**OBJ\_IO   
Read and Write Routines   
Alias OBJ 3D Graphics Files**

**OBJ\_IO** is a FORTRAN90 library which reads or writes some of the 3D graphics information stored in an Alias OBJ file.

**Licensing:**

The computer code and data files described and made available on this web page are distributed under [the GNU LGPL license.](https://people.sc.fsu.edu/~jburkardt/txt/gnu_lgpl.txt)

**Languages:**

**OBJ\_IO** is available in [a C++ version](https://people.sc.fsu.edu/~jburkardt/cpp_src/obj_io/obj_io.html) and [a FORTRAN90 version](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/obj_io.html) and [a MATLAB version](https://people.sc.fsu.edu/~jburkardt/m_src/obj_io/obj_io.html).

**Related Data and Programs:**

[IVCON](https://people.sc.fsu.edu/~jburkardt/cpp_src/ivcon/ivcon.html), a C++ program which can convert graphics information between STLA and other formats.

[IVREAD](https://people.sc.fsu.edu/~jburkardt/f_src/ivread/ivread.html), a FORTRAN90 program which can convert graphics information between STLA and other formats.

[OBJ](https://people.sc.fsu.edu/~jburkardt/data/obj/obj.html), a data directory which has some examples of OBJ files.

[OBJ\_TO\_PLY](https://people.sc.fsu.edu/~jburkardt/c_src/obj_to_ply/obj_to_ply.html), a C program which reads an OBJ file and writes similar information to a PLY file.

[OBJ\_TO\_TRI\_SURFACE](https://people.sc.fsu.edu/~jburkardt/m_src/obj_to_tri_surface/obj_to_tri_surface.html), a MATLAB program which reads an OBJ file and extracts the surface mesh data as a TRI\_SURFACE dataset.

[OBJ2OPENGL](https://people.sc.fsu.edu/~jburkardt/pl_src/obj2opengl/obj2opengl.html), a PERL script which converts an OBJ file to a C/C++ include file appropriate for use with OpenGL.

[PLY\_TO\_OBJ](https://people.sc.fsu.edu/~jburkardt/c_src/ply_to_obj/ply_to_obj.html), a C program which reads a PLY 3D graphics file and writes an equivalent OBJ graphics file.

**Reference:**

1. <http://www.alias.com/eng/index.shtml>, The Alias web site.

**Source Code:**

* [obj\_io.f90](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/obj_io.f90), the source code.

**Examples and Tests:**

* [obj\_io\_prb.f90](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/obj_io_prb.f90), a sample calling program.
* [cube.obj](https://people.sc.fsu.edu/~jburkardt/data/obj/cube.obj), a simple OBJ file that describes a cube.
* [cube\_no\_normals.obj](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/cube_no_normals.obj), an OBJ file describing a cube, without normal vectors, written by OBJ\_WRITE.
* [cube\_normals.obj](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/cube_normals.obj), an OBJ file describing a cube, including normal vectors, written by OBJ\_WRITE.
* [obj\_io\_prb\_output.txt](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/obj_io_prb_output.txt), the output file.

**List of Routines:**

* **CH\_CAP** capitalizes a single character.
* **CH\_EQI** is a case insensitive comparison of two characters for equality.
* **CH\_IS\_CONTROL** is TRUE if C is a control character.
* **CH\_TO\_DIGIT** returns the integer value of a base 10 digit.
* **GET\_UNIT** returns a free FORTRAN unit number.
* **OBJ\_FACE\_NODE\_PRINT** prints the node indices for each face.
* **OBJ\_NORMAL\_VECTOR\_PRINT** prints the normal vectors.
* **OBJ\_NODE\_XYZ\_PRINT** prints the node coordinates.
* **OBJ\_READ** reads graphics information from a Wavefront OBJ file.
* **OBJ\_SIZE** determines sizes of graphics objects in an Alias OBJ file.
* **OBJ\_SIZE\_PRINT** prints sizes associated with an OBJ file.
* **OBJ\_VERTEX\_NORMAL\_PRINT** prints the normal vectors indices per vertex.
* **OBJ\_WRITE** writes graphics information to an Alias OBJ file.
* **R8VEC\_CROSS\_3D** computes the cross product of two vectors in 3D.
* **S\_BLANK\_DELETE** removes blanks from a string, left justifying the remainder.
* **S\_BLANKS\_DELETE** replaces consecutive blanks by one blank.
* **S\_CAT** concatenates two strings to make a third string.
* **S\_CONTROL\_BLANK** replaces control characters with blanks.
* **S\_EQI** is a case insensitive comparison of two strings for equality.
* **S\_TO\_I4** reads an I4 from a string.
* **S\_TO\_R8** reads an R8 from a string.
* **TIMESTAMP** prints the current YMDHMS date as a time stamp.
* **WORD\_NEXT\_READ** "reads" words from a string, one at a time.

You can go up one level to [the FORTRAN90 source codes](https://people.sc.fsu.edu/~jburkardt/f_src/f_src.html).

*Last revised on 26 September 2008.*

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**Related Data and Programs:**

[IVCON](https://people.sc.fsu.edu/~jburkardt/cpp_src/ivcon/ivcon.html), a C++ program which can convert graphics information between STLA and other formats.

[IVREAD](https://people.sc.fsu.edu/~jburkardt/f_src/ivread/ivread.html)，一个FORTRAN90程序，可以在STLA和其他格式之间转换图形信息。

[OBJ](https://people.sc.fsu.edu/~jburkardt/data/obj/obj.html)，一个包含一些OBJ文件示例的数据目录。

[OBJ\_TO\_PLY](https://people.sc.fsu.edu/~jburkardt/c_src/obj_to_ply/obj_to_ply.html)，一个读取OBJ文件并将类似信息写入PLY文件的C程序。

[OBJ\_TO\_TRI\_SURFACE](https://people.sc.fsu.edu/~jburkardt/m_src/obj_to_tri_surface/obj_to_tri_surface.html)，一个MATLAB程序，它读取OBJ文件并将表面网格数据提取为TRI\_SURFACE数据集。

[OBJ2OPENGL](https://people.sc.fsu.edu/~jburkardt/pl_src/obj2opengl/obj2opengl.html)，一个PERL脚本，它将OBJ文件转换为适合与OpenGL一起使用的C / C ++包含文件。

[PLY\_TO\_OBJ](https://people.sc.fsu.edu/~jburkardt/c_src/ply_to_obj/ply_to_obj.html)，一个读取PLY 3D图形文件并写入等效OBJ图形文件的C程序。

**参考：**

1. [http://www.alias.com/eng/index.shtml，Alias](http://www.alias.com/eng/index.shtml)网站。

**源代码：**

* [obj\_io.f90](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/obj_io.f90)，源代码。

**示例和测试：**

* [obj\_io\_prb.f90](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/obj_io_prb.f90)，一个示例调用程序。
* [cube.obj](https://people.sc.fsu.edu/~jburkardt/data/obj/cube.obj)，一个描述多维数据集的简单OBJ文件。
* [cube\_no\_normals.obj](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/cube_no_normals.obj)，一个OBJ文件，描述一个没有法向量的立方体，由OBJ\_WRITE编写。
* [cube\_normals.obj](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/cube_normals.obj)，一个描述多维数据集的OBJ文件，包括由OBJ\_WRITE编写的法向量。
* [obj\_io\_prb\_output.txt](https://people.sc.fsu.edu/~jburkardt/f_src/obj_io/obj_io_prb_output.txt)，输出文件。

**例程列表：**

* **CH\_CAP**将单个字符大写。
* **CH\_EQI**是对两个字符进行不区分大小写的比较。
* 如果C是控制字符，则**CH\_IS\_CONTROL**为TRUE。
* **CH\_TO\_DIGIT**返回基数为10的整数值。
* **GET\_UNIT**返回一个免费的FORTRAN单元号。
* **OBJ\_FACE\_NODE\_PRINT**打印每个面的节点索引。
* **OBJ\_NORMAL\_VECTOR\_PRINT**打印法线向量。
* **OBJ\_NODE\_XYZ\_PRINT**打印节点坐标。
* **OBJ\_READ**从Wavefront OBJ文件中读取图形信息。
* **OBJ\_SIZE**确定Alias OBJ文件中图形对象的大小。
* **OBJ\_SIZE\_PRINT**打印与OBJ文件关联的大小。
* **OBJ\_VERTEX\_NORMAL\_PRINT**打印每个顶点的法线向量索引。
* **OBJ\_WRITE**将图形信息写入Alias OBJ文件。
* **R8VEC\_CROSS\_3D**计算3D中两个向量的叉积。
* **S\_BLANK\_DELETE**从字符串中删除空格，左**对齐**余数。
* **S\_BLANKS\_DELETE**将连续空格替换为一个空格。
* **S\_CAT** concatenates two strings to make a third string.
* **S\_CONTROL\_BLANK** replaces control characters with blanks.
* **S\_EQI** is a case insensitive comparison of two strings for equality.
* **S\_TO\_I4** reads an I4 from a string.
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