

Strategic Plan for Fortran Standardization

(WG5 Standing Document 4)

1. Mission (the goal to achieve)

The mission is to be responsive to changing technology and user needs by establishing procedures whereby a revision of the international Fortran standard is produced about every five years. Each of these revisions, during its lifetime, will be recognized and accepted worldwide as the single international Fortran standard.

The standard will be developed and maintained by a broad and balanced international group of users, vendors, and academics, collectively providing appropriate expertise.

2. Vision (desired effect of achieving the goal)

The international scientific and engineering community will be provided with a single worldwide Fortran standard that will improve software and programmer portability and promote software reusability and compatibility.

3. Strategies (functions to achieve the goal)

3.1. Two major functions.

There are two major functions: (1) identification of needs and specification of standard requirements and (2) development of standard document content and maintenance of the current standard. Other activities include scheduling, performing liaison and review activities, and conducting ad hoc studies. The requirements and development functions should be separate but highly coordinated.

3.2. Requirements as the "what" function.

The result of requirements specification is a document that prescribes the functional requirements for a revision of the language standard and related standards. Draft documents (standards, amendments, corrigenda, technical reports, etc.) will be submitted to ISO for adoption.

WG5, on a continuing basis, determines, records, distributes, and maintains the needs and suggested requirements for Fortran. To begin a new revision WG5, using the recorded needs and suggested requirements, establishes objectives and corresponding functional requirements, specifications, and schedule for that revision.

3.3. Development as the "how" function.

The development function develops the international standard revisions, corrigenda, amendments, and related auxiliary standards, in accordance with the specified requirements and schedule.

A development body will be chosen to produce each revision and auxiliary standard. The development body for a revision of the Fortran standard is the primary development body. It is the responsibility of each development body to determine how the requirements are to be met and to prepare the corresponding draft document. Revisions of the Fortran standard will incorporate approved corrections as well as fully implemented requirements.

Maintenance of a standard involves correcting errors that are discovered in the standard and providing official interpretations for those parts of the standard that are found to be unclear or incompletely specified. A corrigendum that incorporates corrections resulting from this maintenance activity will be produced periodically.

3.4. Scheduling.

The basic five-year schedule for revisions is predetermined. WG5 will negotiate with the primary development body a detailed schedule consistent with this five-year cycle. For other development work WG5 will negotiate an appropriate schedule with the corresponding development body. Activities involving maintenance of the current standard will take place concurrently with the development activities.

Since the schedule must be reported to JTC1, the schedule will be phrased in ISO terms. The relevant ISO stages for ongoing projects are:

2	preparatory	
3	committee	CD ballot (SC22)
4	approval	DIS ballot (JTC1)
5	publication	

[See, for example, WG5 Standing Document 3, WG5 - N940]

3.5. Auxiliary standards.

Some needs may be met most effectively by auxiliary standards rather than with revision of the Fortran standard. An auxiliary standard is related to the Fortran standard in some significant way; for example, some functionality may be made available by "binding" that functionality to Fortran. There are two forms of auxiliary standards: supplementary standards and extension standards.

Extension standards involve syntax/semantics beyond that of the current Fortran standard. Because of the serious potential for incompatibilities arising from uncoordinated extension activities, WG5 requests that all bodies developing extension standards coordinate their work closely with the primary development body and that primary development body approval be obtained before a proposed extension standard is adopted.

Supplementary standards are auxiliary standards other than extension standards. Common forms of supplementary standards likely will be standard Fortran code using the module/use and procedure library mechanisms. In order to minimize conflicts and incompatibilities, WG5 requests that the primary development body review all proposed supplementary standards and provide WG5 with the results of those reviews.

3.6. Liaison and review activities.

It is the responsibility of WG5 and the development bodies to establish liaison or contact with and review the work of other organizations whose work items relate to the Fortran standards effort. Such organizations include:

SC22/WG11 and X3T2 (LIA, LID, LIPC)
SC22/WG15 and IEEE P1003.9 (POSIX Fortran Bindings)
SC22/WG20 (Internationalization)
X3H5 and HPPF (Parallel Processing)

3.7. Conducting ad hoc studies.

It is the responsibility of WG5 to determine whether studies are needed to aid the identification and requirements specification processes. WG5 may carry out such ad hoc studies or may request one or more participating member bodies to carry out such studies.

4. Tactics (implementing the strategies)

4.1. Principal responsibilities of WG5.

WG5 may establish a management committee to make recommendations and interim decisions when it is impractical to involve the entire membership. The membership of the management committee would be reestablished at each meeting and be in effect until the following meeting.

WG5 will:

- (a) maintain a repository of suggested requirements (Standing Document 5)
- (b) define revision objectives and select the corresponding functional requirements for development after comprehensive review
- (c) determine whether a given requirement can best be met by a revision of the Fortran standard or by an auxiliary standard (see N776)
- (d) choose the development bodies and delegate all development and draft document preparation to them
- (e) monitor development (where progress is not consistent with the schedule, WG5 will, together with the development body, determine if corrective action can be taken by the development body; if this is not possible it will be necessary for WG5 to reassign some or all items to another development body, or to delete some items from the specification, or to revise the schedule)
- (f) monitor maintenance activities
- (g) determine whether a final draft document is adequate and consistent with the specified requirements
- (h) submit draft documents to ISO

4.2. Principal responsibilities of the development bodies.

A development body will:

- (a) appoint a project editor
- (b) produce a draft document to meet the agreed schedule and specified requirements
- (c) establish a document production system that will allow the most recent electronic version of any proposed standard to be available to all members of WG5 and the development body
- (d) coordinate with other organizations, as appropriate

4.3. The schedule.

Following is a proposed schedule for the next two revisions:

phase		first revision	second revision
preparatory	2.1	11-91	7-92
initial requirements		-----	7-94
requirements review		-----	5-95
requirements complete		7-94	9-95
working draft	2.8	4-95	12-98
CD ballot	3.0	6-95	1-99
	3.1	6-95	1-99
	3.2	9-95	4-99
	3.8	11-95	9-99
DIS ballot	4.0	12-95	10-99
	4.1	12-95	10-99
	4.2	7-96	5-00
	4.4	9-96	7-00
	4.8	9-96	7-00
publication	5.0	11-96	8-00
	5.3	12-96	10-00

4.4. Fortran maintenance bodies.

WG5 will determine maintenance bodies for Fortran revision standards and auxiliary standards. In general, the body that develops a standard will be responsible for its maintenance. X3J3 has been delegated responsibility for maintaining Fortran 90.

WG5 will conduct a letter ballot on items that the maintenance body identifies as ready for further processing. From the items thus approved, WG5 will extract material appropriate for a technical corrigendum and forward the resulting draft to SC22 for further processing. This procedure will be repeated annually, except for those years in which a standard revision including the approved items is forwarded to SC22. To

expedite processing, every effort will be made to produce a draft corrigendum prior to an SC22 meeting so that it may be approved at that meeting for combined SC22 and JTC1 balloting.

4.5. Coordination between WG5 and development bodies.

Meeting schedules will be coordinated to make the best advantage of members' resources as far as time and travel expenses are concerned and to accomplish the goals established by the schedule.

There should be as much overlap as possible in the membership of WG5 and development bodies, especially with the primary development body. This provides informal communication and continuity.

Formal written reports and resolutions will be used to clarify communications and maintain a record of communications. At each meeting a Responses and Resolutions (R&R) report will be produced that is intended to be the official communication and coordination vehicle between WG5 and the development bodies, as appropriate. The R&R reports produced by WG5 will be sent to the appropriate development body; the R&R reports produced by the development body will be sent to WG5. The responses portion of each R&R report will contain responses to resolutions received from the other bodies. The resolutions part may contain any information for or requests of the other bodies.

Annex A. Schedule Implications

For the next two years, the proposed schedule has the following implications for each participating WG5 member body:

- | | |
|---------------------------------------|--|
| before
1995
meeting
(spring) | <ul style="list-style-type: none">- review WD for first revision- prepare additional requirements for second revision and send to Convenor 8 weeks before the meeting |
| at
1995
meeting
(spring) | <ul style="list-style-type: none">- approve WD of first revision for CD registration- select requirements for second revision- monitor Fortran 90 maintenance |
| before
1995
meeting
(autumn) | <ul style="list-style-type: none">- prepare national responses to CD ballot- conduct national review of requirements for second revision |
| at
1995
meeting
(autumn) | <ul style="list-style-type: none">- process results of CD ballot on first revision and approve edits to draft for DIS registration- finalize requirements for second revision and authorize development |
| before
1996
meeting | <ul style="list-style-type: none">- prepare national responses to DIS ballot- review development activities for second revision |
| at
1996
meeting | <ul style="list-style-type: none">- process results of DIS ballot and approve edits to draft for publication- monitor development of requirements for second revision |