

The old release

The old version of file `visfield_s.dat` is composed with 12 line 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 three 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
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
```

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 provided 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

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 = YYYYYY : first time recording value
for files to convert
```

```
LastRecordingIndex = YYYYYY : 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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Last
update: sunfluidh:visfield_sunfluidh_file https://sunfluidh.lisn.upsaclay.fr/doku.php?id=sunfluidh:visfield_sunfluidh_file&rev=1560871724
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