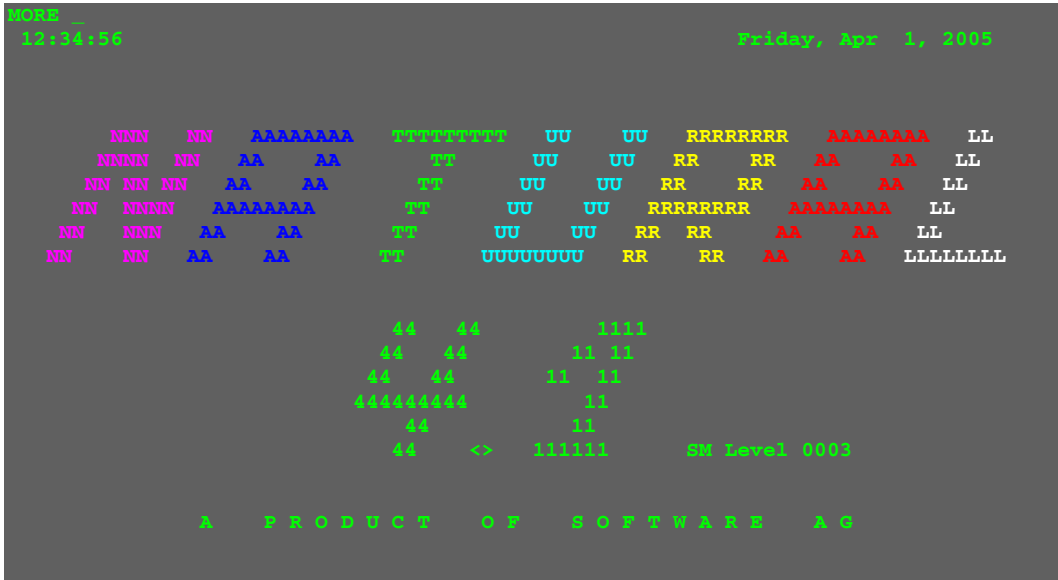


Data Area Editor Notes



This is a new layout for our online documents, comments?

WH&O Books
Wellesley, Massachusetts, USA

Main Menu Options

```

Local          Library N4ECLASS          DBID  240 FNR  47
Command                                     > +
I T L  Name          F Length  Miscellaneous
All  ----->

```

----- S 0 L 1

- Level expanded to two positions. Now 1 through 99 levels are permitted. Typing a 1 or 01 results in the display of blank-1, that is, no leading zeros are displayed.

01 GROUP-LEVEL	01 GROUP-LEVEL
02 ELEMENT-LEVEL	05 ELEMENT-LEVEL
02 ELEMENT-LEVEL	05 ELEMENT-LEVEL
02 SUB-GROUP	05 SUBGROUP
03 SUBGROUP-ELEMENT	10 SUBGROUP-ELEMENT
03 SUBGROUP-ELEMENT	10 SUBGROUP-ELEMENT

- No level skipping permitted.
- Length has been expanded from 4 to 10 positions in support of A- or B-formatted fields which now can held up to 1GB of data, that is, 1,073,741,823 bytes.
- Miscellaneous is a 32 character wide column now. Only the first 26 bytes are displayed by the new Edit Command M is used to shift the values right or left to view the entire contents of the field and make modifications; see examples.

Main Menu Options

```

Local          Library N4ECLASS          DBID  240 FNR  47
Command m +          > +
I T L  Name          F Length  Miscellaneous
All  --  ----->
                                0000000001111111112222222
                                12345678901234567890123456

----- S 0  L 1
    
```

- Please note this error message is issued
 NAT0082 Invalid command, or Program M+ does not exist in library
 when m-plus sign is typed; the command is m-space-plus sign
 just like Split Screen commands.

```

Local          Library N4ECLASS          DBID  240 FNR  47
Command m -          > +
I T L  Name          F Length  Miscellaneous
All  --  -----<
                                000111111111122222222222333
                                78901234567890123456789012

----- S 0  L 1
    
```

Main Menu Options

- Typing m – (m-space-minus sign) or pressing the ENTER key will return the Miscellaneous display to positions 1-26.

```

Local          Library N4ECLASS          DBID   240 FNR   47
Command
I T L Name          F Length   Miscellaneous   > +
All  ----->
                                00000000011111111122222222
                                12345678901234567890123456

----- S 0   L 1

```

- Other columns unchanged:
 - I = Information Column
 - T = Type Column
 - Name = Variable name, database field name, group name, view name...
 - F = Format
 - All, Top, Bot, Scan report information in the same fashion as previous versions.
- Any errors in the Miscellaneous column generates:
NAT4444 Error in Miscellaneous field.

Extended Field Editing

```

12:34:56          ***** EDIT FIELD *****          2005-04-01
          - Extended Field Definition Editing -

Local   LDA0001   Library N4ECLASS          DBID   240 FNR   47

          Code   Function                      Definition
          -----
          S     Single Value Initialization    no
          F     Free Mode Initialization       no
          E     Edit Mask Definition           no
          P     Parameter Type Definition      no
          A     Array Index Definition         no
          D     Delete all Definitions
          ?     Help
          .     Exit
          -----

Code   ?   for Field: #TEST-FIELD-2(A10)

```

- The “Delete all Definitions” function will not be available until there are functions to delete. These are functions established within the Extended Field Editing function; does not delete any entries submitted with the Miscellaneous column input.
- All other functions are the same as the previous release. However, there are some differences in procedures from what you may have experienced under previous version of Natural.

Extended Field Editing

- You could use the Index/Init/EM/Name/Comments (prior to Natural 4) column to set an initial value, for example, and when .e invoked the Extended Field Editor, you'd get the following screen:

```

12:34:56          ***** EDIT FIELD *****          2005-04-01
          - Extended Field Definition Editing -

Local      LDA0001      Library N4ECLASS          DBID      240 FNR      147

          Code  Function          Definition
          -----
          S      Single Value Initialization      no
          F      Free Mode Initialization          no
          E      Edit Mask Definition              no
          P      Parameter Type Definition         no
          D      Delete all Definitions
          ?      Help
          .      Exit
          -----

Code      ?      for Field: #TEST-FIELD(A10)

```

- If an edit mask had been previously defined in the Index/Init/EM/Name/Comments column (prior to Natural 4) and E was selected on the menu you'd get the error message:
Init values already specified with other function.
- If an INIT had been coded in the Index/Init/EM/Name/Comments column (prior to Natural 4) and S or F was selected on the menu you'd get the error message:
Edit mask already defined in additions field.
- The reaction to previous attributes assigned in the Miscellaneous column under Version 4 produces slightly different and more positive results.

Extended Field Editing

- If an edit mask had been defined in the Miscellaneous column and .E was invoked from the main menu you'd get the following Extended Field Editing screen *minus* the Edit Mask Definition option:

```

12:34:56          ***** EDIT FIELD *****          2005-04-01
                - Extended Field Definition Editing -

Local      LDA0001  Library N4ECLASS          DBID  240 FNR  147

          Code  Function                      Definition
          -----
          S      Single Value Initialization    no
          F      Free Mode Initialization       no
          P      Parameter Type Definition      no
          A      Array Index Definition         no
          ?      Help
          .      Exit
          -----

Code      ?  for Field: #TEST-FIELD(A10)

```

- Note: the Delete all Definitions function is not displayed because there are no definitions present. Direct settings in the Miscellaneous column are not subject to the Delete function.

Extended Field Editing

- If an INIT had been coded in the Miscellaneous column and .E was invoked from the main menu, you'd get the following Extended Field Editing screen *minus* the Single Mode and Free Mode Initialization options:

```

12:34:56          ***** EDIT FIELD *****          2005-04-01
                - Extended Field Definition Editing -

Local      LDA0001   Library N4ECLASS                DBID   240 FNR   147

          Code  Function                                Definition
          -----
          E     Edit Mask Definition                    no
          P     Parameter Type Definition               no
          A     Array Index Definition                  no
          ?     Help
          .     Exit
          -----

Code      ?   for Field: #TEST-FIELD(A10)

```

- Note again: the Delete all Definitions function is not displayed because there are no definitions present. Direct settings in the Miscellaneous column are not subject to the Delete function.

Extended Field Editing

- If both an INIT had been coded in the Miscellaneous column along with an edit mask you'd get the following Extended field Editing screen *minus* the Single Mode and Free Mode Initialization and Edit Mask Definition options:

```
12:34:56          ***** EDIT FIELD *****          2005-04-01
                - Extended Field Definition Editing -

Local   LDA0001   Library N4ECLASS                      DBID   240 FNR   147

          Code   Function                                Definition
          -----
          P      Parameter Type Definition             no
          A      Array Index Definition                no
          ?      Help
          .      Exit
          -----

Code    ?   for Field: #TEST-FIELD(A10)
```

Extended Field Editing

- If both an INIT had been coded in the Miscellaneous column along with an edit mask you'd get the following Extended Field Editing screen *minus* the Single Mode and Free Mode Initialization and Edit Mask Definition options:

```

12:34:56          ***** EDIT FIELD *****          2005-04-01
                - Extended Field Definition Editing -

Local   LDA0001   Library N4ECLASS                      DBID   240 FNR   147

          Code  Function                                Definition
          -----
          P     Parameter Type Definition              no
          A     Array Index Definition                 no
          ?     Help
          .     Exit
          -----

Code    ?   for Field: #TEST-FIELD(A10)

```

Extended Field Editing

```

Local          Library N4ECLASS          DBID   240 FNR   47
Command
I T L Name          F Length   Miscellaneous
All -- ----->
. e1 #TEST-FIELD    A          10 INIT <'HAMILTON'>

----- S 1   L 1

```

- When the Extended Field Editing menu is invoked, all the functions are made available except the Delete all Definitions.

```

12:34:56          ***** EDIT FIELD *****          2005-04-01
- Extended Field Definition Editing -

Local          Library N4ECLASS          DBID   240 FNR   47

Code  Function          Definition
-----
S     Single Value Initialization  no
F     Free Mode Initialization    no
E     Edit Mask Definition        no
P     Parameter Type Definition   no
A     Array Index Definition      no
?     Help
.     Exit
-----

Code  ?  for Field: #TEST-FIELD(A10)

```

- Delete all Definitions will be available once a function has been set and will prompt for a confirm of the delete.

Extended Field Editing

- When “.e” is selected from the Data Area Editor example on page 11 with the INIT coded, your Extended Field Editing menu is:

```

12:34:56          ***** EDIT FIELD *****                2005-04-01
                - Extended Field Definition Editing -

Local           Library N4ECLASS                DBID   240 FNR   47

      Code  Function                                Definition
      ----  -
      E     Edit Mask Definition                    no
      P     Parameter Type Definition              no
      A     Array Index Definition                 no
      ?     Help
      .     Exit
      ----  -

Code   ?   for Field: #TEST-FIELD(A10)

```

- When “a” is selected from the Extended Field Editing menu:

```

12:34:56          ***** EDIT FIELD *****                2005-04-01
                - Extended Field Definition Editing -

Local           Library N4ECLASS                DBID   240 FNR   47

      Code  Function                                Definition
      ----  -
      E     Edit Mask Definition                    no
      P     Parameter Type Definition              no
      A     Array Index Definition                 no
      ?     Help
      .     Exit
      ----  -

Code   a   for Field: #TEST-FIELD(A10)

```

Extended Field Editing

- The capability to initialize individual array elements has not changed from the previous version of Natural. However, if you have set an INIT in the Miscellaneous column beforehand, the Single Value Initialization nor the Free Mode Initialization functions will not be available. So it might be a good idea to NOT initialize an array in the Miscellaneous column.

```
12:34:56          ***** EDIT FIELD *****          2005-04-01
                - Index Definition -
Local           Library N4ECLASS           DBID   240 FNR   47
Command

    Single value           #TEST-FIELD(A10)

-----
( 1:10                               )
-----
```

- Type a dot on the Command line to return to the Extended Field Editing menu and then dot back to the Data Area Editor.

Extended Field Editing

```

Local          Library N4ECLASS          DBID  240 FNR   47
Command
I T L  Name          F Length      Miscellaneous
All -- ----->
A    1 #TEST-FIELD          A          10 INIT <'Hamilton'>

----- S 1    L 1

```

- Type “gen testprog” on the Command line and press the ENTER key:

```

>          > + Copycode  TESTPROG Lib N4ECLASS
All  ....+....1....+....2....+....3....+....4....+....5....+Mode Structured.
0010 DEFINE DATA LOCAL
0020 1 #TEST-FIELD(A10/1:10)
0030 INIT (1)
0040  <'Hamilton'>
0050 END-DEFINE
0060
0070
0080
0090
0100
0110
0120
0130
0140
0150
0160
0170
0180
0190
0200
....+..Current Source Size: 92 Char. Free: 121253 ....+... S 5    L 1

```

Extended Field Editing

Parameter Type Definition

- Type “.e” beginning in the T column and press [ENTER].

```

Parameter          Library N4ECLASS          DBID  240 FNR  147
Command
I T L Name          F Length  Miscellaneous
All ----->
. e1 #PARAMETER-FIELD  A      10

----- S 0  L 1

```

- Parameter Data Areas are set up using similar techniques but by virtue of their being a PDA, additional options may be applied controlling how data is passed between a Natural object and the invoked subprogram.
- Type “p” and press [ENTER].

```

02:37:19          ***** EDIT FIELD *****          2005-03-24
- Extended Field Definition Editing -

Parameter          Library XGSLDH          DBID 11177 FNR    8

Code  Function          Definition
-----
P     Parameter Type Definition  Ref
A     Array Index Definition     no
?     Help
.     Exit

-----

Code  ?  for Field: #PARAMETER-FIELD(A10)

```

Extended Field Editing

Parameter Type Definition

```

12:34:56          ***** EDIT FIELD *****          2005-04-01
                  - Parameter Type Definition -

Parameter          Library N4ECLASS          DBID  240 FNR  147

                  Code  Value clause
                  -----
                  D    Call by Reference
                  V    Call by Value
                  R    Call by Value Result
                  -----

                  D    for Field: #PARAMETER-FIELD(A10)
                  N    Optional parameter (Y/N)

```

- Call By Reference – standard method of passing parameter values: must match by format and length and sequence.
- Call By Value – permitted to pass parameter value with different length.
- Call By Value Result – permitted to pass parameter value with different length and return parameter with different length.
- Optional Parameter attached the OPTIONAL clause to the parameter in the DEFINE DATA. You'll have to employ the new keyword SPECIFIED in the procedural code; see Natural 4 Enhancements for Mainframe Programmers at www.whobooks.com.
- Type "y" in the Optional parameter and press [ENTER].

Extended Field Editing

Parameter Type Definition

```

Parameter          Library N4ECLASS          DBID  240 FNR  147
Command
I T L  Name          F Length  Miscellaneous
All  ----->
O    1 #PARAMETER-FIELD      A      10

```

----- S 1 L 1

- O indicates a Call by Reference with the OPTIONAL keyword attached.

```

** SIMPLE PARAMETER
DEFINE DATA PARAMETER
1 #PARAMETER-FIELD(A10)
END-DEFINE

```

```

** SIMPLE PARAMETER WITH OPTIONAL PARAMETER "Y"
DEFINE DATA PARAMETER
1 #PARAMETER-FIELD(A10) OPTIONAL
END-DEFINE

```

- V indicates a Call by Value has been requested.

```

** SIMPLE BY VALUE
DEFINE DATA PARAMETER
1 #PP(A10) BY VALUE
END-DEFINE

```

```

** BY VALUE WITH OPTIONAL PARAMETER "Y"
DEFINE DATA PARAMETER
1 #PP(A10) BY VALUE OPTIONAL
END-DEFINE

```

Extended Field Editing

Parameter Type Definition

- R indicates a Call by Value Result has been requested.

```
** SIMPLE BY VALUE RESULT  
DEFINE DATA PARAMETER  
1 #PP(A10) BY VALUE RESULT  
END-DEFINE
```

```
** BY VALUE RESULT WITH OPTIONAL PARAMETER "Y"  
DEFINE DATA PARAMETER  
1 #PP(A10) BY VALUE RESULT OPTIONAL  
END-DEFINE
```

- + indicates the Optional Parameter was selected along with V or R