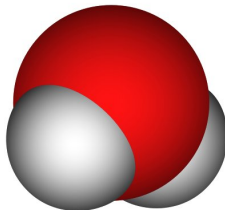


HydroBase

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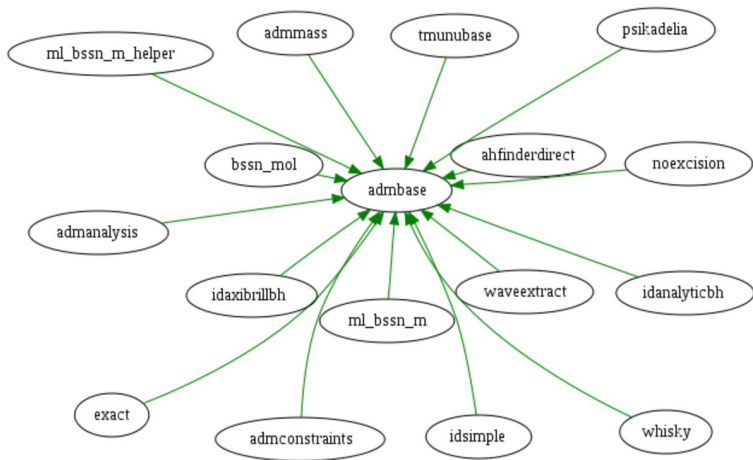


- Ease ability to compare data of different codes
- Improve interoperability between codes

Example: ADMBase

- Common variable definitions
 - metric
 - curvature
 - lapse, shift, dtlapse, dtshift
- Common parameters
 - initial_data
 - initial_lapse
 - initial_...
 - evolution_method
 - ..._evolution_method
 - metric_type
- Common scheduling groups
 - ADMBase_InitialData
 - ADMBase_PostInitial
 - Initialize Variables

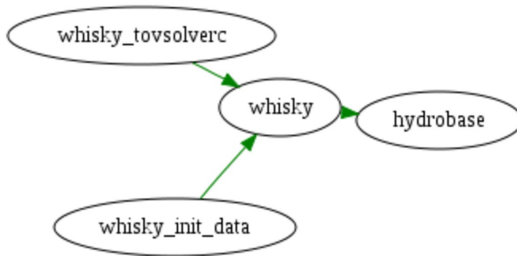
Example: ADMBase



- Common variable definitions
 - rho
 - press
 - eps
 - vel[3]
- Common parameters
 - evolution_method
 - propongation_type
 - timelevels
- Common scheduling groups
 - HydroBase_Initial
 - HydroBase_RHS
 - HydroBase_Select_Boundaries
 - HydroBase_Con2Prim
 - HydroBase_Prim2ConInitial

Example: HydroBase and Whisky

Current state:



Usage Example I

- `interface.ccl`:

```
# Interface definition for thorn Whisky
```

```
implements: Whisky
```

```
inherits: ..., ADMBase, Tmunubase, HydroBase
```

```
CCTK_REAL dens type=GF Timelevels=3
```

```
tags='ProlongationParameter="HydroBase::prolongation\_type"'
```

Usage Example II

- `param.ccl`:

```
shares: HydroBase
USES CCTK_INT timelevels
USES KEYWORD prolongation_type
EXTENDS KEYWORD evolution_method ""
{
  "whisky" :: "Use Whisky to evolve the hydro variables"
}
```


Usage Example III

- `schedule.ccl`:

```
schedule Whisky_SetupDescriptors
  AT CCTK_Initial BEFORE HydroBase_Initial
{
  LANG: C
} "Get and store the mask descriptors"
```

```
schedule Conservative2PrimitivePolytype
  IN HydroBase_Con2Prim AS Con2Prim
{
  LANG: Fortran
} "Convert back to primitive variables (polytype)"
```

Usage Example IV

- `schedule.ccl:`

```
schedule Whisky_Boundaries IN HydroBase_Select_Boundaries
{
  LANG: Fortran
  OPTIONS: LEVEL
  SYNC: ...
} "Do the boundary conditions"
```

- Advertize usage of HydroBase
- Include additional variables
 - composition
 - MHD
 - radiation