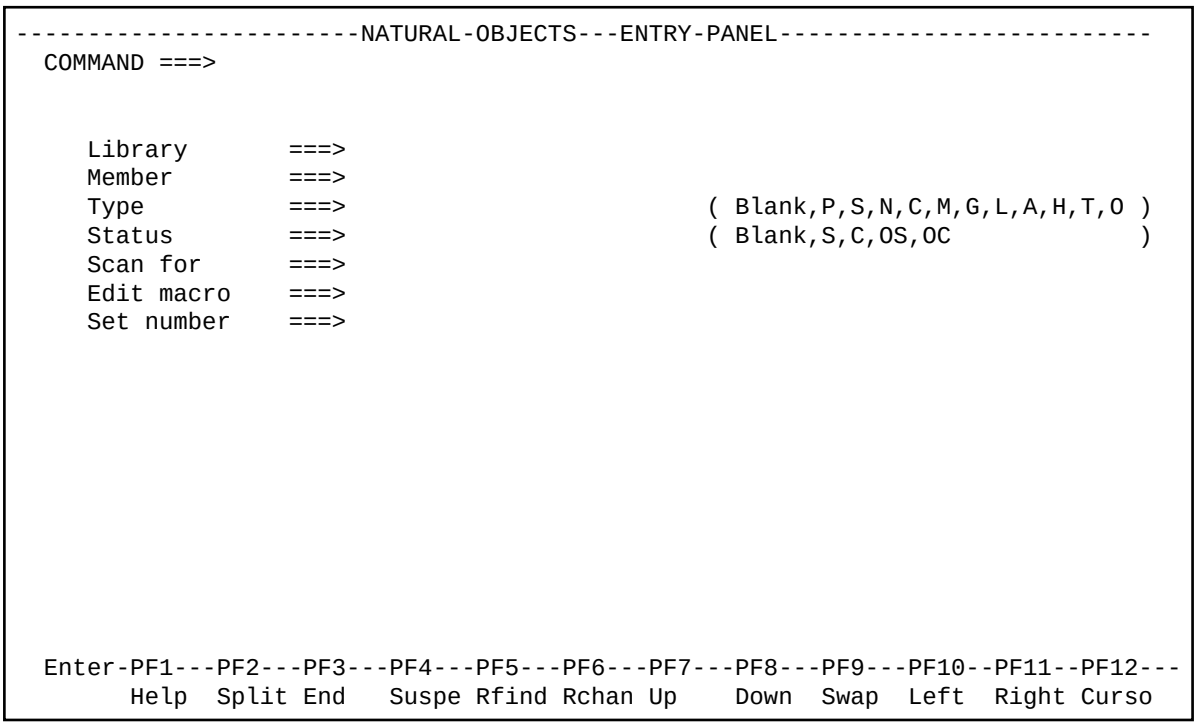
Natural Objects

This subsection explains all the functions you can perform on Natural objects. It also describes how to write program output to the user workpool, where it can be handled further.

If the object consists of job control, you can use the Natural ISPF Macro facility. You can use all types of macro statements. Macro expansion is performed at submission time (see the SUBMIT command below).

When creating a new object, you can also use the Edit macro feature to automatically create text lines which can then be modified. For details, see Section Macro Facility in the Natural ISPF Programmer's Guide).

To enter the Natural objects maintenance facility, select the Natural option from the Natural ISPF Main Menu. The Natural Objects Entry Panel appears:



Specify the Natural object you wish to maintain in the input fields and enter a function command in the command line. The meaning of the input fields is explained in the following table:

Field	Meaning
Library	Natural library name. The library used last is displayed in this field. Select any other library by overtyping this name. You can use the wildcards (* _ < >) to list accessible libraries. (See the subsection Selection Windows and Wildcards in Section Command Logic.). See also Example: **LIST** (4).
Member	Name of required member. You can use the wildcards (* _ < >) to list members. (See the subsection Selection Windows and Wildcards in Section Command Logic.)
Type	Type of member; possible options: **A** Parameter area **C** Copy code **G** Global area **H** Help routine **L** Local area **M** Map **N** Subprogram **O** Macro object **P** Program **S** Subroutine **T** Text **4** Class (if you are using Natural 3.1. or above) For example, you can enter * in the Member field and P in the Type field to list all Natural members which are a program. A combination of up to five types is possible. For example, the notation PSNM lists all programs, subroutines, subprograms and maps according to the other selection criteria entered in the Entry Panel.
Status	Status of object. Use this field for selection criteria when listing members. Possible options: C List members which have a cataloged object OC List members which have a cataloged object only OS List members which have an uncataloged source only S List members which have a source
Scan for	Selection criterion for listing Natural members: all members as specified in the above fields are listed which contain the string entered here.
Edit macro	Name of macro object to be used as a model for the member. The specified macro is executed and loaded into the Editor. See Section Macro Facility in the Natural ISPF Programmer's Guide for more details. Used with LIST, the list will contain all objects that use the specified macro as model.
Set number	Enter a set number to list members in the set created for the library. Alternatively, enter ***** to list sets created for the library. Sets are created using Predict cross referencing for Natural objects (see the **Predict Reference Documentation**).

Notes:

1. When editing a macro object, you must not use the Natural statement END.
2. You can access the Predict Cross-Reference menu directly from any Natural ISPF screen to maintain sets using the command:

```
NAT L X
```

Function Commands

The available function commands are:

Command	Parameter Syntax
BROWSE	library(member)
CATALOG	library(member)
COMPARE	library(member)
COPY	library(member), object-type object-parms NODE=id, REP
DELETE	library(member)
DESCRIPTION	library(member)
DOWNLOAD	library(member)
EDIT	library(member) TYPE=t MACRO=name
EXECUTE	library(member)
EXPORT	library(member), target-environment
FORMAT	library(member)
HOLD	library(member)
INFORMATION	library(member)
LIST	library(..*) TYPE=t ST=s SC=string MACRO=name SET=n
PLAY	library(member)
PRINT	library(member), printer-name CC NO
RENAME	library(member)
RUN	library(member)
SUBMIT	library(member), TARGET=node-id
UNCATALOG	library(member)
UPLOAD	library(member)

Notes:

1. The library parameter can be optional, depending on where the command is issued. If you specify only the member, the current library is assumed.
2. When you issue a CATALOG, RUN or SUBMIT command for a Natural program that includes inline macros, a macro expansion is performed before the program is compiled if the macro expansion function is enabled with the MACRO ON command or in your User Defaults profile (see also the section Macro Facility in the Natural ISPF Programmer’s Guide).
3. The COPY command only works for Natural sources. If you wish to copy compiled objects, you must use the Natural SYSMAIN utility.
4. Before using the CATALOG command, it is recommended that you enable or disable the macro facility using the MACRO ON/OFF command as appropriate. If you issue a CATALOG command with MACRO ON for an object that does not use the macro facility, resources are wasted as the object is checked for the macro character.
5. If you issue any of the above function commands from outside the Natural facility and NAT is not the default object type specified in your profile, you must specify the object type **N** before the object parameters.

A full description of these commands is contained in Section Command Reference. The object parameters correspond to the input fields on the Natural Objects Entry Panel.

Below are some examples of the INFORMATION, LIST, FORMAT and COMPARE functions using command syntax.

Example: INFORMATION

An information screen similar to the following is displayed as a result of the command:

```
INFORMATION N MYLIB(MYPROG)
```

The screen shows information on Natural member MYPROG in library MYLIB. The data provided are self-explanatory.

```
----------- NATURAL PROGRAM INFORMATION----MYLIB(MYPROG)-Program --------------
  COMMAND ===>


                      SOURCE      OBJECT       GDA USED:  ISP----G
      ORIGIN LIBRARY:  MYLIB       NSPF230      SUBROUTINES    ( From  1       )
      USERID:          FHI         ISP230       MAKE-WINDOW             ISP-WINS
      TERMINAL ID:     DAESA113    FRISA18C
      DATE SAVED:      1998-07-22  1997-07-17
      TIME SAVED:      15:07:30    11:17:45
      OP SYSTEM:       MVS/ESA      ''
      TP SYSTEM:       COMPLETE     ''
      NAT VERSION:     2.2          ''
      SM LEVEL:        7           8
      ADA VERSION:

      SOURCE SIZE IN SOURCE AREA:       2291    MAXIMUM NO. OF VERSIONS  : 20_
      OBJECT SIZE IN USER AREA (USIZE)  824     ACTUAL  NO. OF VERSIONS  : 2
      OBJECT SIZE IN BUFFER POOL:       2436    CURRENT VERS.MODIF LEVEL : 01.02
      OBJECT SIZE IN SOURCE AREA(ESIZE): 15102
      MCG CODE SIZE
      MCG STRING:
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Split End   Suspe Rfind Rchan Up    Down  Swap  Left  Right Curso
```

You can modify the MAXIMUM NO. OF VERSIONS for the object to override the default set by the system administrator (see also the subsection Versioning in Section Useful Features).

Example: LIST (1)

The following display is the result of the command:

```
LIST N MYLIB(IS*) P
```

The list shows all Natural programs starting with **A** in the library MYLIB.

```
LIST-NAT:MYLIB(IS*)P ---------------------------- Row 0 of 3 - Columns 010 076
    COMMAND===>                                                SCROLL===> CSR
      MEMBER            PGMTYPE     SM S/C VERS LEVL USERID   DATE     TIME  VV.MM
   ** ******************************** top of list ******************************
      ISP-BRCP          Program     S  S/C 2.2  0007 MZC      19941124 18:58
      ISP-BRCR          Program     S  S/C 2.2  0007 MZC      19950306 20:16
      ISP-BREX          Program     S  S/C 2.2  0007 MZC      19941124 18:58
   ** ***************************** bottom of list ****************************
```


Meaning of the column headings:

Column	Meaning
MEMBER	Name of member
PGM TYPE	Type of member
SM	Natural mode. Possible values: R Reporting S Structured
S/C	Status of member. Possible values: S Source C Cataloged object S/C Source and cataloged object
VERS	Release version of Natural for member
LEVEL	System maintenance level of Natural for member
USERID	ID of user who last modified member.
DATE	Date of last modification.
TIME	Time of last modification. If DATE/TIME of source and object is different, the save date of the source is shown in the list. It is highlighted to indicate that a time stamp difference exists between source and object.
VV.MM	Version number and modification level of the current version of the member. When a member is modified for the first time with versioning active, this field contains 01.01. With each modification with versioning on, the MM value is increased by one. This field can also contain: <blank> No previous versions exist. + There are versions for this member, created in a Natural ISPF version before 1.4.1 The HOLD command for the member increases the VV value by one and resets the MM value to 00.

Note:
You can change the layout of this list according to your needs. For detailed information, see the subsection Layout Command for Lists in Section Useful Features.

Example: LIST (2)

The following figure is the result of the command:

```
LIST N SYSISPE(EX*) TYPE=PGO SC=FILE-NAME
```

This list contains all program-type, global area-type and macro-type objects in the Natural library SYSISPE whose names start with EX and which contain the string FILE-NAME.


```
LIST-NAT:SYSISPE(EX*)PGO/SCAN=FILE-NAME---------- Row 0 of 9 - columns 010 071
   COMMAND===>                                                SCROLL===> CSR
     MEMBER            PGMTYPE     SM S/C  NUM FIRST FOUND
  ** ***************************** top of list ****************************
     EXF1              Macro       S  S/C    5   1 #FILE-NAME(A32)
     EXF2              Macro       S  S/C    7   1 #FILE-NAME(A32)
     EXF3              Program     S  S/C    2   1 #FILE-NAME(A32) INIT <'AU
     EXF4              Program     S  S/C    2   1 #FILE-NAME(A32) INIT <'PE
     EXF6              Macro       S  S/C    1   MOVE     'NOFILE'   TO #OPT
     EXF9              Program     S  S/C    2   1 #FILE-NAME (A32) INIT <'AUT
     EXTG              Global      S  S/C    1   **DF            A  32 1#FILE-
     EXT1              Macro       S  S/C    7   * #FILE-NAME(A32)
     EXT2              Program     S  S/C    1   MOVE 'PERSONNEL' to #FILE-N
  ** ************************** bottom of list ***************************









  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Split End   Suspe Rfind Rchan Up    Down  Swap  Left  Right Curso
```

The meaning of the information in the right hand columns is:

Column	Meaning
NUM	Number of occurrences of specified string in this member
FIRST FOUND	Line with the first occurrence of specified string

The lists appear in Natural ISPF Editor format in browse mode. This means you can use all available Editor browse commands (UP, DOWN, BOTTOM, TOP, FIND, LOCATE).

When selecting a member from a list generated using the Scan for option with EDIT or BROWSE, the cursor is positioned to the first occurrence of this string in the member. The RFIND command places the cursor on the next occurrence of the string.

Example: LIST (3)

The following figure is the result of the command:

```
LIST N NSPFWORK(*) SET=*
```

The list contains all sets created for the Natural library NSPFWORK:


```
LIST-SET:NSPFWORK ------------------------------ Row 0 of 4 - Columns 001 072
   COMMAND===>                                                SCROLL===> PAGE
     Nr Count Description
  ** ***************************** top of list ****************************
      4  1015 SELECT IS*
      7     4 DA-AREA ISP-PR-L (*) REF PROG * (*) BLOCK *
      8     2 PROG ISP-HL1N (*) REF PROG * (*) WITH * VIA *
      9     6 PROG ISP-FILN (*) REF PROG * (*) WITH * VIA *
     11    20 VIEW SYSTEM2 REF PROG * (*) USAGE *
  ** ************************** bottom of list ****************************









  Enter-PF13--PF14--PF15--PF16--PF17--PF18--PF19--PF20--PF21--PF22--PF23--PF24---
        Help  e :c  Save; Suspe Rfind Rchan Up    Down  Swap  Left  Right Curso
```

Meaning of the column headings:

Column	Meaning
Nr	Set number assigned by Predict.
Count	Number of objects in the set.
Description	Information on object name and type according to which the set was created. The above list shows, for example, that set number 4 contains 1015 objects whose names start with ISP.

The available line command from the list of sets is **L** for LIST. This lists the objects in the selected set. The following figure illustrates the list of objects for set 1:

```
LIST-NAT:NSPF241(*)/SET=1 ---------------------- Row 0 of 19 - Columns 010 076
    COMMAND===>                                                SCROLL===> CSR
      MEMBER            PGMTYPE     SM S/C VERS LEVL USERID   DATE     TIME  VV.MM
   ** ******************************** top of list ********************************
      ISP-COP1          Program     S  S/C 2.2  0007 MZC      19970114 14:43
      ISP-COP2          Program     S  S/C 2.2  0007 MZC      19961223 19:20
      ISP-COP3          Program     S  S/C 2.2  0006 MZC      19940920 18:53
      ISP-COP4          Program     S  S/C 2.2  0007 JWO      19950117 15:20
      ISP-ENVP          Program     S  S/C 2.2  0007 FHI      19971031 14:56
      ISP-LCPR          Program     S  S/C 2.2  0007 MZC      19960918 11:47
      ISP-PLYP          Program     S  S/C 2.2  0007 MZC      19971030 14:03
      ISP-PUTG          Program     S  S/C 2.2  0007 MZC      19970115 18:26
      ISP-RERN          Subprogram  S  S/C 2.2  0007 JWO      19940921 13:52
      ISP-RSTP          Program     S  S/C 2.2  0007 MZC      19961223 17:53
      ISP-SOUT          Program     S  S/C 2.2  0007 MZC      19950721 19:40
      ISP-STAS          Program     S  S/C 2.2  0007 MZC      19970115 19:21
      ISP-SUSU          Subprogram  S  S/C 2.2  0006 MZC      19940920 18:59
      ISP-WINS          Subroutine  S  S/C 2.2  0007 JWO      19950116 09:52
      ISP-WLOG          deleted
      ISPFERR           Program     S  S/C 2.2  0007 MZC      19961203 15:08
      ISP0600N          Subprogram  S  S/C 2.2  0007 JWO      19941018 17:10
      NAT00012          deleted
   Enter-PF13--PF14--PF15--PF16--PF17--PF18--PF19--PF20--PF21--PF22--PF23--PF24---
         Help  Relis §End  !Br : t;fin !inf  Up    Down  Susp; Left  Right Exc :
```

Note that you can access this list of objects directly from the Natural Objects Entry Panel using the Set number field, or using the command:

```
LIST N NSPFWORK(*) SET=1
```

You can maintain the objects on this list as any other Natural object.

Example: LIST (4)

The following figure is the result of the command:

```
LIST N SYSISP*(A*)
```

The list contains all Natural libraries beginning with the string SYSISP for which you are authorized. For example:


```
Z*LIST-NLI:SYSISP* ----------------------------- Row 0 of 13 - Columns 010 050
    COMMAND===>                                                SCROLL===> PAGE
      Library          Description
   ** ****************** top of list *****************
      SYSISPDB         INCORE DATABASE FOR CUSTOMER
      SYSISPE          NSPF example library
      SYSISPF          N-ISPF NATURAL EXAMPLES
      SYSISPFU         N-ISPF USER DATA
      SYSISPFX
      SYSISPH1         ISPF help texts
      SYSISPI          NSPF INTERFACE MODULES
      SYSISPIU         User information for ISPF
      SYSISPR          ISPF recordings
      SYSISPSC         ISPF INTERNAL TABLES COM-PLETE
      SYSISPST         ISPF tables for testmode
      SYSISPS1         ISPF system tables/menus
      SYSISPX
   ** ***************** bottom of list *****************




   Enter-PF13--PF14--PF15--PF16--PF17--PF18--PF19--PF20--PF21--PF22--PF23--PF24---
         Help  e :c  Save; Suspe Rfind Rchan Up    Down  Swap  Left  Right Curso
```

You can now select a library with the line command **L** (for LIST). This displays all members in the library beginning with the letter **A**.

Notes:

1. The entries in the Description column of the above figure are taken from Natural Security (if installed).
2. Note that even if you wish to list libraries only, you must still enter the asterisk in parenthesis **(*)** for List all members in the command syntax. If you enter only the library prefix (SYSISP*), it is interpreted as member prefix in the current Natural library.

Example: FORMAT

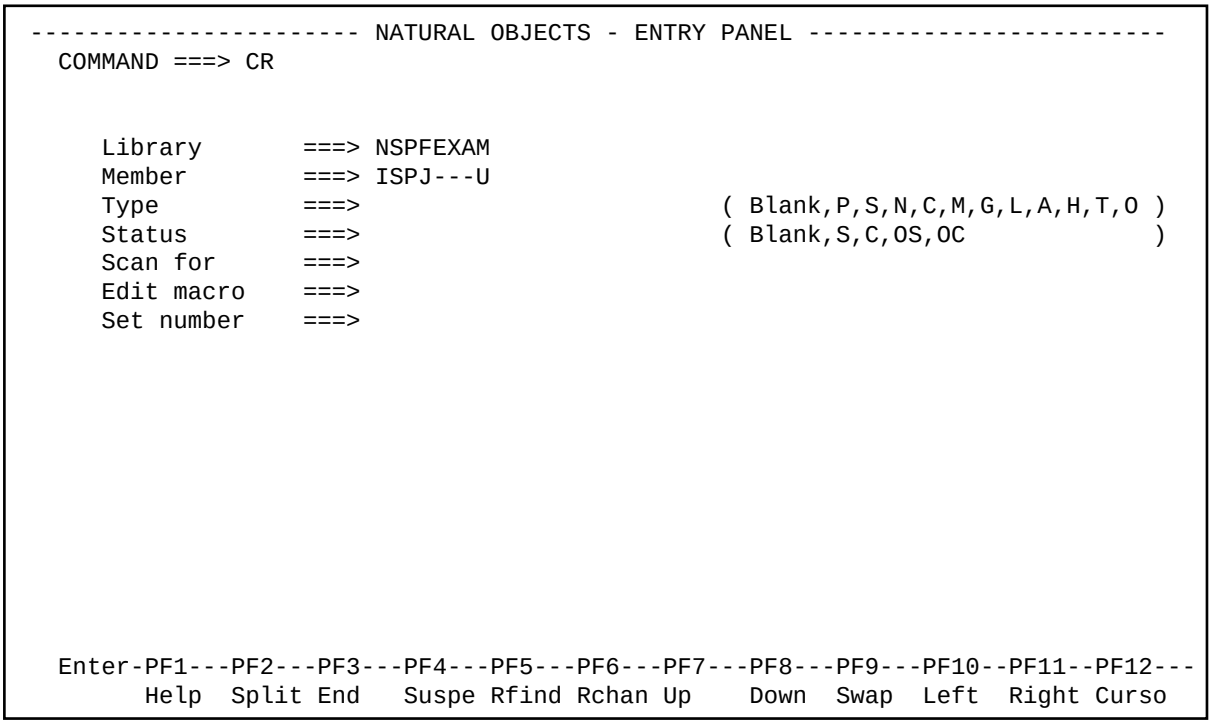
This function command applies only to Natural objects of type map. The map layout is displayed in a Natural ISPF Editor session. Modifiable fields (AD=A and AD=M) are replaced by a special filler character **_**. Variable output fields (AD=O) are replaced by a period (full stop) (**.**).

```
FORMAT-NAT:NSPF211(ISPTIN-1)-Map ------------------------------ Columns 001 072
    COMMAND===>                                                SCROLL===> CSR
   ****** ***************************** top of data ****************************
   000001 DSName  : ........................................
   000002 Member  : ..........
   000003 Language: _________
   000004 Status  : _   (Test/Production)
   000005           _   (Active/Inactive)
   000006           _   (Enabled/Disabled)
   000007 User    : ____
   000008 Level   : ___
   000009 Comment : ____________________________________________________
   ****** *************************** bottom of data ***************************
```

Example: COMPARE

The COMPARE function compares Natural sources stored in the Natural system file.

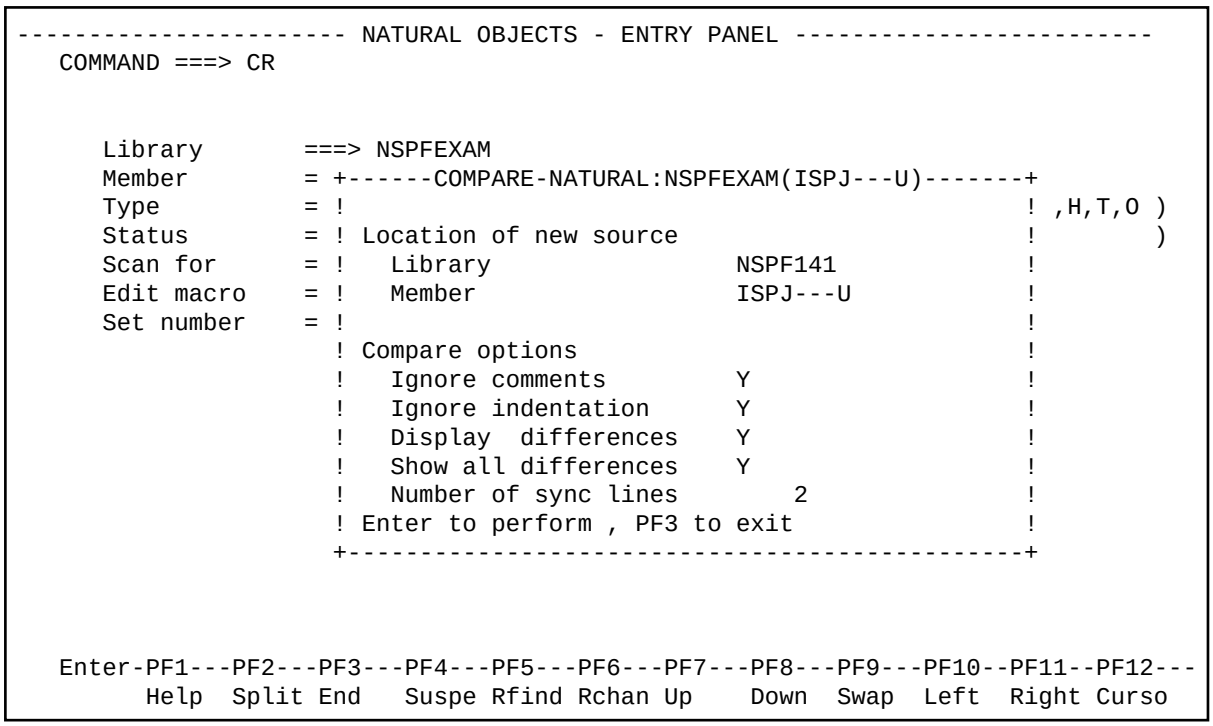
For example, to compare the source of the member ISPJ---U in the library NSPFEXAM with its source in the library NSPF141, enter the library and member name in the input fields and CR in the command line of the Natural Objects Entry Panel:



The member entered in the Entry Panel is assumed to be the old source.

Press Enter.

The following window opens in which you can enter the location of the new source and several compare options:



The meaning of the input fields is explained in the following table:

Field	Meaning
Location of new source:	
Library	Enter the name of the Natural library containing the source to be compared. The name of the library last used is displayed. You can select another library by overtyping it. Enter the wildcard ***** and press ENTER to list Natural libraries.
Member	Enter the name of the newer member to be compared. If Natural ISPF detects that this member was saved before the old member, member names are swapped and a message is displayed.
Compare options:	
Ignore comments	Enter **Y** to ignore comments while comparing sources.
Ignore indentation	Enter **Y** to ignore differences coming from indentation caused by the STRUCT Editor command.
Display differences	Enter **Y** to list all differences found in the source lines of a compared object. Otherwise, a message simply indicates whether the compared sources are identical or not.
Show all differences	Enter **Y** to display differences completely. Otherwise a short form of listing is used to print different ranges of more than 6 lines in the following way: FIRST LINE SECOND LINE ... LAST LINE -1 LAST LINE
Number of sync lines	Enter the number of synchronization lines. The default is 2. This parameter influences the compare mechanism. At least this number of consecutively equal lines must be found before the program assumes to have found an equal portion of code.

When you have made all entries, press ENTER. The successful compare displays an edit session containing the source differences. In our example, all options have been set to **Y**:


```
COMPARE-NAT:NSPFEXAM(ISPJ---U)-Subprogram->Struc >>> Old and new member swapped
   COMMAND===>                                                 SCROLL===> CSR
     OLD      NEW OLD=NSPF141(ISPJ---U) NEW=NSPFEXAM(ISPJ---U)
  ** ******************************** top of list ******************************
     0110 == 0110 1 #FUNCTION(A2)

     0120 >       1 #SES-DATA(A128)
           < 0120 PARAMETER USING ISPJ---L
           < 0130 PARAMETER

     0130 == 0140 1 #ERROR-CODE(N3)
          ...
     0190 == 0200   2 #JOB-PREFIX (A8)

     0200 >       LOCAL USING ISPJ---L

     0210 == 0210 LOCAL
          ...
     0260 == 0260   VALUE 'LS'

     0270 >           MOVE #SES-DATA TO #SES-DATA-J    /* GET SESSION DATA

  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Split End   Suspe Rfind Rchan Up    Down  Swap  Left  Right Curso
```

Last save date of old and new source are compared and old and new member are always set to reflect the sequence of their last save dates. In the example above, the message **Old and new member swapped** appears in the upper right corner of the screen. This means that Natural ISPF has detected that the 'new' member (in library NSPF141) was saved before the 'old' member (in library NSPFEXAM) and that the member names have been exchanged.

The format of the above screen is explained on the following page.

Output of the COMPARE program:

Column Heading				Explanation
OLD		NEW		
NNNN	... ==	MMMM	SOURCE LINE	All lines are equal in old and new source up to this line. NNNN and MMMM are equal
NNNN NNNN	> > < < < <	MMMM MMMM MMMM MMMM	SOURCE LINE SOURCE LINE SOURCE LINE SOURCE LINE SOURCE LINE SOURCE LINE	Old lines NNNN have been modified to the new lines MMMM. The number of lines in Old and New may be different. To perform this modification, delete the lines marked with > and add the ones marked with <.
NNNN NNNN	== ... ==	MMMM MMMM	SOURCE LINE SOURCE LINE	Such a block of three lines indicates that the NNNN-lines are equal to the MMMM-lines. NNNN and MMMM may be different.
NNNN NNNN NNNN	> > >		SOURCE LINE SOURCE LINE SOURCE LINE	Only lines specifying line numbers in the Old column marked with > have been deleted.
NNNN NNNN	== ... ==	MMMM MMMM	SOURCE LINE SOURCE LINE	Another block of equal lines. The number of lines is equal as well (of course).
	< < <	MMMM MMMM MMMM	SOURCE LINE SOURCE LINE SOURCE LINE	Only lines specifying line numbers in the New column, all marked with < , have been inserted.
NNNN	== ...	MMMM	SOURCE LINE	These last lines indicate that the rest of the source is equal from line number NNNN in the Old version and line MMMM in the new version.

Differences between Old and New coming from different indentation as a result of executing STRUCT are ignored. Single equal lines within a block of modified lines are also ignored, i.e. the whole block including the single equal lines are marked as modified. It takes at least two non empty lines (lines containing only an * are considered to be empty) to cause an output of a block of equal lines.

Line Commands

From lists of Natural sets

Select a set from a list of Natural sets with the line command **L** (for LIST). This lists the members in the set (see also the third example of the LIST command).

From lists of Natural libraries

Select a library from a list of Natural libraries with the line command **L** (for LIST). This lists the members in the library (see also the fourth example of the LIST command).

From lists of Natural members

To select a member for further maintenance from a list of Natural objects type a line command in the input field preceding the member name and press ENTER. Each line command is an abbreviation of a function command (but note the LIST command for a member):

Line Command	Corresponding Function Command
B	BROWSE
CP	COPY
CR	COMPARE
CT	CATALOG
D	DELETE
DS	DESCRIPTION
DW	DOWNLOAD
E	EDIT
EX	EXPORT
FR	FORMAT
HL	HOLD
I	INFORMATION
L	LIST previous versions of the member
PL	PLAY
PR	PRINT
R	RENAME
RU	RUN
SB	SUBMIT
U	UNCATALOG
UP	UPLOAD
XE	EXECUTE

Line commands can be used as valid abbreviation for function commands entered in the command line of any screen.

Local Commands

When displaying Natural objects in Editor format, you can use the following local commands:

In LIST mode:

CATALL

From a list of Natural objects, you can catalog multiple objects using the CATALL local command. The following are examples of the CATALL command:

Command	Meaning
CATALL	Catalogs all objects in the list
CATALL ISP*	Catalogs all objects in the list whose names start with ISP.

When a CATALL command is issued, a window opens on your screen showing the name of the program being cataloged. After the cataloging process, those objects for which an error was detected are indicated by the message *ERROR in the message field, and the nature of the error is displayed in the statistical data fields.

ALL, LAYOUT, RELIST, SORT

You can use the commands ALL, LAYOUT, RELIST and SORT. For detailed information, see the subsections in Section Useful Features.

The following figure shows the result of the CATALL EX* command issued from a list of Natural objects:

```
LIST-NAT:SYSISPE---------------------------------------- >>> 2 errors detected
   COMMAND===> catall ex*                                        SCROLL===> CSR
     MEMBER            PGMTYPE     SM S/C  NUM FIRST FOUND
  ** ***************************** top of list ****************************
     EXF1              Macro       S  S/C    5   1 #FILE-NAME(A32)
     EXF2              Macro       S  S/C    7   1 #FILE-NAME(A32)
     EXF3              Program     S  S/C    2   1 #FILE-NAME(A32) INIT <'AU
     EXF4     *ERROR   Program     ERROR 2 AT LINE 20
     EXF6              Macro       S  S/C    1   MOVE     'NOFILE'   TO #OPT
     EXF9              Program     S  S/C    2 1 #FILE-NAME (A32) INIT <'AUT
     EXTG              Global      S  S/C    1 **DF            A  32 1#FILE-
     EXT1              Macro       S  S/C    7   * #FILE-NAME(A32)
     EXT2     *ERROR   Program     ERROR 2 AT LINE 20
  ** ************************** bottom of list ****************************









  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Split End   Suspe Rfind Rchan Up    Down  Swap  Left  Right Curso
```

Note:
Before using the CATALL command, it is recommended that you enable or disable the Macro facility using the MACRO ON/OFF command as appropriate. If you issue a CATALL command with MACRO ON for an object that does not use the Macro facility, resources are wasted as the object is checked for the macro character.

In EDIT mode:

You can use the following Natural commands as local commands from the Editor command line when editing a Natural object:

Command	Meaning
CHECK	Checks syntax of the Natural program being edited. *
IMPORT	Edit mode only: imports a PC file or Con-nect document into the Natural member (see the section Useful Features).
SM OFF	Sets structured mode off.
SM ON	Sets structured mode on.
STOW ’text’	Stores the Natural program in source and object form. ** When stowing a program after modification with versioning active, you can specify a reason for the change with **text** parameter.
STRUCT	Performs structural indentation of Natural source statements and identifies any structural inconsistencies (not applicable for macro-type programs).
TYPE <t>	Specifies Natural program type, where **t** can stand for any of the following: **C** Copy code **H** Help routine **N** Subprogram **O** Macro object **P** Program **S** Subroutine **T** Text

***** If the Natural object is a macro object, the CHECK command also checks the processing statements and variables to be substituted. The command does not check that the lines generated by the macro object are valid Natural source (see the section Macro Facility in the Natural ISPF Programmer’s Guide).

****** If you issue a STOW command for a Natural program that includes inline macros, a macro expansion is performed before the program is compiled, if the macro expansion function is enabled with the MACRO ON command or in your User Defaults profile (see also the section Macro Facility in the Natural ISPF Programmer’s Guide).

For more information on Natural commands, see the **Natural Reference Documentation**.

You can also use a special COPY command which may be useful when editing Natural programs (use Editor target line commands **A**, **B** or **O** to mark the place where the data are to be copied). You can copy other Natural objects or other object types into the edit area. The following object types can be copied:

Object type	Meaning
BF	BS2000/OSD file
D	Dataset (sequential)
DJ	Job (VSE/ESA)
FIL	VSE/ESA file
J	Job (OS/390)
LIB	LIBRARIAN member
LMS	LMS element
LMV	LMS element version
MAC	Macro object
MEM	VSE/ESA member
N	Natural object
O	Output file in workpool
P	PDS member
PAN	PANVALET member
S	Job SYSOUT (OS/390)
V	Database view

Examples:

Command	Meaning
COPY mapname	Generates a Natural INPUT statement for the Natural map **mapname** and copies the map's variable definition into the current program at the marked place.
COPY VIEW viewname	Copies the definition of view **viewname** into the current program.
COPY data-area-name	Generates a data definition source from the Natural data area and copies it into the current program at the marked place.
COPY MACRO name	Performs a macro expansion of the macro object **name** and copies the result into the current member at the marked place.

If you issue the COPY command without parameters, you are prompted for object type and object name.

OUTPUT

Starts an edit session with the output of the current program in the user workpool (only valid after a RUN command issued from the edit session).

REGENERATE / REG

Available for Natural programs written using the Edit macro option. Reexecutes the specified macro object and writes the result in protected lines in the current edit session. Any defined user code remains in place. For details, see the section Macro Facility in the Natural ISPF Programmer's Guide.

Previous Versions

Previous versions of Natural objects can be retrieved and maintained (see also the line command **L** for LIST). They are separate objects in Natural ISPF, accessible via the Natural Objects Entry Panel, or using function commands with object type NV. To activate the versioning feature, you must issue the command VERSIONS ON before starting your edit session. For details, see the subsection Versioning in the section Useful Features.

"Write-To-Workpool" Feature

The Write-To-Workpool option is a simple yet powerful feature useful for checking the output of Natural programs. Using the Editor, you can write a Natural program and include a statement defining a printer for the program output. The Write-To-Workpool feature allows you to define the workpool as destination printer, for example:

```
DEFINE PRINTER(1) OUTPUT 'WORKPOOL'
```

When a write to printer 1 is performed (using a WRITE, PRINT or DISPLAY statement), the program output is written to the user workpool. Several reports can be written to the workpool by defining the workpool as destination for multiple printers (DEFINE PRINTER(2) etc).

You can use the WORKPOOL option from the Natural ISPF Main Menu to display and maintain the output (see the subsection User Workpool). Note that each time you run the program (RUN command), the existing output of the program in the user workpool is overwritten with the new output.

Using the split-screen feature, the Natural programmer can edit a program in one screen subsection and immediately see the resulting output in the other screen subsection by issuing the RUN command from the edit session. Checking and debugging programs is thus made very convenient.

The following is an example Natural program illustrating the use of the Write-To-Workpool feature.

```
*
  *
  DEFINE PRINTER(1) OUTPUT 'WORKPOOL'
  *
  READ (100) AUTOMOBILES BY MAKE STARTING FROM 'C'
     WRITE(1)  MAKE COLOR MODEL HORSEPOWER WEIGHT
               NUMBER-OF-CYLINDERS SERIAL-NUMBER
  END
```

If you issue the RUN command for this program, it reads the file AUTOMOBILES and writes the contents of the specified fields to the user workpool, where the program output can be accessed (see the subsection User Workpool).

The figure below illustrates two Natural ISPF sessions in split-screen mode, with the Natural program in the upper session and the program output in the lower session:


```
EDIT-NAT:NSPF211(EXW1)-Program->Report-Free-46K ----------- >>> Source EXW1 run
    COMMAND===>                                                SCROLL===> CSR
   ****** ***************************** top of data ******************************
   000010 * DEMO: WORKPOOL
   000020 *
   000030 DEFINE PRINTER(1) OUTPUT 'WORKPOOL'
   000040 *
   000050 READ (20) AUTOMOBILES BY MAKE STARTING FROM 'C'
   000060    WRITE(1) MAKE COLOR MODEL HORSEPOWER WEIGHT
   000070             NUMBER-OF-CYLINDERS SERIAL-NUMBER
   EDIT-OUT:EXW1 ------------------------------------------------ Columns 001 072
    COMMAND===>                                                SCROLL===> CSR
   ****** ***************************** top of data ******************************
   000001 Page      1                                                  94-12-27  1
   000002
   000003 CHRYSLER       green      DODGE CORONET CUSTOM  255   4150   6 O35549448
   000004 CHRYSLER       GREEN      DODGE CHALLENGER SIX  150   3160   6 J92314635
   000005 CHRYSLER       BROWN      PLYMOUTH ROAD RUNNER  330   3695   6 L32433047
   000006 CHRYSLER       YELLOW     DODGE CHALLENGER SIX  150   3160   6 N58644909
   000007 CHRYSLER       WHITE      NEWPORT ROYAL         175   4210   6 J90372307
   000008 CHRYSLER       WHITE      DODGE MONACO          190   4310   6 O89730037
   000009 CHRYSLER       WHITE      PLYMOUTH FURY II      175   4040   6 L15260038
   Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
         Help  Split End   Suspe Rfind Rchan Up    Down  Swap  Left  Right Curso
```

Concurrent Editing of Natural Objects

When you save/stow a Natural program, Natural ISPF runs a check to see if the same program has been modified by another user or another session whilst you were editing. If this is the case, you are notified by a message and the save/stow operation is not executed.

You can use the BROWSE command to inspect the Natural object and you can decide whether you wish to override it with your latest modifications or not. If you wish to override it with your latest modifications, you can either:

- use the REPLACE command for the existing object, or
- delete the existing Natural object and then save/stow the version with your latest changes.

