MUMPS Development Committee

Extension to the MDC Standard
Type A Release of the MUMPS Development Committee

NEW svn Addition: $TEST

June 1994

Produced by the MDC Subcommittee #15
Programming Structures

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The reader is hereby notified that the following MDC specification has been approved by the MUMPS Development Committee but that it may be a partial specification that relies on information appearing in many parts of the MDC Standard. This specification is dynamic in nature, and the changes reflected by this approved change may not correspond to the latest specification available.

Because of the evolutionary nature of MDC specifications, the reader is further reminded that changes are likely to occur in the specification released, herein, prior to a complete republication of the MDC Standard.

1. Identification

1.1 Title:

NEW svn Addition: $TEST

1.2 MDC Proposer and Sponsor:

Proposer:
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Sponsor:
SC15/TG9 Routine Structure
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1.3 Motion:

Subcommittee 15 moves to elevate this proposal to MDC Type A status.

1.4 History:

Date	Document	Action	
01 Dec 94	X11/94-47	MDC/A	
20 Apr 94	X11/SC15/94-13	Proposed as MDC/Type A	(Passed: 34-5-4)
01 Feb 94	X11/SC15/94-7	Proposed as SC15/Type A	(Passed: 18-2-5)
25 Oct 93	X11/SC15/TG9/93-9	Revised, proposed as SC15/Type B	(Passed: 12-7-4)
20 Oct 92	X11/SC15/TG9/92-3	Proposed as SC15/Type B	(Failed: 7-14-5)
01 Oct 92	X11/SC15/TG9/92-2	Interim document using NEW svn formalization	
01 Sep 92	X11/SC15/TG9/92-1	Initial proposal with excessive formalism.	

1.5 Dependencies:

No proposals have been identified which depend on this proposal.
No proposals have been identified upon which this proposal depends.

2. Justification

2.1 Needs

In order to provide true library utilities and functions, there needs to be some means for saving selected svn's (system variables) and restoring them when the subroutine/function is completed.

2.2 Existing Practice

The existing practice is to make no assumptions about selected system variables when calling a subroutine. Although extrinsic functions currently stack the value of $Test, other state variables could inadvertently be changed by the function. Alternatively, programmers would require absolute knowledge about the side effects of subroutines being used -- hindering modification and maintenance.

3. Description

3.1 General description

With the "Error Processing" proposal (**X11/SC15/92-27**), selected svns are now permitted to be used with the NEW command. In addition to **$ETRAP** and **$ESTACK**, this proposal will add **$TEST** to the list of svns which can be NEWed.

3.2 Annotated Examples of Use

```
GO      If 1 Do TEST Write !,"$TEST should equal 1, $TEST="_$TEST
        Else  Write !,"This should not print; $TEST="_$TEST
        Q
TEST    New $TEST ;save the existing value of $TEST
        If 0 ;$TEST should now be equal to 0
        Q  ;this will restore the 'new'd value of $TEST
```

3.3 Formalization (References are to the X11.1-1994 Canvass Document)

- **To section 8.2.14 'NEW', add to the list of svns permitted newsvn:**

```
newsvn ::=  |    ...     |
            | $T[EST]    |
            |    ...     |
```

- **Add new paragraph (numbered appropriately) after paragraph 2 of subclause d 'NEW svn':**

3) If the argument specifies $TEST, points to a DATA-CELL with a value copied from the prior DATA-CELL (as pointed to by the just-copied NAME-TABLE entry).

4. Implementation Effects

4.1 Effect on Existing User Practices and Investments

None expected; there is no backward incompatibility issue with this addition.

4.2 Effect on Existing Vendor Practices and Investments

None expected.

4.3 Techniques and Costs for Compliance Verification

Create a subroutine which modifies $TEST (i.e. IF '$TEST); compare the value of $TEST before and after calling this subroutine, as well as a copy of the subroutine with 'NEW $TEST' placed as the first command in the subroutine. $TEST should not change in the second version.

This testing subroutine could be written as follows:

```
GO      If 1 Do TEST Write !,"$TEST should equal 1, $TEST="_$TEST
        Else  Write !,"This should not print; $TEST="_$TEST
        Q
TEST    New $TEST ;save the existing value of $TEST
        If 0 ;$TEST should now be equal to 0
        Q  ;this will restore the 'new'd value of $TEST
```

4.4 Legal Considerations

None identified.

5. Closely Related Standards Activities

5.1 Other X11 Proposals Under Consideration

None.

5.2 Other Related Standards Efforts

None.

5.3 Recommendations for Coordinating Liaison

None.

6. Associated Documents

None.

7. Issues, Pros and Cons, and Discussion

7.1 September 1992

Initial proposal; creation of $TEST/Block structuring Task Group.

7.2 October 1992

Restructured formalism to use the 'NEW svn' formalism of the Error Processing proposal (X11/SC15/92-27).
Proposed as SC15/Type B: Failed (7-14-5)

Cons: 1. [4] Should address $IO
2. [2] $D/$K/$X/$Y not handled as arrays
3. [12] $D/$K/$X/$Y should reflect current state
4. [1] NEW $TEST ineffective

Pro: 1. Needed for better extrinsic functions

An attempt to divide the issue is being made by presenting separate proposals for the different svns. Con 1 (should address SIO) was voted on in a straw poll, losing 2-1. The issues of con 2 centers on the fact that for a specific device/$IO, there is an array of values being stored (the svns just being conceptual 'subscripts') -- however, since one can SET the individual IO-related svns, I see no reason to prevent them from being NEWed -- one culd accomplish the same objective in a simple (albeit *ugly*) set of code:

```
Instead of:
     New $X
One uses:
          New XXX Set XXX=$X Xecute ("New XXX Do newlabel") Set $X=XXX Quit
newlabel  ;routine continues on
```

Granted, exfuncs and exvars would need to return a value, but I hope the point is clear: the mechanics for arbitrarily changing these svns is already available within the standard; being able to NEW them does not change that, it just makes certain actions more concise and understandable.

7.3 September 1993

Initial proposal (NEW svn additions) broken into component parts; individual proposals for $TEST, $REFERENCE, $X/$Y, $DEVICE, $KEY.

7.4 October 1993 Passed SC15/B 12-7-4

7.5 February 1994 Passed SC15/A 18-2-5

7.6 June 1994 Passed MDC/A 34-5-4

Pro: a) needed for better extrinsic functions
b) needed for better subroutines

a) Band-Aid fix to serious problem

8. Glossary

None.

9. Appendix

None.