

Plot3d File Format for Grid and Solution Files

This page describes the Plot3d file format for writing CFD structured grids and solutions. Below are examples for reading the files using Fortran 77 code. The examples assumes the grid file has been opened to unit 7 and the solution file to unit 8. Shown are examples for 2D, formatted, single-block files and 3D, unformatted, multi-block files. Permutations of these formats are possible and should be evident from the examples.

2D, Whole, Formatted, Single-Block Grid and Solution

```

parameter ( imax = 100 )
parameter ( jmax = 100 )

integer i
integer j
integer m
integer n
integer ni
integer nj

real mach    ! freestream Mach number
real alpha   ! freestream angle-of-attack
real reyn    ! freestream Reynolds number
real time    ! time

real x(imax,jmax)
real y(imax,jmax)

real q(imax,jmax,4)

open ( unit=7, form='formatted', file='2D.x' )
open ( unit=8, form='formatted', file='2D.q' )

read(7,*) ni, nj
read(7,*)
&    (( x(i,j), i=1,ni), j=1,nj),
&    (( y(i,j), i=1,ni), j=1,nj)

read(8,*) ni, nj
read(8,*) mach, alpha, reyn, time
read(8,*) ((( q(i,j,n), i=1,ni), j=1,nj), n=1,4)

```

3D, Whole, Unformatted, Multi-Block Grid and Solution

```

parameter ( imax = 100 )
parameter ( jmax = 100 )
parameter ( kmax = 100 )
parameter ( nbmax = 10 )

integer i
integer j
integer m
integer n
integer nblocks
integer ni (nbmax)
integer nj (nbmax)
integer nk (nbmax)

```

```

real mach      ! freestream Mach number
real alpha     ! freestream angle-of-attack
real reyn      ! freestream Reynolds number
real time      ! time

real x(imax, jmax, kmax, nbmax)
real y(imax, jmax, kmax, nbmax)
real z(imax, jmax, kmax, nbmax)

real q(imax, jmax, kmax, nbmax, 5)

open ( unit=7, form='unformatted', file='3D.x' )
open ( unit=8, form='unformatted', file='3D.q' )

read(7) nblocks
read(7) ( ni(m), nj(m), nk(m), m = 1, nblocks )
do m = 1, nblocks
  read(7)
  &   ((( x(i, j, k, m), i=1, ni(m)), j=1, nj(m)), k=1, nk(m)),
  &   ((( y(i, j, k, m), i=1, ni(m)), j=1, nj(m)), k=1, nk(m)),
  &   ((( z(i, j, k, m), i=1, ni(m)), j=1, nj(m)), k=1, nk(m))
enddo

read(8) nblocks
read(8) ( ni(m), nj(m), nk(m), m = 1, nblocks )
do m = 1, nblocks
  read(8) mach, alpha, reyn, time
  read(8)
  &   ((((( q(i, j, k, m, n), i=1, ni(m)), j=1, nj(m)), k=1, nk(m)), n=1, 5)
enddo

```

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