

Wrapped Participant API

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Executive Summary

It is desirable that a standardized wrapped participant is defined so that it might be usable with several work flow systems.

Archive type

The archive format shall be zip. This format is chosen because it supported widely. The contents described below must be top level files within the zip archive.

The archive may be empty. Absent elements are to be given reasonable interpretations. I.e., the absence of pre-condition or post-condition check meant that all have been passed successfully. The absence of a wrapper element is that the executable succeeded.

To interface to a workflow system, it may contain any of the following items:

- a manifest, as described below
- a number of executables, which may be in any language, whose names start with “pre”. These are to be executed by the workflow system as additional precondition checks in this manner.

```
cd zip-file-unwind-directory
./pre-name \
  --environment environment-file --parameters parameters-file
```

- a number of executables, which may be in any language, whose names start with “post”. These are to be executed by the workflow system as additional postcondition checks in this manner.

```
cd zip-file-unwind-directory
./post-name \
  --environment environment-file --parameters parameters-file
```

- an executable or a symbolic link to an executable reachable from this environment named “wrapper”. The actual executable may be external to the zip file contents. In which case the symbolic link must be to an absolute file path. If the actual executable is internal to the zip file contents, then a relative symbolic link may be used or it may be named “wrapper”.

```
cd zip-file-unwind-directory
./wrapper --port1 filename1 --port2 --filename2 ... \
  --portn filenamen \
  --environment environment-file --parameters parameters-file
```

the filename arguments of the port arguments are names of files containing the names of zero or more files which are whitespace separated. This separation permits the file name lists to be made on MicroSoft Windows, Apple MacIntosh or Unix-like operating systems. This also means that file names must not contain whitespace themselves. On input, these are the input files to be processed. On output, the output file file names are written to the named file.

- any other static files or directories needed by the forementioned executables.

Archive handling

- An empty directory will created at some location reachable by the worker nodes of the cluster. This creation may be by “mkdir” or emptying a work directory of the work flow system. N.B., the wrapper participant must not be dependent on this directory having a fixed name or location. The zip file will be unwound into the empty directory.
- At the appropriate times in the work flow system’s processing, the precondition checks, the wrapper and the postcondition checks are executed by the work flow system.
- After completion regardless of success, the directory and its contents are to be removed by the work flow system.

Manifest

The purpose of the manifest is to *permit* the workflow system to verify the wrapper participant. The work-flow system decides whether a wrapped participant without a manifest file is in error or is accepted as valid as is.

This is a file divided into sections. Presently, there are two sections defined. The contents are whitespace separated. Line endings are whitespace.

Section starts are marked with left square bracket, a alphabetic string and a right square backet.

The contents of a section are whitespace separated words of printable ASCII graphics. Punctuation characters are specifically permitted.

Currently there are defined defined sections, naming input and output ports and the participant name: “[input]”, “[output]” and “[name]”.

The design of the manifest must be such that sections may be added to it.

```
[output] gaugefile
log report
[input]
propagator
dimensions
[name] propagator_generator
```