

# Metadata for Consumers

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## Abstract

*A metadata policy must be defined when trying to give images a value in time, by attaching to the basic “data” an amount of selected information. Creation, preservation and downstream usage should be considered the three main topic to take care of.*

*Automatic input is not enough to personalize photos at the Consumer Level, which is our focus point today. Storage, but mainly preservation during the different operations a consumer set of photos has to endure is a critical problem. Obviously, the main motivation is “how useful it will be” in the coming years and decades, and how can I make sure that it will be re-usable.*

*In the second part of the paper, a proposition of metadata set devoted to consumer level is explained and valued with a number of typical use cases, as an example of consensus on that delicate problem, when addressing a specific type of workflow : consumers. Other types of specific uses, professional and commercial, will be shortly tackled as well.*

## Why metadata

This question gets a two-fold answer : firstly why do we need metadata, and secondly why do we call it metadata. Let us start with the second answer : the word metadata is composed with “meta”, which means “in the middle of” in Greek, and “data”, which is the digital representation of an information, would it be words, images or sounds. Metadata, also called “data about the data” is there to give additional information about the digital content of a file, like what is called the “header”, identifying the type of file, giving some sort of “user’s manual” for the file, with figures and decoding principles do get the best representation of the original object. We need metadata because we want to be able to enrich the content of photos and create further value by organizing our personal data bases. And also to be able to quickly retrieve photos that we know are “in the shoebox”, but where ? Hidden inside the image file, metadata can be extracted to be displayed and/or to help creating databases that are made available to all sorts of search engine.

## Metadata creation

All image files have a minimum set of metadata devoted to the decoding system : figures about the image structure and coding process, automatically inserted by the file creation software. But what we want to talk about today is the additional amount of information that can be generated by three main types of input processes : automatic, manual and semi automatic. Automatic is when the camera or the image creation system does all the work, inserting inside the image file all sorts of technical information. A typical example that may become a must in the top level cameras soon is the GPS information telling in a coded way the exact location where the picture was taken. Manual is when the operator is able to input his own information, such as a comment on the content of the picture. Semi-automatic is a combination of both, quite often a selection of possible words (e.g., list of events), or

controlled formats (dates), ideally a limited number of words organized in lists with a pop-up window for better efficiency.

## Metadata Preservation

Now, the main point is not the way you type in the information : it is the persistence of that information. Indeed, you can easily imagine that you will be able to extract the information and build a complete database with it, using an appropriate software : but the way it is kept, which has been the subject of endless discussions in standardization institutions is only secondary, and may be different from one storage method to another. However, it is essential that you make sure, when converting your files from one standard to another, or when extracting a subset of an image, that all your metadata has been conveyed. The same precaution must be taken when uploading your files to an external storage system (e.g. on line archive). This is currently the most critical problem, as only a few of the numerous workflow software take real care of it.

## Proposal for a “Consumer Level Metadata Set”.

Considering the question “how useful ?”, a proposal for a basic set of metadata was introduced at the “I3A tech forum” which took place in Vancouver during the Member’s meeting in June 2008. Based on experiences with large personal photo archives, the suggestion was to consider six fields as a basic need :

1. **Date** (currently all cameras insert a “creation date” in the EXIF metadata set, therefore you can duplicate it automatically). For various photos, the accuracy of this input may vary from an “era” to a complete “time stamp” including fractions of a second.
2. **Location** (that is the identification of the place where the picture was taken, which may be already present if the camera is fitted with a GPS, but it is better to have it written clearly). Here as well the accuracy may be ranging from a country’s name to a GPS accurate position.
3. **Event** : the main motivation for having taken the picture : it may be one out of a list of typical events, such as birthday, marriage, funeral, celebration, professional meeting, seminar, holidays, trip etc..., or a special one for which you have to input the identification.
4. **Operator** : the name of the operator is needed to protect the intellectual property of the picture, sometimes also to assume responsibility about taking the picture.
5. **Comments** : this field carries all information that is freely inserted by the commentator, whose name may need to be known (next field), specifying what can be seen on the picture, who, and any related comment that adds value to the visual information.
6. **Commentator** : the name of the individual (or individuals) who documented the photo as per the fields above.

## Time saving

An important point here is that the first four fields and the sixth one will be common to a group of photos pertaining to what used to be “the same roll”, generally identified by the field “event”. When typing in the information, the software will just take this into account and offer you to repeat these fields automatically until you tell it to modify the content because you have changed the “roll”. That is an easy saving of time as photos appear, out of the memory card, in the order of their creation time.

## A few typical use cases

Let us now take a few typical use cases, and see if those six fields are enough to give the basic information that future viewers would like to have, when taking a fresh look at the content of a visual data base (that they may call “family photo album”...).

Examples are taken here in a personal archive but can be transposed to more general purpose, including professional archive. However, then, there may be a need for more specific fields, according to the particular environment where photos are taken, and mostly the motivation for recalling them later. In all cases, all the information that has been linked to the photos can be used to create a database for various purposes.

- Case 1 : Transferring recent photos from memory card to personal archive
- Case 2 : Arranging existing personal digital archive
- Case 3 : Organizing family digital archive from collection of prints
- Case 4 : Matching the family tree with digitized old prints
- Case 5 : Finding all images featuring a specific event, a person, an object, when knowing that it has been documented

### **Case 1 : Transferring recent photos from memory card to personal archive**

You are back from a trip and you want to download to your computer a series of photos that you took in different places. Think about looking again at those photos twenty years from now : what would you want to know about them, what would you have forgotten, how would they take place in your long term visual memory ? You certainly need a “date”, however inaccurate, like a year, a month, unless it has been inserted automatically with a maximum accuracy in the file when created. Then you need to recall the name of place where the picture was taken : “location” ; until all cameras have a GPS on board, you will have to write the information in order not to forget it later. Then comes the motivation for taking a photo : “event” in the name of the field you have to input. Then, as the photo is quite recent, you still remember the reason why you pushed the button ; you still have in mind the names of those persons appearing on the foreground (and on the background) : you better write the names before you get confused trying to recall them, just a few weeks later ! this information will come as “comments” to the photo. Then you may want to use the photo for commercial purpose, which means mentioning who took it : the name of the photographer will be more accurate than the automatic input of the camera serial number ! Last point, if you consider that you have added value to the picture by inserting the documentary fields above, you may want your name to be present as well.

### **Case 2 : Re-arranging existing personal digital archive**

Your personal archive now features some hundred, some thousands of photos, but there is no information about them that you can use to create a data base. You will need to create groups of photos about events and shooting sessions with a common motivation, then input information the way we said above, considering the groups as “rolls”, therefore taking advantage of the time saving process as described. Quite obviously, the accuracy about time, location and names may be less than in the first use case, but waiting will make it worse ! You may have packed your photos by one of the fields identification ; otherwise you can use the file creation time to rearrange the order of appearance.

### **Case 3 : Organizing family digital archive from collection of prints**

We now address a different type of problem : a large number of “shoeboxes” has been discovered and you would like to make them a digital archive to reflect the work you have done with recent photos. Take a large table, put all photos in packs with common characteristics, would it be time, subjects, location, whatever may help reproducing the processes we described in the first two use cases. Then put you camera connected to the computer (whenever possible) and shoot all photos on a stand : one by one, but using the possibility of duplication of some fields from one photo to the next one, fill in the fields you can document, leaving the rest empty or vaguely documented (circa 1925 ; South America ; local celebration ; unknown operator...). To keep the “shoeboxes” as they were, you need to make a link to the physical archiving location, by adding somewhere an information like “SB1”, “SB225”, identifying the shoeboxes, or any other way to locate the original print from which the digital archive was made, because sometimes a detail may appear on the print and will be too small on the digital version of the photo.

### **Case 4 : Matching the family tree with digitized old prints**

Assuming that you have processed a large number of prints, and put them back into their original shoebox, you now realize that you also have another digital archive which is the family tree ! Quite obviously, you would like to link photos to the names appearing there. If you have correctly documented the field with the names of persons appearing on the photos, then you can browse through the metadata fields and sort all photos where a specific name has been typed in as “comments”. There is no software doing that at the moment, but you can imagine that it is not a complex one, therefore it will be available some day or another, as long as it appears as a user’s request.

### **Case 5 : Finding all images featuring a specific event, a person, an object...**

This is a generalization of the question addressed in the previous use case, and you want now to be able to reach any photo by typing a “keyword” that you know should appear somewhere in the documentation fields. The first step would be to create a database with all the words used, then a link between any word and the photos whose documentation is using it. No particular problem,

just a conclusion : make sure you type in as much information as possible, make sure all content processing systems convey that information all the way to the final archive, and remember that whatever the standard used, there is a piece of software that can help you finding the object where a word is used.

## Conclusion

Identified as “when, where, why, who, what”, the first five documentation fields specified above are enough to answer the needs for the typical use cases addressed in this short review, and if you have added the name of the typist, you can maybe get more information. A photo duly documented has an archive value that has no comparison with a simple visual object, as it can now be part of a large number of applications by the links that can be created. Based on that simple concept of dedicated set of metadata,

extensions to professional (image used as a help to a profession) and commercial (images as goods to trade) are easy to imagine, provided that high security on preservation is operational.

## Author Biography

*Jean Barda graduated from the Ecole Nationale de l'Aviation Civile as an engineer and quickly specialized in video and image transmissions, from radar to meteo information required in all Air Traffic Control Centers. He then created a number of SMEs (among which UNITEL and NETIMAGE), devoted to visual objects, and worked for many a museum and industrial sites where image databases were in strong demand. Author of a dozen of patents in the field, more than ten years Head of the French Delegation at the ISO-JPEG working group, he took part in most discussions about metadata standardization, including the activity of I3A, the International Imaging Industry Association, for which, now retired, Jean acts as the European Coordinator.*