



## ***Guide to Python/CGNS***

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# ONERA

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# FOREWORDS

The pyCGNS Python package is a set of tools for the CGNS standard. The tools are all released in the pyCGNS package but you can install and use each tool in a separate way, as far as dependancies for this tool allow you to do so.

CGNS.WRA	<b>Wrapper</b> A Python wrap to so-called midlevel library and adf library. No dependancy to other pyCGNS modules, but it requires the CGNS and HDF5 libraries. <i>Formerly was pyCGNS.MLL and pyCGNS.ADF</i>
CGNS.MAP	<b>Mapper</b> Implements the SIDS-to-python mapping. No dependancy to other pyCGNS modules, but it requires the HDF5 library. <i>Formerly was CGNS.utils.saveAsADF and loadAsADF</i>
CGNS.PAT	<b>PatterMaker</b> A set of functions to create or update complete SIDS sub-trees. No dependancy to other pyCGNS modules. <i>Formerly was pyCGNS.cgnslib</i>
CGNS.NAV	<b>Navigater</b> A Tk based GUI for Python/CGNS trees. Requires CGNS.MAP, CGNS.PAT, TkTreeControl and TkinterTreectrl. <i>Formerly was pyS7</i>
CGNS.VAL	<b>Validator</b> A customizable Python/CGNS tree parser to check tree compliance to SIDS or to user-defined rules. Requires CGNS.MAP <i>Formerly was pyC5</i>
CGNS.DAT	<b>DataTracer</b> A RDBMS-based application to store and manage set of CGNS files. Requires CGNS.MAP and a RDBMS. <i>Formerly was pyDAX</i>
CGNS.APP	<b>Applicater</b> A set of examples, libraries, tools and demos. Requires CGNS.MAP and CGNS.PAT <i>Formerly was pyCRAB</i>



## CGNS Standard

The Computational Fluid Dynamics community has a standard for data model definition and disk storage: CGNS (CFD General Notation System), it is an AIAA recommended practice and it is in the process of being an ISO standard in the frame of ISO/STEP.

△ In this document, we refer to the so-called official CGNS documents and libraries when we use the .org suffix. For example, the CGNS.org documentation means '*the official CGNS documentation or library or tools you can find on the web site [www.cgns.org](http://www.cgns.org)*'.

The reference document for CGNS is the so-called SIDS, which stands for *Standard Interface Data Structure*. The reference version is described in the document AIAA-R101A-2006 publicly available on the CGNS web site.

## About this document

The *pyCGNS-APP* manual is, at the same time, a reference document and a users' guide. As we are supporting the CGNS standard, many informations related to the standard are not detailed here. The user should read the CGNS/SIDS to have more complete information about the CGNS data structures.

Each pyCGNS module has its own documentation, their may refer to each other.

The required modules and library versions, used by pyCGNS, can be detected at run-time using the pyCGNSconfig module. These are updated during the installation process.



# 1 QUICK START

The CGNS.APP module is a set of libraries, utilities, demos, examples, small applications that illustrate the use of pyCGNS.