J3 / 01-317

NCITS / J3 ANSI Fortran Standards Committee
What is an Input/Output Error?

Craig T. Dedo
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Page 1 of 1

What is an Input/Output Error?

2 To: J3
3 From: Craig Dedo
4 Date: August 14, 2001
5 Subject: What is an Input/Output Error?

Issue

7 In preparing my proposed response to WG5 on the issue about what happens if a program tries to
8 open an existing file with STATUS = "SCRATCH", I noticed that the Fortran standard does not
9 rigorously define what an input / output error is.

Analysis

11 One might think that it is an I/O error if a program attempts an I/O action which is "not permitted"
12 or which violates a restriction or prohibition. However, that is not the case. The current language of
13 9.5.3 in the Fortran 2000 draft [182:32] says, "The set of input / output error conditions is processor
14 dependent."

15 Application developers have an expectation that common programming or execution errors will in
16 fact generate error conditions. Leaving the entire definition of what constitutes an I/O error condition
17 as processor-dependent defeats this expectation and hinders portability.

18 The Fortran 2000 standard should require that actions of I/O statements that violate the
19 restrictions and prohibitions of I/O statements and format edit descriptors generate I/O error
20 conditions. The processor should have the freedom to define additional I/O error conditions as it
21 chooses to. The classification and reporting of I/O error conditions should continue to be processor-
22 dependent.

Edits

24 Edits are with respect to 01-007r2.
25 [182:32]   Replace the sentence with the following.
26 The processor shall detect as an input/output error condition the execution of an input/output statement
27 which violates any restriction or prohibition. The definition of additional input/output error conditions
28 is processor dependent. The classification and reporting of input/output error conditions is processor
29 dependent.

References

31 01-007r2, Fortran 2000 Draft
32 01-316, Named Scratch Files - Proposed Response to WG5
33 [End of J3 / 01-317]