

## Namelist "Instantaneous\_Fields\_Listing"

This data set defines the instantaneous fields of the physical quantities that the user wants to record as results of simulation.

The recording rate is defined with the variable "Field\_Recording\_Rate" that belongs to the namelist "Simulation\_Management".

The files of instantaneous fields are written in binary format. They are named in the form res\_xxxxxxx\_yyyyy.d. 'yyyyy' is the subdomain number for simulations based on the MPI domain-decomposition approach, 'xxxxxxx' is the file number.

Don't forget to set the boolean data "End\_of\_Data\_Block" at the end of the namelist. The value is ".false." by default. A ".true." value means the end of the data set when several namelists are used to define several records of instantaneous fields.

### Full data set of the Namelist

```
&Instantaneous_Fields_Listing Name_of_Field = "U" , Recording_Enabled =
.true. /      !--- First velocity component
```

### Name\_of\_Field

- Type : String of six characters (maximum)
- This data names the physical quantity to record. This name must match with the lookup table of the code which is composed of 18 pre-selected physical quantities.
  - "U " : Velocity component along the I-direction
  - "V " : Velocity component along the J-direction
  - "W " : Velocity component along the I-direction
  - "T " : Temperature
  - "P " : Pressure
  - "RHO " : Density of the fluid
  - "divU " : Divergence of the velocity field
  - "divRU " : Divergence of the momentum field
  - "PHI " : Pressure increment ( $P^{n+1} - P^n$ )
  - "drho " : Part of the source term of the Poisson's equation linked to the mass variation. For expert users only.
  - "SCR\_P " : Source term of the Poisson's equation. For expert users only.
  - "S\_RAD " : Radiative source term (when radiative heat transfer is considered in some specific simulations)
  - "MU " : Dynamic viscosity of the fluid
  - "MU\_SG " : subgrid dynamic viscosity associated to the LES model selected.
  - "TRACE " : Passive tracer or distance function used in the context of two-phase flow simulation with a level-set approach
  - "Te " : Electronic temperature (simulation of ionized gas)
  - "rho\_e " : density of electrons (simulation of ionized gas)
  - "roehe " : Electronic enthalpy (simulation of ionized gas)
- In the case of multi-species flows, instantaneous fields of species mass fraction can be recorded. for that set the name of the species already used in the namelist "Species\_Properties"

in the variable "Name\_of\_Field.

- In order to record any new instantaneous field, please contact the developer (yann.fraigneau@limsi.fr\_to\_removed).

## Recording\_Enabled

- Type : Boolean value
- The record of the instantaneous field is activated (if .true.)

## End\_of\_Data\_Block

- Type: Boolean value
- This means the end of the data set when ".true." is set.

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