

# HEP Software Foundation – The Grid Scope

This document represents input from HEP groups developing Grid software, such as APEL, ARC, CERN's data management solutions, dCache etc.

Majority of Grid software used by HEP experiments is developed by HEP groups themselves. Due to the long history of EU funding, and the attached requirement of creating standards-based tools of generic use, Grid software developers have achieved significant progress in approaching industry standards of software development. This experience can be beneficial for the HEP Software Foundation.

The other reason for including Grid software into the scope is the necessity to adjust this software to the future requirements of parallel processing. Current designs are optimised for serial processing, therefore, even if the HEP software will be fully parallelized, benefits of this won't be substantial unless Grid will be able to handle parallel tasks efficiently enough.

## Goals

The overall goal of the HEP Software Foundation is to become a framework in which all major HEP-related software will be developed and maintained.

Specific goals:

- 
- Ensure mutual compatibility of software packages and certified interoperability between different versions and releases of the products
- Promote the use of open standards; libraries have to conform to standard packaging procedures that are easy to distribute and maintain
- Implement quality assurance policies and procedures
- Support or assist building collaborations and consortia seeking funding from relevant agencies in the US, Europe and Asia
- Launch and supervise short term initiatives to follow up on technology changes
- Assist in implementing new technologies
- Outreach:
  - Make more science communities aware of our software portfolio
  - Organize events (either conferences or “Hands on software”) to exchange experience with the different algorithms and implementations in HEP; engage pure HEP communities (LHC, Belle and ILC) but possibly as well Astroparticle ones, such as CTA, IceCube, and Photon Science.

Framework implementation:

- Collaborative tools (mailing lists, Web site, Wiki etc)
- Set of policies (see below)
- Optionally: code repository for newcomers
- Optionally: binary repositories for different OSes – for those softwares that have no other

distribution channels

- ...

## ***Scope and duration***

The initial scope is all software developed by or for HEP laboratories worldwide, extending to astroparticle experiments etc.

Duration is unlimited.

## ***Development model***

Different software products have independent development cycles and are free to follow whatever model suits them best. Still, generic software development standards must be respected, such as: well-defined and unambiguous release numbering (different numbering and naming schemes must be allowed), well-defined dependencies, compatible open source licenses etc..

## ***Policies***

The set of policies is defined by the Board (see below), and evolves in time. In addition to policies, the Foundation may want to have a set of Best Practices. Policies should define:

- Release procedures guidelines
- Dependency conflict resolution guidelines
- Security guidelines (when applicable)
- Software review procedures
- Documentation guidelines
- Licensing and IPR guidelines
- ...

## ***Governance model***

CEO and secretariat

Board, consisting of area convenors

Areas, roughly matching CHEP tracks, namely:

- data acquisition, trigger and controls;
- event processing, simulation and analysis;
- distributed processing and data handling;
- data stores, data bases and storage systems;
- software engineering, parallelism & multi-core programming;
- facilities, production infrastructures, networking and collaborative tools.

Each area should have a convenor; convenors constitute the Board; the Board appoints a chair-person

## ***Membership***

Any HEP-related software development team should be accepted, provided:

- It accepts the policies
- It is accepted by one of the areas
  - if there is no matching area, the Board should establish a new one, if no-one objects

Membership in the Foundation serves as a quality acceptance certificate

There are broadly two types of members:

- Generic software providers (ROOT, GEANT4, Monte Carlo generators, Grid tools etc)
- Experiments themselves (provide analysis frameworks, production systems, data acquisition and trigger software etc)

Both types should have equal membership