



your program  
**TecIO**

*TecIO is a library of utility functions that enables you to output binary data directly from your application. Binary format reduces the data files sizes and increases the speed and efficiency when importing and analyzing results in Tecplot 360, especially compared to ASCII files.*

### TecIO supports two binary file formats:

- Tecplot Subzone (.szplt) — The SZL format is optimized for large data sets and enables substantially improved interactive performance and a reduced memory footprint for common workflows. TecIO reads and writes SZL files.
- Tecplot Binary (.plt) — The legacy format written by earlier versions of Tecplot 360 is also supported by new versions of Tecplot 360. This is a write-only format.

### Two versions of the TecIO library are available

- Standard TecIO performs serial output in .szplt or .plt format.
- TecIO-MPI performs parallel output from applications using the message-passing interface (MPI), outputting .szplt only.

### Learn more at [www.tecplot.com/tecio](http://www.tecplot.com/tecio)

- Webinar: Fast Parallel File Export with TecIO-MPI
- Download the TecIO Libraries
- TecIO FAQs

### Technical Support can help you implement TecIO

- Implementation is free and easy to do with help from our team.
- Email [support@tecplot.com](mailto:support@tecplot.com)
- Call 425-653-9393
- Website Chat [www.tecplot.com](http://www.tecplot.com)

### Get the latest:

<https://www.tecplot.com/category/tecplot-blog/tecio-and-szl/>



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# TecIO Library FAQs

## Why should I write \*.szplt files from my code?

The Tecplot binary formats (\*.szplt and \*.plt) are faster to write and to load into Tecplot 360, and they are smaller than Tecplot ASCII files. The newer binary format, \*.szplt, is much faster to load, uses far less memory, and is often smaller than a \*.plt file containing the same data. Finite-element (unstructured-grid) data is compressed in the \*.szplt file. Finally, \*.szplt files may be written in parallel from the MPI ranks.

## What computer platforms are supported by TecIO?

All the platforms supported by Tecplot 360 are supported by the static and dynamic TecIO libraries. Source code is available so you can compile TecIO on other platforms.

## Where can I get TecIO?

Dynamic libraries for TecIO are shipped with Tecplot 360. They are found in the 'bin' folder of the Tecplot 360 installation, header (include) files are found in the 'include' folder and example programs are found beneath the 'util/tecio' folder. Source code (obfuscated) and example programs may be downloaded from the TecIO Library web page [www.tecplot.com/tecio](http://www.tecplot.com/tecio).

## What flavor of MPI does Tecplot use for its TecIO MPI implementation?

On Linux and Macintosh, Tecplot uses OpenMPI. On Windows, it uses Microsoft MPI. If you need TecIO-MPI for a different flavor of MPI, download the source from our website and build it on your target machine.

## Where is TecIO documented?

The Tecplot 360 Data Format Guide documents the TecIO API. It can be accessed from the Tecplot 360 Welcome Screen or in our documentation at [www.tecplot.com/documentation](http://www.tecplot.com/documentation).

## What programming languages are supported by TecIO?

TecIO uses a C API, so it can easily be called from C, C++, or Fortran. The tecio/examples folder contains both C++ and Fortran examples.

## Can TecIO write data in parallel?

There are two versions of TecIO: TecIO-MPI supports parallel writing of data and is used with MPI (message passing interface) applications like large-scale CFD codes. Standard TecIO uses threading to perform preliminary calculations in parallel but writes the data sequentially.

## What data types are supported by TecIO?

TecIO can write either single or double precision floating point numbers. The API enables output of 8-, 16- and 32-bit integer variables to \*.szplt files. Support for 64-bit zone sizes allow individual zones to exceed 2 billion points using SZL file format. Polyhedral zones are limited to 2 billion cells in PLT format (Polyhedral zones are not supported by SZL file format.)

## What zone types are supported by TecIO?

All zone types may be written in serial (from a single MPI rank) to \*.plt files. For \*.szplt files, see the following table. "Yes (unpartitioned)" means that the zone must be written in serial.

## TecIO Supports High Order Elements

As of 360 2023 R1, TecIO supports writing of high order elements to the SZL format using the FEMixed zone type.

Zone Type	.plt	.szplt	Partitioned .szplt
I-Ordered, IJ-Ordered	Yes	Yes	Yes (unpartitioned)
IJK-Ordered	Yes	Yes	Yes
FE-LineSeg, FE-Triangle, FE-Quadrilateral	Yes	Yes	Yes (unpartitioned)
FE-Tetrahedral, FE Brick	Yes	Yes	Yes
FE-Polyhedral	Yes	No	No
FE-Mixed	No	Yes	Yes (3D cell shapes)

