

## The old release

The old version of file `visfield_s.dat` is composed with 12 lines of integer values. This version is still available for people used to the old version of VISFIELD.

- The first two lines allows the user to select a series of files should be converted. The first line is associated to the subdomain number and the second line to the file number which are included in the file name.
- The following line contains one integer value which defines the type of file to convert
  - 0 : instantaneous fields : `res_yyyyyy_xxxxxxx.d`
  - 1 : statistical fields : `rst_yyyyyy_xxxxxxx.d`
- The third following lines are associated to the grid indices of the computational domain. These index set allows the user to build a space box for extracting only a part of fields from the computational domain.  
If one of these index values is set to zero, the whole domain is considered regardless of the meshsize, including the ghost cells.
- The following line contains just one integer value for selecting the type of format in which the file will be converted.  
0 : tecplot format (`.plt`) - 1 : VTK format (`.vtk`).
- The following line is a peculiar data related to the vtk format conversion. An integer data defines if the vtk data must be written as a rectilinear form (value 0) or a structured-grid form (value 1).
- The four last lines are reserved to the special case of data manipulation : Please, do not consider them for your work and do not modify them.

### `visfield_s.dat`

```
00000 1 !--- 1st subdomain number and total number of subdomains for
file selection (related to the 1st number in the file name)
0 200 1 !--- 1st file number, last file number and file number-step
for file selection (related to the 2nd number in the file name)
0      !--- Type of file to convert (0 : instantaneous fields, 1:
statistical fields)
0 130  !--- Start and end indices along the I-direction | => space
box for considering only a part of fields
1 130  !--- Start and end indices along the J-direction | a zero
value indicates the whole computational domain is considered
1 130  !--- Start and end indices along the K-direction |
1      !--- selection of the format conversion -> 0 : tecplot format
(.plt) - 1 : VTK format (.vtk)
0      ! Only for VTK format -> 0 : rectilinear form , 1: structured
grid form
0      !--- special data. Do not modify it.
rst_00000_0000001.d !--- special data. Do not modify it.
3      !--- special data. Do not modify it.
1 3      !--- special data. Do not modify them.
```

EOF

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## The new release

The new version of file, visfield\_sunfluidh.dat, allows you to use much more functionalities of VISFIELD, like slice reading. Data setup is organised with the concept of Namelist. All possibilities are described in the example given here.

[visfield\\_sunfluidh.dat](#)

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Data parameters for converting the SUNFLUIDH binary files to Tecplot or
VTK format

New data file for the new release of VISFIELD

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          Domain decomposition   (MPI simulation)
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Number of subdomains along each direction  (I,J and K)
for a simulation performed with a domain decomposition approach (MPI)
If MergingData_Enabled=.true., all subdomain fields are grouped in a
same Tecplot or VTK file

&DomainDecompositionFeatures  NumberOfSubdomains_Idir= 1,
                                NumberOfSubdomains_Jdir= 1,
                                NumberOfSubdomains_Kdir= 1,
                                MergingData_Enabled=.false. /
```

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File parameters
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Define the features of the file to convert

TypeOfData = 'snapshots'          --> instantaneous fields
: files res_XXXXX_YYYYYYY.d
TypeOfData = 'block_snapshots' --> instantaneous fields on specified
blocks : files res_XXXXX_YYYYYYY.d
TypeOfData = 'stastistics'        --> statistics fields
: files rst_XXXXX_YYYYYYY.d
TypeOfData = 'slices'             --> fields on slices
: files slice_sn_d_XXXXX_YYYYYYY.d

Special data :

TypeOfData = 'space_averaged_snapshots' --> space averaged
snapshots along a direction : files spav_plan_d_YYYYYYY.d

Default parameters implicitly imposed :
MergingData_Enabled= .false. (data already gathered in a unic file)
                                Any parameter
related to the domain decomposition is set such as only one domain is
considered

with :
    XXXXX    : rank of subdomain (MPI process)
    YYYYYYY  : number associated to the time recording of data
    d        : this number indicates the orientation of the plan
(automatically considered by the VISFIELD)
    sn       : rank of the plane (rank in the SUNFHLUIDH data
file)

    FirstSubdomainRank = XXXXX    : first subdomain rank for
files to convert
    NumberOfSubdomains = XXXXX    : Number of subdomains to
consider from FirstSubdomainRank
    SubdomainsStride    : Stride on subdomain ranks
    FirstRecordingIndex = YYYYYYY : first time recording value
for files to convert
    LastRecordingIndex  = YYYYYYY : last time recording value for
files to convert
    IndexStride         : stride on time recording
value
    FirstSlice_ID= sn    : Value of the first rank for 'slices'
data files to convert
    LastSlice_ID = sn    : Value of the last rank for 'slices'

```

data files to convert

FirstBlock\_ID= sn : Value of the first rank for  
'block\_snapshots' data files to convert

LastBlock\_ID = sn : Value of the last rank for  
'block\_snapshotss' data files to convert

Notes : - By default SubdomainsStride and IndexStride are set to 1

- By default NumberOfSubdomains = NumberOfSubdomains\_Idir \*  
NumberOfSubdomains\_Jdir\* NumberOfSubdomains\_Kdir

- When 'slices' is selected, FirstSubdomainRank must be the  
lowest MPI rank in which the plane is defined.

when MergingData\_Enabled= .true. :  
NumberOfSubdomains is automatically updated by  
VISFIELD in regard to NumberOfSubdomains\_Idir, NumberOfSubdomains\_Jdir  
and NumberOfSubdomains\_Kdir

when MergingData\_Enabled= .false.  
: NumberOfSubdomains must take into account all the MPI rank covering  
the plane  
(NumberOfSubdomains= FirstSubdomainRank + the highest MPI rank in which  
the plane is defined)

If a file selected by VISFIELD is  
not present in the work directory, it is ignored

- When 'snapshots' or 'statistics' is selected,  
NumberOfSubdomains can be ignored if NumberOfSubdomains\_Idir,  
NumberOfSubdomains\_Jdir, NumberOfSubdomains\_Kdir are correctly set.

All subdomain  
will be considered if FirstSubdomainRank= 0

if the user  
want only convert some subdomain files, he may plays with  
FirstSubdomainRank, NumberOfSubdomains, SubdomainsStride

- When 'space\_averaged\_snapshots' is selected,  
MergingData\_Enabled= .false. . Data are automatically regrouped in a  
single file

If a file selected by VISFIELD is  
not present in the work directory, it is ignored

```
&DataFileFeatures  TypeOfData="statistics",
                   FirstRecordingIndex=1 ,
                   LastRecordingIndex= 1 ,
                   IndexStride= 1 /
```

```
!DataFileFeatures  TypeOfData="snapshots",
                   FirstRecordingIndex=1 ,
                   LastRecordingIndex= 5,
                   IndexStride= 1 /
```

```
!DataFileFeatures  TypeOfData="block_snapshots",
                   FirstRecordingIndex=1 ,
```

```

        LastRecordingIndex= 10,
        IndexStride= 1
        FirstBlock_ID=1,
        LastBlock_ID=1 /

!DataFileFeatures  TypeOfData="slices",
        FirstRecordingIndex= 1 ,
        LastRecordingIndex= 10,
        FirstSubdomainRank  = 0,
        NumberOfSubdomains= 1,
        FirstSlice_ID=1,
        LastSlice_ID=1,
        IndexStride= 1 /

!DataFileFeatures  TypeOfData="space_averaged_snapshots",
        FirstRecordingIndex=1 ,
        LastRecordingIndex= 40 /

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                Format conversion
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VelocityCylindricalCoordinates= .True. In cylindrical geometry, the
coordinates are converted to cartesian geometry while the velocity
components leave in cylindrical geometry
                                else (false) they also converted
TecplotFormat_Enabled= .true.   Binary data are converted to Tecplot
data
VTKFormat_Enabled      = .true.   Binary data are converted to Legacy VTK
data

&DataFormat  VelocityCylindricalCoordinates=.False.,
              TecplotFormat_Enabled = .True. /
              !VTKFormat_Enabled= .true. /

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        Special case : Extract field fluctuations from snapshots and
statistics data
                RESTRICTED USE !!!!
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&ExtractFluctuations_Special/ ExtractFluctuations_Enabled= .false. ,
                                NumberOfFields= 1,
StatisticsFileName='rst_00000_0000001.d' /

```

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<https://sunfluidh.lisn.upsaclay.fr/> - **Documentation du code de simulation  
numérique SUNFLUIDH**

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