Photometric formats on XML basis: a revolution in data interchange

The eighties were a milestone in the illuminating engineering worldwide since, along with the evolution of information technology and the fast evolution of computers, they have led to the birth of the first lighting design programmes, the forerunners of the systems we know today.

It was then that it became clear the fundamental requirement of transferring the technical information of luminaires, photometries, from a manufacturer to a lighting designer or from a lighting designer to another so that they could carry out their own projects.

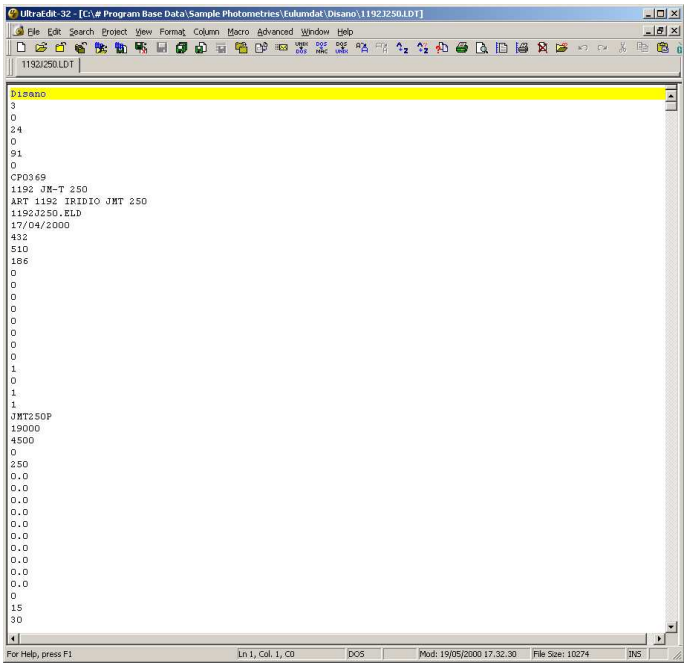
This requirement was resolved in Europe by the German association of manufacturers of lighting equipment that commissioned engineer Axel Stockmar, modern lighting guru, the development of a system of text files with such a characteristic, which led to the famous Eulumdat (short LDT) still widely used these days after almost thirty years after its introduction.

XML field example

<field>VALUE</field>

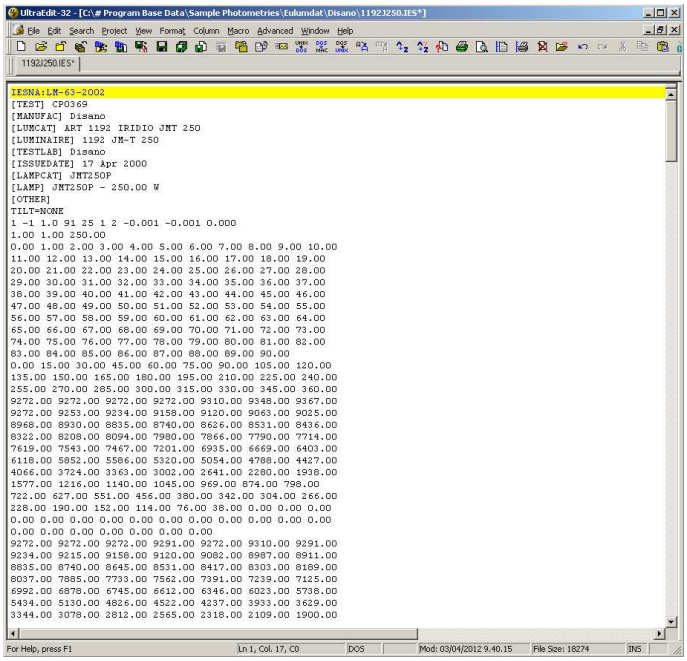
What is a XML file?

XML (acronym for Markup Language) is a **meta markup language**, or markup language that defines a syntactical mechanism that allows the meaning of other markup languages to be extended or controlled.



Eulumdat – LDT file example

The same thing was done in parallel in the USA by the IESNA association, the Illuminating Engineering Society of North America which in 1986 introduced the IES-86 file, successively updated with several new editions such as the IES-91, the IES-95 and finally, the IES-2002, all of them being text files like the Eulumdat.



IES 2002 file example

These files, even though they're simple and practical on the one hand, have a significant limitation on the other: each field has its own position and a well-defined order to the point that positioning a text or value in the wrong line implies that the file itself becomes unusable. Therefore they're not efficient and dynamic data structures and they are, above all, extremely limited from the point of view of flexibility and expandability.

The second major limitation concerns the data that the current Eulumdat or IES file can manage: as a matter of fact, they only include some of the data regarding the manufacturer, the laboratory where the test was performed, the luminaire (code, description), the lamps and the photometry.

A lighting product is however characterized by a greater data amount such as images, various documents, technical data sheet, 3D files, etc. that complete the photometric information and that are currently dealt with separately and in different ways: nowadays the light designer picks the photometric file for the lighting project from the company's website, he then picks the 3D file to make a realistic rendering, then the images, the texts and the data in the technical data sheet for his own project and so forth. The work of the lighting designer, as you can well understand, is neither easy nor efficient.

As a consequence, a new challenge arises nowadays which leads to the evolution of the old Eulumdat and IES files towards more modern, flexible, efficient and expandable data structures in an attempt to meet our needs.

The modern information technology is now here to help with the data structures known as XML (eXtensible Markup Language) created at the time of an still incipient Internet in which two companies, whose products were Netscape and MS-Explorer, fought for the control of the network. The trouble then was the impossibility of keeping the standard between versions, which involved the definition of a new standard every time a new version was launched.

The two main characteristics of the XML file are:

- A nearly endless expandability: in case it became necessary to introduce a new field it would be enough to give a name to such a field, different from the previous ones, put it between 2 - opening and closing - tags (see example) and insert it within the file. The structure for the applications that make use of preceding versions is therefore guaranteed whereas the new ones will have new fields at their disposal.
- The freedom of allocation of the fields in any position within the XML file.

The History of the XML file

(from Wikipedia)

The World Wide Web Consortium (W3C), following the browser war (that is, the situation encountered in the nineties where Microsoft and Netscape introduced a proprietary extension to the official HTML standard with each new version of its browser), was forced to follow the individual extensions to the HTML code.

The W3C had to choose which features to standardize and which to leave out of the official specifications of HTML. It was in this context that the need for a markup giving greater freedom in the tags definition, though sticking to a standard, began to emerge.

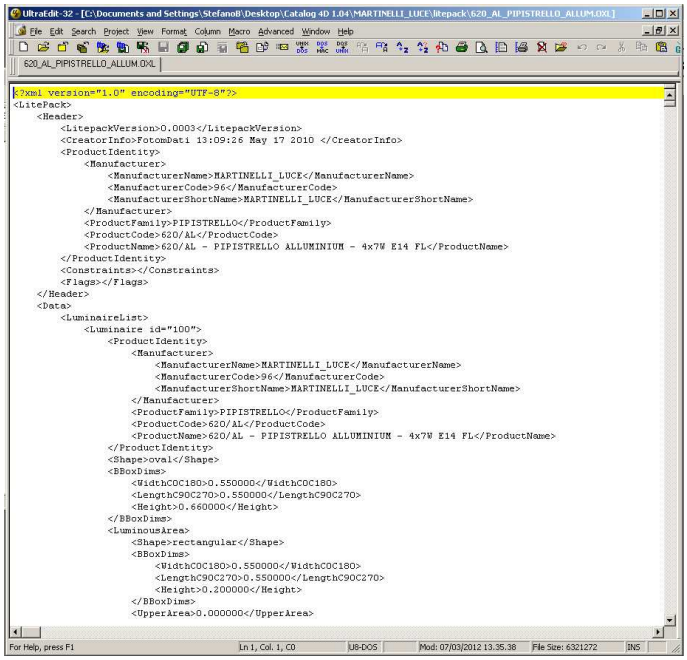
The "XML project", which began in the late nineties as part of the W3C SGML Activity, aroused such strong interest that the W3C created a working group, called XML Working Group, made up of worldwide experts in SGML technologies, and a commission, the XML Editorial Review Board, in charge of drawing up the project specifications.

In February 1998 these specifications became an official recommendation known as *Extensible Mark-up Language*, version 1.0.
It soon became obvious that XML was not just restricted to the web context, but it was something more: an instrument that could be used in several different contexts, from the definition of the structure of documents, to the exchange of information among different systems, as well as to the image representation, not to mention the definition of data formats.

The IESNA is now preparing a new data format based on XML and the first part, related to the accessory files (product technical data sheets) has already been encoded using the LM-74 standard, while the photometric part, which will complete the new IES format, should be available in the current year.

In Europe, on the contrary, there is no development of any type and there aren't, for the time being, any dedicated technical committees although some countries have already started to move in that direction.

OxyTech has developed its own XML format by adding it among those currently managed by its own system for lighting design, LITESTAR 4D, and has named it OXL.



OXL file example

This file has all the characteristics described above, i.e. it is based on XML technology and incorporates all the information regarding each single product: technical data sheet details, photometric data, images and accessory files, such as mounting instructions in .PDF format as well as product 3D files.

OXL: a single file for different applications

The benefits of the data global management for each single product are countless since, there is no point in limiting it to the management of programs for lighting calculation and rendering, but it can also be used to handle a broad spectrum of applications in both technical and commercial fields, offering the highest possible level of simplicity, efficiency and flexibility. A true revolution.

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Danilo Giannetti - Stefano Borsani