrationEvent>
</pass:migrationMetadata>
</mpv:Metadata>
```

...

Appendix B. Metadata for the PASS Digital Volume and each asset

B.1. Metadata for the PASS Digital Volume

The PASS specification defines information related to the mediumID, originator, title, date, and description as metadata for the PASS Digital Volume. Refer to section 3 of LDS.

The O/A system may generate contents for each of these metadata elements in the following methods (either automatically or manually).

These metadata elements are stored in <mpv:Metadata> or <nmf:Metadata> within the index manifest file (PASSIDX.PVM).

MediumID (<pass:mediumID>)

The O/A system automatically generates <pass:mediumID> according to the format defined in PASS Logical Disc Specification.

Information about the originating system (<pass:originator>)

The O/A system generates text to describe its name, manufacturer, and version. These values are unique and are fixed to each originating system.

PASS specification version (<pass:specificationVersion>)

The O/A system writes its current PASS specification version information according to the format defined in PASS Logical Disc Specification.

Title of PASS Digital Volume (<dc:title>)

This is a mandatory label for the PASS Digital Volume and represents the descriptive title. Typically, users will select text for this metadata. The O/A system may enable operators to manually input the title. If there is no input information, the creation date of the medium can be used in its place. In this case, use YY-MM-DD format.

Date of creation <dc:date>

The O/A system writes the creation date of the PASS Digital Volume. Although the type of <dc:date> is string, it is written with the notation according to the type of

<xsd:dateTime>.

Description <dc:description>

This is an optional description of the PASS Digital Volume. Input text typically is defined by users. The O/A system may enable operators to manually input the data. If there is no input information as a description it may be omitted.

B.2. Metadata for each asset

This section provides a description of metadata input for each asset created by the O/A system. These metadata are components of the default and custom album manifest files. Therefore, in an implementation of an O/A system, the input and editing of metadata and composing and editing of the default album manifests are not necessarily separate processes.

B.2.1. Metadata for still image assets

B.2.1.1. Metadata from Exif tag information

If input still images are Exif files, they may hold metadata important for the PASS Digital Volume. This metadata is extracted from the Exif tags and converted to the appropriate PASS metadata.

The O/A system may have the capability to automatically generate information for some metadata if the Exif tag is empty. Generated metadata are stored in <mpv:Metadata> (for DIG35) or <nmf:Metadata> (for Dublin Core) for each still image asset in the PASS Digital Volume manifests.

The O/A system may also enable human operators to manually input and/or edit metadata in order correctly populate the metadata. Human operators are then able to verify and modify metadata or to input them on users' requests.

1) Title (ImageDescription, <dc:title>)

For Exif images, if an ImageDescription tag (270) is not empty, the O/A system will copy it to the <dc:title> of the still image asset in the manifest.

The O/A system may have manual input/editing method for <dc:title> of an asset.

If an ImageDescription tag (270) is empty and an asset title for manual input is not known, the O/A system creates a <dc:title> entry by substituting the date (YYYY-MM-DD).

The O/A system must fill <dc:title> for assets excluding screen and thumbnail files.

2) Creator (Artist, <dc:creator>)

For Exif images, if Artist tag (315) is not empty, the O/A system will copy it to <dc:creator> of the still image asset.

The O/A system may have manual input/editing method for <dc:creator> of an asset.

If the creator name is unknown, the O/A system may leave the metadata empty for this field.

3) Description (UserComment, <dc:description>)

For Exif images, if UserComment tag (37510) is not empty, the O/A system copies it to the <dc:description> of the still image asset

The O/A system may have manual input/editing methods for <dc:description> of an asset.

The O/A system may leave <dc:description> empty if the content is not known.

4) Date (DateTimeOriginal, <dc:date>)

The O/A system must fill <dc:date> for all assets.

For Exif images, the O/A system converts the Exif date and time of original data generation (36867) and copies the information to the <dc:date> of the still image asset.

When there is no Exif date information, the O/A system may substitute a file creation date or other appropriate date.

The O/A system may allow manual input/editing method for <dc:date> of an asset.

Although the type of <dc:date> is string, it is written with the notation according to the type of <xsd:dateTime>.

5) Width and height (PixelXDimension, PixelYDimension, <dig35:WIDTH/HEIGHT>)

For Exif images, the O/A system may transfer the Exif pixel X/Y dimension tag (40962/40963) to <dig35:WIDTH> and <dig35:HEIGHT> of the still image asset.

6) Color space (ColorSpace, <dig35:PROFILE_NAME>)

For Exif images, the O/A system transfers Exif ColorSpace tag (40961) to <dig35:PROFILE_NAME> of the still image asset.

7) Subject location (SubjectLocation, <dig35:SUBJECT_POSITION>)

For Exif images, if the SubjectLocation tag (41492) is not empty, the O/A system transfers it to <dig35:SUBJECT_POSITION> of the still image asset.

8) Location of camera (GPSInfoIFD, <dig35:CAMERA_LOCATION>)

ExifGPSInfoIFD is the information of the position of the camera, and therefore slightly different from the location of the subject in the strictest sense; however, it can be used if it's included in the Exif tag. For Exif images, if GPSInfoIFD exists, the O/A system transfers it to <dig35:CAMERA_LOCATION> of the still image asset.

9) Orientation (Orientation, <dig35:ROLL>)

Orientation is important information in reproducing an image.

For Exif images, if the Orientation tag (274) is not empty, the O/A system transfers it to <dig35:ROLL> of <dig35:ORIENTATION> for the still image asset. If the Exif Orientation tag is empty and the input image has nonzero value, the O/A system must manually create the information. The O/A system may select a value of 0, 90, 180, or -90 as an orientation.

Once the orientation is set in <dig35:ROLL>, the O/A system should convert the value to mpvpCtrl:ShowRotated ControlProperties.

In addition, the O/A system may help users to identify images and their orientation by creating and displaying a thumbnail view for the images.

B.2.1.2. Non-Exif Tag metadata

The O/A system may have an input and editing method for the following metadata in addition to metadata from Exif Tags mentioned above. This may be the capability of automatically generating information or may be a manual process. These metadata are stored in <mpv:Metadata> (for PASS and DIG35) or <nmf:Metadata> (for Dublin Core) in each still image asset of the PASS manifest according to the definition in the PASS Logical Disc Specification .

1) assetID (<pass:assetID>)

The O/A system must assign an 8-letter string to <pass:assetID> where the rightmost 4-letter sub-string is unique within an asset list.

2) Favorite asset (<pass:assetFavorite>)

The O/A system may assign a preference level (or “favorite level” notation) for each asset using <pass:assetFavorite>. The user defines the favorite level.

3) Location (<dig35:LOCATION>)

This is the information about the position of an individual subject in the shooting location. In DIG35 the location can be embedded as child tag of the person and the event as well as for the entire image, while in PASS it is embedded only for the entire image.

The O/A system may support all three-designation methods, including longitude/latitude/altitude, address, or any comment. In addition, the O/A system may have other ways of automatically determining location.

4) Person description (<dig35:PERSON>)

This is the information about subjects in the image. Generally, a picture contains more than one subject; therefore, the O/A system may allow multiple person descriptions. The following three DIG35 person descriptions are utilized in the PASS specification.

- Person Name (<dig35:PERSON_NAME>)
- Position (<dig35:POSITION>)

The position of subjects in the image. From the several designation methods described in DIG35, only the one using a rectangular area is utilized in PASS specification. The O/A system may specify an area with a rectangular pointer on an image in some way. There may be other methods of automatically recognizing the position that the O/A uses.

- Comment (<dig35:COMMENT>)

5) Thing Description (<dig35:THING>)

This is the information about the things in the image. A thing may be a car, tree, mountain, or other non-person element in the picture. Generally, a picture contains more than one thing; therefore, the O/A system may input multiple thing description values. The following three DIG35 descriptions are utilized in the PASS specification.

- Thing Name (<dig35:NAME>)
- Position (<dig35:POSITION>)

This is the position of the thing in the image. From the several designation methods described in DIG35, only the one using a rectangular area is utilized in PASS specification. The O/A system may specify an area with a rectangular pointer on an image in some way. There may be other ways to automatically recognize an area used by the O/A system.

- Comment (<dig35:COMMENT>)

6) Event Description (<dig35:EVENT>)

This is the information about the event of the image taken. The O/A system may input a single event description for a single image. The following three DIG35 descriptions are utilized in the PASS specification.

- Event Type (<dig35:EVENT_TYPE>)

This is the information of the type of the event, such as excursion, travel, graduation, and wedding. The O/A system may input <dig35:EVENT TYPE> manually or choose from pre-defined event lists. It may also automatically recognize <dig35:EVENT TYPE> in some way.

- Description (<dig35:DESCRIPTION>)
- Comment (<dig35:COMMENT>)

B.2.2. Metadata for video and audio assets

The O/A system must create the following metadata for assets other than still images. They are stored in <mpv:Metadata> (for DIG35) or <nmf:Metadata> (for Dublin Core) in each still image asset of the PASS manifest according to the definition in the PASS Logical Disc Specification.

1) assetID (<pass:assetID>)

The O/A system must assign an 8-letter string to <pass:assetID> where the rightmost 4-letter sub-string is unique within an asset list.

2) Title (<dc:title>)

The O/A system will fill <dc:title> for assets excluding screen files.

The O/A system may have manual input/editing methods for <dc:title> of an asset.

If information to be input is not known, the O/A may substitute the date (YYYY-MM-DD).

3) Date (<dc:date>)

The O/A system will fill <dc:date> for all assets excluding screen files. Although the type of <dc:date> is string, it is written with the notation according to the type of <xsd:dateTime>.

When there is no date information, the O/A system can substitute file creation date for it.

The O/A system may also have a manual input/edit method.

4) Description <dc:description>

The O/A system may have manual input/editing methods for <dc:description> of each still image asset.

5) Creator <dc:creator>

The originating system may put a creator name of each asset.

6) Asset Favorite <pass:assetFavorite>

The O/A system may assign a preference level (or “favorite level” notation) of each asset using <pass:assetFavorite>. The user defines the favorite level.

B.2.3. Metadata for compound assets

The descriptions of compound assets consist of the entire description such as <StillWithAudio>, <StillMultishotSequence> and <StillPanoramaSequence>, and descriptions of each asset that the entire description points to such as <Still> and <Audio>. Metadata for the entire description are as follows:

1) assetID (<pass:assetID>)

The O/A system must assign an 8-letter string to <pass:assetID> where the rightmost 4-letter sub-string is unique within an asset list.

2) Title (<dc:title>)

The O/A system shall fill <dc:title> for compound assets.

The O/A system may have manual input/editing method for <dc:title> of an Asset.

If information to be input is not known, it may substitute the date(YYYY-MM-DD)

or the rightmost 4 letters of <pass:assetID>.

3) Date (<dc:date>)

The O/A system may fill <dc:date> for compound assets. Although the type of <dc:date> is string, it is written with the notation according to the type of <xsd:dateTime>.

When there is no date information, the O/A can substitute file creation date for it.

The O/A system may have manual input/editing methods.

4) Description (<dc:description>)

The O/A system may have manual input/edit methods for <dc:description> of each compound asset.

5) Creator (<dc:creator>)

The O/A system may put a creator name of each compound asset to <dc:creator>.

6) Asset Favorite (<pass:assetFavorite>)

The O/A system may assign a preferred level (or “favorite level” notation) for each compound asset by using <pass:assetFavorite>. The user defines the favorite level.

For compound assets, the metadata of each member asset may also be used as input to the individual asset descriptions in the manifests.