Natural

Natural Advanced Facilities

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ADABAS & NATURAL

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Specifications contained herein are subject to change and these changes will be reported in subsequent release notes or new editions.

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Preface

This documentation contains detailed information which you will need when you want to spool the output of your Natural programs and route it to specific physical printers. It applies to all platforms and TP monitors with which Natural Advanced Facilities can be used: CICS, IMS TM and BS2000/OSD. As a rule, the screens in this documentation apply to the CICS version.

In the remainder of this documentation, Natural Advanced Facilities is also referred to as NAF.

The NAF documentation covers the following topics:

Introduction	Gives a general overview of Natural Advanced Facilities and explains the basic terminology. It also tells you how to start NATSPOOL and how to invoke a NATSPOOL function.
Administration	Describes Functions 10 to 15 of the Administration section of the NATSPOOL menu.
Information	Describes Functions 20 to 23 of the Information section of the NATSPOOL menu.
Maintenance	Describes Functions 30 to 34 of the Maintenance section of the NATSPOOL menu.
Control Functions	Describes Functions 40 to 43 of the Control Functions section of the NATSPOOL menu.
Natural Features Supported	Describes the Natural features supported by Natural Advanced Facilities and how these features can be used.
NATSPOOL and Natural Security	Describes the Natural Security features supported by Natural Advanced Facilities and how these features can be used.
Features in a CICS Environment	Explains the features of Natural Advanced Facilities specific to a CICS environment.
Features in an IMS TM Environment	Explains the features of Natural Advanced Facilities specific to an IMS TM environment.
Features in a BS2000/OSD Environment	Explains the features of Natural Advanced Facilities specific to a BS2000/OSD environment.
Natural Profile Parameters for NATSPOOL	Describes the profile parameters which must be defined in the Natural parameter module.
NATSPOOL Initialization	Lists all steps that are required to create the NATSPOOL environment.
NATSPOOL in Batch Mode	Explains how to store reports on the spool file using Natural batch jobs.
NATSPOOL under TSO	Explains how to store reports on the spool file under TSO.

Related Documentation:

- *Installing Natural Advanced Facilities on z/OS* in the *Installation for z/OS* documentation

- *Installing Natural Advanced Facilities on z/VSE* in the *Installation for z/VSE* documentation
- *Installing Natural Advanced Facilities on BS2000/OSD* in the *Installation for BS2000/OSD* documentation

I Natural Advanced Facilities - Introduction

1 Natural Advanced Facilities - Introduction

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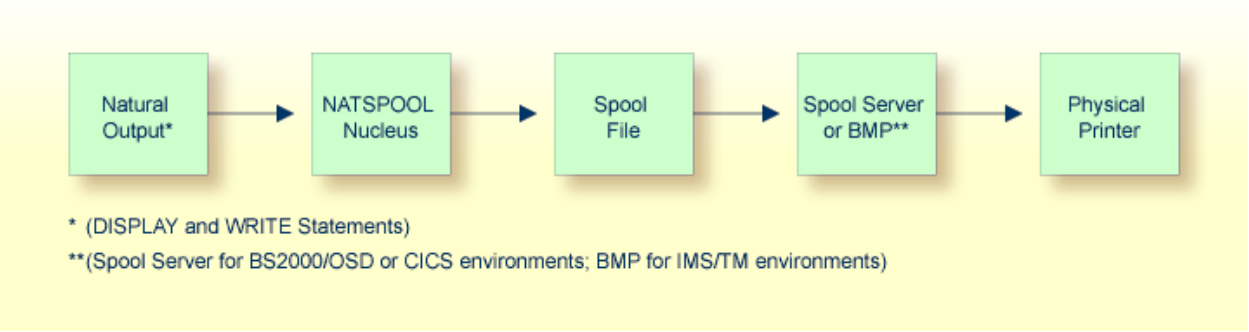
General Information

Natural Advanced Facilities consists of NATSPOOL, the spooling and report management system. NATSPOOL manages Natural program output, thus enabling the output (that is, a report) to be directed to a physical printer. NATSPOOL also supports the Natural hardcopy facility.



All reports are stored in the spool file. A report may be directed to the physical printer in one of the following ways:

- automatically at the end of the program which generated the report; or
- by using the corresponding NATSPOOL functions.

In BS2000/OSD and IMS TM environments, the spool file must be an Adabas file. In CICS environments, it may be an Adabas file or a VSAM file (Natural for VSAM must be installed in this case).

Terminology

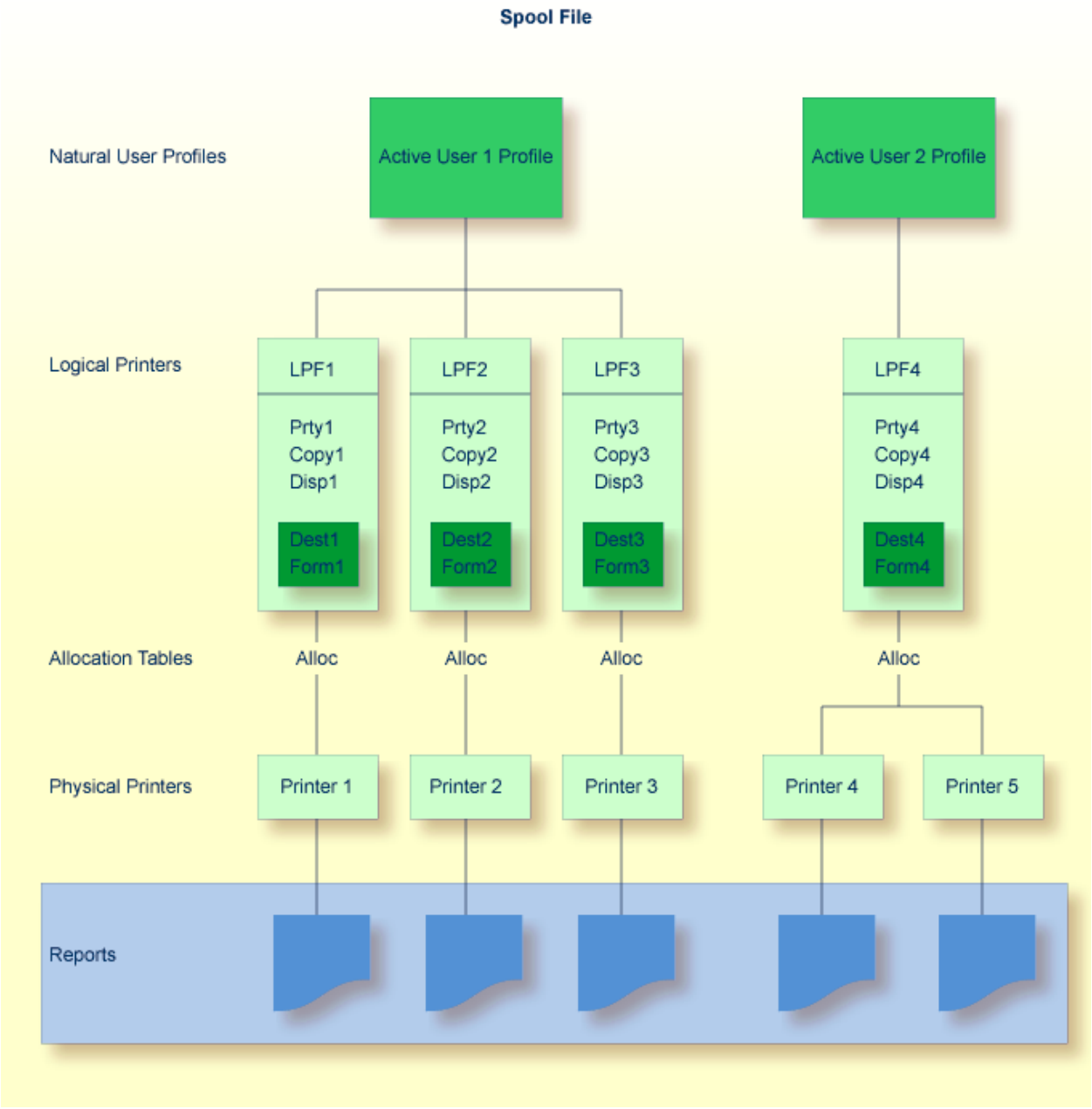
This section explains the most important terms used in this documentation.

Allocation Table	Describes an output destination and a form which can be assigned to a logical printer. The allocation table specifies the allocated physical printer(s) and optional parameters which are used to spool reports.
Application	Describes a library which can be used from the NATSPOOL application.
Calendar	Defines non-working and working days of a year. The calendar is used to compute the retention date for reports. A calendar can be assigned to logical printers.
Cluster	A group of logical printers.
Header Page	A user-designed page which can be assigned to an allocation. The reports spooled for this allocation will start with this page.

Logical Printer	Describes the characteristics of reports. The logical printer is referenced as (*rep*) in a `WRITE` or `DISPLAY` statement contained in a Natural program. *rep* can be a value from `1` to `31`.
Message Header	Specific control sequences which are inserted at the beginning of each data block sent to a physical printer in a BS2000/OSD environment (for example, to invoke a hardcopy function for printers connected to a terminal).
NTCC Table	Describes the replacements for user-defined and standard attributes. The replacements are used to rework report data for printer-dependent spool output.
Physical Printer	The alphanumeric name of a printer and the technical information which is used to build up a connection and to spool the reports. In a BS2000/OSD environment, this is the station name defined in the network (PDN, TCP/IP) or the name of an RSO device. In a CICS environment, this is the TCT name. In an IMS TM environment, this is the LTERM name.
Queue	All reports created for the same allocation (Destination/Form).
Report	Natural program output identified by a job number.
Spool File	The physical file for all reports and objects. The database ID and file number must be specified either in the Natural parameter module or dynamically by using the Natural profile parameter `FSPOOL`.
User Profile	A set of logical printers to be used during a Natural session. A user profile may be specified either in the Natural parameter module or dynamically, by using the Natural profile parameter `NAFUPF`. If Natural Security is installed, the user profile can be specified for a library or user entry.

NATSPOOL Objects

The following illustration shows the logical connections between `NATSPOOL` objects.



A maximum of 31 logical printers and one logical printer for hardcopy may be defined for one user.

A maximum of 16 physical printers may be allocated to *each* logical printer. In the above diagram, a total of 48 printers may be allocated to User 1, and a total of 16 printers to User 2.

Each logical printer requires 2 KB of storage, which is allocated at Natural initialization. Natural executes a 2 KB `GETMAIN (REQM)` command for each printer (*n*) where

```
NTPRINT (1-n), AM=NAF
```

If the thread size (CICS), the roll-slot size (IMS TM) or the MAXSIZE (*open*UTM) is not large enough, a Natural error message is issued and Natural is not initialized.

The BUS (buffer usage statistics) command can be used to obtain information on the sizes of the buffers allocated by Natural Advanced Facilities. The following information is provided:

```
PRINTnn
```

which contains the buffer for printer *nn*.

Example - Active User 1:

A WRITE (1) statement issued by User 1 causes the report to be printed on Printer 1, a WRITE (2) statement causes the report to be printed on Printer 2, and a WRITE (3) statement causes the report to be printed on Printer 3.

Example - Active User 2:

A WRITE (1) statement issued by User 2 causes the report to be printed on either Printer 4 or Printer 5, depending on which printer is in FREE status. If both printers are in FREE status, the first printer in the allocation table is used (for example, Printer 4 in the above diagram).

Starting NATSPOOL

To start NATSPOOL

- Enter the Natural system command SYSPOOL.

The **Natural Spool Administration** menu appears with the cursor positioned in the Command line.

```
Time 11:25:12        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                          M e n u                      File 7/411

      Administration                                Information

      10 Reports/Queues                             20 Cross-Reference
      11 Devices                                    21 Statistics
      12 Abstracts                                  22 Look at Spool File
      13 Applications                               23 CALLNAT Handling
      14 Change Spool File


      Maintenance                                   Control Functions

      30 Spool File Properties                      40 Check Spool File
      31 Objects                                    41 Logging Data
      32 Mass Update                                42 Create Test Reports
      33 Hardcopy Allocations                       43 Delete Reports by Date
      34 Transfer Objects

Enter function, mark with cursor, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit  Repor Devic Flip  Abstr Appli Cross Stati Look  Canc   ↩
```

The individual NATSPOOL functions are described in detail in individual sections of this documentation.

Invoking a NATSPOOL Function

To invoke a function, proceed in any of the following ways

- Enter a **command** (and object type) in the Command line.

  Or:

  enter a **number** in the Command line.

  Or:

  select a function with the **cursor**.

  Or:

  press the **PF key** assigned to a function.

Command Line

Command and Object Type

To invoke a function, enter a command (and object type) in the Command line.

For example, to display the device status (Function 11), enter `DISPLAY DEVICE` in the `Command` line.

To display a list of available commands, enter an asterisk (*) or a question mark (?) in the `Command` line. To display a list of all available object types for a specific command, mark this command in the list with any character.

Number

On a selection screen or window, each function is prefixed by a number.

To invoke a function, enter the number of this function in the Command line. For example, to invoke the function **Layout of Spool File**, enter `30` in the Command line. The **Layout of Spool File** window will then appear.

In the **Layout of Spool File** window, each function is prefixed by a number and can also be invoked by entering the corresponding number. For example, to invoke the function **Display Last Modification**, enter `8` in the Command line of this window.

If you know the number of a function which is listed in a window, you can also directly invoke this function. To do so, concatenate the individual numbers with a period in between. For example, to invoke the above mentioned function **Display Last Modification** directly, enter `30.8` in the Command line.

Cursor Selection

To select a function with the cursor, place the cursor on the number of a function and press Enter.

PF Keys

Most functions are assigned to PF keys.

The PF-key lines at the bottom of the screen indicate which function is assigned to which PF key. To invoke a function, simply press the PF key assigned to this function.

For example, on the `NATSPOOL` menu, the function **Reports/Queues** is assigned to PF4.

The following PF-key assignments apply for most `NATSPOOL` screens:

Key	Name	Function
PF1	Help	Invoke the online help facility.
PF2	Menu	Invoke the NATSPOOL menu.
PF3	Exit	Leave the current function and apply all modifications made.
PF6	Flip	Switch to display of keys PF13 to PF24 and back.
PF12	Cancel	Leave the NATSPOOL application.
PF13	%H	Hardcopy function.

II NAF - Administration

This section describes the functions of the Administration section of the NATSPOOL **menu**.

Reports/Queues - Function 10

Devices - Function 11

Abstracts - Function 12

Applications - Function 13

Change Spool File - Function 14

Note: When the Natural add-on product Entire Output Management is installed in your environment, an additional Function 15 is shown on the NATSPOOL menu. When you invoke this function, you access Entire Output Management.

2 NAF - Reports/Queues - Function 10

- Screen Columns 15
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When you invoke this function, the following screen appears:

```
Time 14:05:21         *** Natural Spool Administration ***      Date 2002-10-22
User  SAG                    Reports by Job Number              File 7/411
Cmd Q Dest/Form  T  Stat > Phy.Prt  Stat O P Dup D Pri Job No User ID  Cluster
--- - ---------- -  ---- - -------- ---- - - --- - --- ------ -------- -------
 SE _ ________ _            ________          *__ _ ___ ______ ________ ________
 __   DARMSTD  1   TOBE       --          N 0   K 1        1 MK
 __   DARMSTD  1   TOBE       --          N 0   K 1        4 MK
 __   DAEPRT12 A   LOAD       --            0   D 1        7 KOL
 __   DARMSTD  1   TOBE       --          N 0   K 1       85 MK
 __   DARMSTD  1   TOBE       --          N 0   K 1       88 KOL
 __   DARMSTD  1   LOAD       --          N 0   K 1       97 HHI
 __   DARMSTD  1   TOBE       --          N 0   K 1      286 MK









Mark with function or press PF key
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit        Prtr  Selec  -     +    Det 1         Top   Canc
```

Note: The display sequence in which the reports are listed is indicated in the screen name. It can be modified with the command `SQ`.

In the `Cmd` column on the left, you can enter various **commands**.

In the `SE` line, you can specify selection criteria. A list of reports matching the selection criteria will then be shown. For example, if you only want to display the reports of a specific user, enter the user ID in the `User ID` column of the `SE` line.

PF5 displays the **Device Status** screen.

PF6 displays the **Report Selection** screen (see the **output example**).

PF7 displays the previous screen page, PF8 displays the next screen page, and PF11 returns you to the top of the list.

Pressing PF9 repeatedly times displays different screens with more detailed data for each report (see the **output examples**).

This chapter provides information on the screen columns, the types of report status, the commands and the PF keys provided with the Reports/Queues function.

Screen Columns

Explained below are the columns and field values displayed on the screen.

Column	Description	
Q	Indicates the current status of a queue:	
	A or blank	Activated.
	D	Deactivated.
	M	Monitor queue for BS2000/OSD.
Dest/Form	Destination/Form (allocation) of report.	
T	An asterisk (*) indicates the definition of a time window for an allocation (only under BS2000/OSD).	
Stat	**Report status**.	
>	Indicates the number of pending or active devices.	
	Blank	Currently, only this device has control over the queue.
	>	More than one device has control over the queue.
Phy.Prt	Physical printer to which the report was assigned.	
Stat	**Printer status**.	
O	Indicates a pending operator command.	
	I	Hold printer immediately.
	F	Flush current spool out.
	S	Stop printer after spool out.
	D	Deactivate printer.
P	Indicates the protection level of a report.	
	N or blank	Not protected.
	P	Report can only be deleted by the user who sent it.
	S	Report can only be started by the user who sent it.
	D	Deactivate printer.
	R	report can only be read/shown by the user who sent it.
	G	Combination of S and R.
Dup	Number of **duplicates** (modifiable field). See Function 31.2 for possible values.	
D	**Disposition** (scheduling) of report (modifiable field). See Function 31.2 for possible values.	
Pri	**Priority** of report (modifiable field). See Function 31.2 for possible values.	
Job No	Job number of report. The job numbers are not necessarily in ascending order. The job number assigned to a report corresponds to the first record number of that report (that is, to the address of the report on the spool file).	

Column	Description
User ID	The user who created the report.
Cluster	The name of the cluster to which the logical printer used is assigned (only shown if the cluster option has been activated; see **Function 30.5**).

Report Status

The following table describes the possible values in the Stat column of the screen.

Status	Description
BATP	Current active spool-out (batch).
DEL	Report is being deleted.
DISA	The queue for this allocation is currently disabled.
FINI	Printed with Disposition K. When a report with Disposition K is printed, it is assigned the status FINI and the Disposition L. If the user then alters the Disposition to K or D (to re-print the report), the status is set back to TOBE.
HOLD	Report will not be printed.
HPER	The header page assigned is inconsistent.
INCO	Report was written to the spool file, but is inconsistent (an internal error occurred). In this case, execute **Function 40.1** to narrow down the problem.
INER	Internal error while printing the report.

LOAD	Report is being created.
	
	Natural has not yet closed the report. The most probable cause for this is that the Natural program has not yet ended, or has been interrupted. For example:
	
	`...`
	`WRITE (1) 'XXXXXX'`
	`INPUT 'FIELD' #FIELD`
	`...`
	
	The wait on input in the example above causes the status LOAD.

LOCK	Report is currently used by a move or copy operation.
LOST	Printing of the report was suspended because of spool out errors. The spool server has terminated because an ON ERROR condition has been entered in SVP *xxx* 01 in library SYSPRINT. When this occurs, a single-line WTO message is written to the system operator console. The message displays the DBID and FNR of the current spool file and the error number taken from the Natural system variable *ERROR-NR. The format of the WTO message is as follows:

Status	Description
	NAF SP-SERV: ERROR-NR *nnnn* in line *mmmmm*
MINT	Incorrect or missing NTCC table.
MIPT	Incorrect or missing NTCC printer type in NTCC table.
NOCL	Report was written to the spool file but has not been closed (missing END OF TRANSACTION statement). Natural is not in ET status when closing reports. The most probable cause for this is an UPDATE statement which is not followed by a corresponding END OF TRANSACTION statement. The reports with status NOCL are not printed, and are instead backed out from the spool file if the Natural session is terminated, or if the CLEAR key is pressed. This backout can be prevented by executing an END OF TRANSACTION statement. Recover the report for printing by entering RC in the Cmd column. This will force the status TOBE to be assigned to the report. In addition, the RC command issues an END OF TRANSACTION statement.
ONPR	The report is being printed.
PEND	Started, but not yet spooled out.
RECO	Report was recovered from status INCO by the RC command.
TOBE	The report is stored on the spool file and ready to be printed.
TOLA	The report is reset from status NOCL after receiving an ET.
WAIT	Print of report not started; printer was busy for another allocation.
WOER	Error while preparing the report for spool-out.

Commands

For each report, administration functions can be invoked by entering any of the line commands listed below in the Cmd column.

Command	Description
Start functions	
SD	Start of all reports to a Destination/Form.
SJ	Start of a specific report via the job number.
SU	Start of all reports to a Destination/Form for a specific user ID.
XD	As SD, but to an optional physical printer of the spool file.
XJ	As SJ, but to an optional physical printer of the spool file. See also the **example** below.
XU	As SU, but to an optional physical printer of the spool file.

Command	Description
Delete functions	
DA	Delete all reports on the spool file.
DD	Delete all reports to a Destination/Form (unless the report is protected).
DJ	Delete the current report only (unless the report is protected). See also the **example** below.
DU	Delete all reports to a Destination/Form for a specific user ID (unless the report is protected).
DY	Delete reports older than the number of days or the date specified; see also **Function 43** (Delete Reports by Date) in the section *Control Functions*.
Alter functions	
AD	Alter attributes of all reports to a Destination/Form.
AU	Alter attributes of all reports to a Destination/Form for a specific user ID.
Display functions	
DF	Display formatted report using line feed and form feed. See also the **example** below.
DH	Display report in internal format.
SP	Show all pointers of a report.
Operator functions	
FL	Stop printing on the activated printer and continue with the next report.
FR	Set the printer to status FREE.
HI	Stop the activated printer immediately.
PO	Position the printer to the beginning of the page.
ST	Stop the activated printer after the end of the report.
Report functions	
CO	Copy report to another logical printer.
MJ	Move report to another logical printer.
MD	Move all reports of this Destination/Form to another logical printer.
MU	Move all reports of this Destination/Form created by a specific user ID to another logical printer.
Queue functions	
Q*	Show all queues, the corresponding status and the current number of reports within the queue (this command can be activated in any line).
QS	Change the status of a queue (active, deactivated or monitor queue).
DQ	Show all reports of a queue. The reports are displayed by using the sequence of spool-out (status, priority, creation date and time).
Miscellaneous functions	
RC	Recover report.
SC	Scan a report for a specific string.

Command	Description
SQ	Change the sequence of the Report/Queue display.
TI	Show a time window for start of printing if defined for the corresponding Destination/Form (this function is available for BS2000/OSD only).
UI	If Natural Security is installed, the long text for the sending user ID is displayed for this report.
WP	Display which printers are available.
ZO	Show detailed report attributes.

For further information on the commands above, see the online help.

See also the examples below:

- **Example of Command XJ**
- **Example of Command DF**
- **Example of Command DJ**

Example of Command XJ

If you enter XJ in the Cmd column as shown below, a window appears, asking for the name of the physical printer to which you want to route the report.

```
Time 14:10:09        *** Natural Spool Administration ***      Date 2002-10-22
User  SAG                    Reports by Job Number             File 7/411

Cmd Q Dest/Form  T  Stat > Phy.Prt  Stat O P Dup D Pri Job No User ID  Cluster
--- - ---------- -  ---- - -------- ---- - - --- - --- ------ -------- -------
 SE _ ________ _          ________          *__ _ ___ ______ ________ ________
 xj   DARMSTD  1   TOBE       --          N O   K 1        1 SAG
 __   DARMSTD  1   TOBE       --          N O   K 1        4 MK
 __   DAEPRT12 A   LOAD       --     +--------Start of reports(s)-----------+
 __   DARMSTD  1   TOBE       --     !  To start Allocation DARMSTD/1   ,   !
 __   DARMSTD  1   TOBE       --     !  enter the name of a physical printer!
 __   DARMSTD  1   LOAD       --     !  or '*' to invoke a selection.       !
 __   DARMSTD  1   TOBE       --     !                                      !
                                     !  To return, enter '.'                !
                                     !                                      !
                                     !  Physical printer ________           !
                                     +--------------------------------------+




Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                    ↩
```

Example of Command DF

If you enter `DF` in the `Cmd` column, the corresponding report data are shown.

```
Time 11:55:13        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                       Display Reports                 File 7/411
Cmd:  __ Page:     1 Dest.: STD      Form: R User:  SAG      Job Number      1
 001        11        21        31        41        51        61        71
   I---------I---------I---------I---------I---------I---------I---------I-----
=>                        **** top of report ****
 F ? Page 1            CROSS-REFERENCE/ SPOOL FILE              1997-08-21  14:1
 L ?
 L ?                          SPOOLFILE
 < ?                          SPOOLFILE
 < ?                          SPOOLFILE
 L ?
 L ? DATABASE / FILENUMBER 7     / 33      VERSION ................. 230
 < ?                         7       33                              230
 < ?                         7       33                              230
 L ?
 L ?                          LAYOUT OF REPORT AREA
 < ?                          LAYOUT OF REPORT AREA
 < ?                          LAYOUT OF REPORT AREA
 L ?
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 +    Help  Menu  Exit        Hex   <<     >     +    Bot    -    Top   Canc
```

Field	Description
`Cmd`	Command input.
`001`	Column in which the display of the report is to start. (If you enter a number greater than 250, Column 1 is used).
`Page`	The number of the last report page on the screen.
`Dest.`	Destination of the report.
`Form`	Form of the report.
`User`	User who created the report.
`Job Number`	Job number of the report.

The printer control characters in Column 1 of the report are:

- `F` for form feed,
- `L` for line feed,
- `<` for carriage return (intensified lines).

If you press `PF5` on the above screen, the report is shown in internal (hexadecimal) format:

```
Time 11:56:26        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                       Display Reports                 File 7/411

Cmd:  __ Page:     1 Dest.: STD      Form: R User:  SAG      Job Number      1
 001        11        21        31        41        51        61        71
   I---------I---------I---------I---------I---------I---------I---------I-----
 F ? Page 1           CROSS-REFERENCE/ SPOOL FILE              1997-08-21  14:1
 O 04D8884F44444444444CDDEE6DCCCDCDCC64EDDDD4CCDC44444444444444FFFF6FF6FF44FF7F
 C C0717501000000000003962209565955351027663069350000000000000001997008021001 4A1
 L ?
 1 144444444444444444444444444444444444444444444444444444444444444444444444444
 5 500000000000000000000000000000000000000000000000000000000000000000000000000
 L ?                          SPOOLFILE
 1 144444444444444444444444EDDDDCCDC44444444444444444444444444444444444444444
 5 500000000000000000000000027663693500000000000000000000000000000000000000000
 < ?                          SPOOLFILE
 O 044444444444444444444444EDDDDCCDC44444444444444444444444444444444444444444
 D D000000000000000000000000276636935000000000000000000000000000000000000000



Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 +    Help  Menu  Exit        Hex   <<     >     +    Bot    -    Top   Canc
```

Example of Command DJ

If you enter `DJ` in the `Cmd` column as shown below, a window appears, asking to confirm the deletion.

```
Time 14:26:01        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                     Reports by Job Number             File 7/411

Cmd Q Dest/Form  T  Stat > Phy.Prt  Stat O P Dup D Pri Job No User ID  Cluster
--- - ---------- -  ---- - -------- ---- - - --- - --- ------ -------- -------
 SE _ ________ _          ________          *__ _ ___ ______ ________ ________
 dj   DARMSTD  1   TOBE       --           N 0   K 1        1 SAG
 __   DARMSTD  1   TOBE       --           N 0   K 1        4 MK
 __   DAEPRT12 A   LOAD       --             0   D 1        7 KOL
 __   DARMSTD  1   TOBE       --           N 0   K 1       85 MK
 __   DARMSTD  1   TOBE       --           N 0   K 1       88 KOL
 __   DARMSTD  1   LOAD       --           N 0   K 1       97 HHI
 __   DARMSTD  1   TOBE       --           N 0   K 1      286 MK

                                  +------------- Confirmation -------------+
                                  !  To delete report with number   1      !
                                  !  confirm with report number ... ______ !
                                  !                                        !
                                  !  and mark to destroy report data ... _ !
                                  !                                        !
                                  +----------------------------------------+
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
           Menu  Exit                                                 Canc
```

Note: For the commands DA, DD and DU, you are also asked to confirm the deletion.

The option “destroy report data” is available which not only marks the report as “deleted” on the spool file, but also sets the report data to blanks. This might be required for confidential reports.

PF Keys

- Example of Output from PF6
- Example of Output from PF9

Example of Output from PF6

```
Time 13:33:47        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                      Report Selection                 File 7/411



  Report selection

  For all user IDs     X                Starting from job number ______
  For own user ID      _                                For user ID ________
  For group ID         ________

  ------------------------------------------------------------------------------

  Optional selection parameters

  Destination     ________ /Form _   Duplicates   *__   Disposition     _
  Priority        ___
  Active printer  ________           Queue status _
  Cluster         ________

 Enter values for selection.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit        Prtr                                    Canc   ↩
```

On this screen, you can select reports.

If **Natural Security** is installed, the modifiable fields in this screen depend on the defined user type.

Note: The Cluster(s) field only appears, if the cluster option has been activated (see **Function 30.5**).

Example of Output from PF9

Pressing PF9 once displays the first **Detailed Attributes** screen.

```
Time 13:34:30        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                    Detailed Attributes 1              File 7/411

Cmd Q Dest/Form  No. Pages   No. Lines   %Prt. Date Printed        TF  Printer
--- - ---------- ---------- ----------  ----- ------------------- --- --------
 SE   ________ _
 __   DR1171   A   1           1               2002-10-15 16:24:37 CPU SPPPRINT
 __   DARMSTD  1   1           3
 __   DARMSTD  1   1           19
 __   DAEPRT12 A
 __   DARMSTD  1   1           19
 __   DARMSTD  1   4           200
 __   DARMSTD  1
 __   DARMSTD  1   1           17









Mark with function or press PF key
Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit        Prtr  Selec  -     +    Det 2       Top   Canc
```

Column	Description	
No.Pages	The number of logical pages in the report.	
No.Lines	The number of lines in the report.	
%Prt.	For active spooling, the percentage of completion is shown.	
Date printed	Date and time of the last spool-out.	
TF	Time format:	
	CPU	Store clock value of CPU.
	NAT	Natural time. The time computed by using the DD, TD and/or YD values as defined in the Natural parameter module.
Printer	The physical printer which was used for the last spool-out, or the name of the batch program used for the spool-out.	

Pressing PF9 once more displays the second **Detailed Attributes** screen.

```
Time 14:43:26        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                    Detailed Attributes 2              File 7/411
Cmd Q Dest/Form    Log.Prtr Profile        Name     Forms    Library  Program
--- - ----------   -------- -------------- ------   -------  -------- --------
 SE   ________ _
 __   DARMSTD  1   PROF1    MK       (NAF)   --       --     SYSPOOL    --
 __   DARMSTD  1   PROF1    MK       (NAF)   --       --     SYSPOOL  NTEST
 __   DAEPRT12 A   DAEPRT12 *        (NAF)   --       --     SYSPOOL  SPFPAG01
 __   DARMSTD  1   PROF1    MK       (NAF)   --       --     SYSPOOL  NTEST
 __   DARMSTD  1   PROF1    MK       (NAF)   --       --     SYSPOOL  SPPTREP1
 __   DARMSTD  1   PROF1    MK       (NAF)   --       --     SYSPOOL  SPFPAG01
 __   DARMSTD  1   PROF1    MK       (NAF)   --       --     SYSPOOL  SPSCHE03




Mark with function or press PF key
Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit        Prtr  Selec  -     +    Det 3 Det 1 Top   Canc
```

Column	Description
Log.Prtr	The logical printer used for the creation of the report.
Profile	NTCC table from the parameter used in the PROFILE clause of the DEFINE PRINTER statement. When followed by MAC, the replacements are defined within the NTCCTAB table of the Natural system parameters. When followed by NAF, the replacements are defined in the object NTCC table of the NATSPOOL environment, depending on the printer.
Name	Value of the name parameter used in theNAME clause of the DEFINE PRINTER statement.
Forms	Value of the forms parameter used in the FORMS clause of the DEFINE PRINTER statement.
Library	The library in which the report was created.
Program	The name of the program which created the report.

Pressing PF9 once more displays the third **Detailed Attributes** screen.

```
Time 14:45:25        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                    Detailed Attributes 3              File 7/411

Cmd Q Dest/Form    Init ID  Init User Device    LOST :   Program   Errnr  Line
--- - ----------   -------- --------- --------  -----------------  -----  ----
 SE   ________ _
 __   DARMSTD  1   0756     MK        VIDEO
 __   DARMSTD  1   0756     MK        VIDEO
 __   DAEPRT12 A   0804     KOL       VIDEO
 __   DARMSTD  1   0794     MK        VIDEO
 __   DARMSTD  1   0787     KOL       VIDEO
 __   DARMSTD  1   0751     HHI       VIDEO
 __   DARMSTD  1   0776     MK        VIDEO









Mark with function or press PF key
Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit        Prtr  Selec  -     +    ↩
```

Column	Description
Init ID	Value of the system variable *INIT-ID when creating the report.
Inituser	Value of the system variable *INIT-USER when creating the report.
Device	Value of the system variable *DEVICE when creating the report.
LOST	For reports with status LOST, the program name, error number and line are shown.

Pressing PF9 once more displays the fourth **Detailed Attributes** screen.

```
Time 13:40:56        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                    Detailed Attributes 4              File 7/411

Cmd Q Dest/Form    Creation Date/Time  TF  Ret.P. Calendar Del. Date  ASA CCnt.
--- - ----------   ------------------- --- ------ -------- ---------- --- -----
 SE   ________ _
 __   DARMSTD  1   1997-07-18 07:51:56 CPU 1         --        --      On   No
 __   DARMSTD  1   1997-07-18 08:19:26 CPU 1         --        --      On   No
 __   DAEPRT12 A   1997-07-18 09:37:20 CPU 1         --        --      On   No
 __   DARMSTD  1   1997-07-18 10:15:13 CPU 1         --        --      On   No
 __   DARMSTD  1   1997-07-18 11:18:24 CPU 1         --        --      On   No
 __   DARMSTD  1   1997-07-18 12:48:38 CPU 1         --        --      On   No
 __   DARMSTD  1   1997-07-21 09:17:50 CPU 1         --        --      On   No









Mark with function or press PF key
Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit        Prtr  Selec  -     +    Det 5 Det 3 Top   Canc
```

Column	Description
Creation Date/Time	Date and time given from the CPU when the report was created.
Ret.P.	Retention period specified for the used logical printer. See **Function 31.2**.
Calendar	Name of the calendar assigned to the logical printer. See **Function 31.2**.
Del. Date	Date when the report can automatically be deleted if this feature has been activated (see **Function 30.5**). The deletion date is computed by using the retention period and the specifications in a calendar.
ASA	Value ON indicates that the report lines start with the default control characters for line feed, form feed and carriage return. Value OFF indicates that the default control characters are suppressed.
CCnt.	Value Yes indicates that the report was created by using DEFINE PRINTER (*rep*) OUTPUT 'CCONTROL'.

Pressing PF9 once more displays the fifth **Detailed Attributes** screen.

```
Time 13:34:30        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                    Detailed Attributes 5              File 7/411

Cmd Q Dest/Form  Additional error information
--- - ---------- ------------------------------------------------------------
 SE   ________ _
 __   DR1171   A
 __   DARMSTD  1
 __   DARMSTD  1
 __   DAEPRT12 A
 __   DARMSTD  1
 __   DARMSTD  1
 __   DARMSTD  1
 __   DARMSTD  1









Mark with function or press PF key
Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit        Prtr  Selec  -     +    Det 1 Det 4 Top   Canc
```

If the spool server detects any error, the report status is changed and an error message is sent to the console or written to the log file.

Part of this information is stored for the report and shown on this screen.

3 NAF - Devices - Function 11

- Screen Columns 31
- Printer Status 31
- Commands 33
- PF Keys 33

When you invoke this function, the **Device Status** screen appears.

```
Time 14:48:52        *** Natural Spool Administration ***      Date 2002-10-22
User  SAG                        Device Status                 File 7/411

Cmd Phys.Prt Stat  Reason  /Fct. Cluster   O  P Dest/Form  Job No System
--- -------- ----  ------------ --------  -  - ---------- ------ -------------
 SE _________ ____                        _ _________ _        _________
 __ A001     FREE     --      --      --     N                    CICS
 __ BPM      DEAC     --      --      --     N                    CICS
 __ BS2PID   FREE     --      --      --     N                    BS2000
 __ DAEPRTCA FREE     --      --      --     N                    CICS
 __ DAEPRT10 FREE     --      --      --     N                    CICS
 __ DAEPRT12 FREE     --      --      --     N                    IMS TM
 __ DAEPRT13 FREE     --      --      --     N                    CICS
 __ DAEPTR10 FREE     --      --      --     N                    CICS
 __ DAPERT13 FREE     --      --      --     N                    CICS
 __ DEAPRTCA FREE     --      --      --     N                    CICS
 __ DR1171   FREE     --      --      --     N                    BS2000
 __ DR1490   FREE     --      --      --     N                    BS2000
 __ HCTEST   FREE     --      --      --     N                    CICS
 __ HHIPID   FREE     --      --      --     N                    CICS
Enter command or press PF key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Repo        Selec  -     +    Det 1       Top   Canc
```

In the `Cmd` column on the left, you can enter the **commands** described below.

In the `SE` line, you can specify selection criteria. A list of printers matching the selection criteria will then be shown. For example, if you only want to display a list of deactivated printers, enter `DEAC` in the `Stat` column of the `SE` line.

PF4 displays the **Report(s) screen**.

PF6 displays the **Printer Selection screen**.

PF7 displays the previous screen page, PF8 displays the next screen page, and PF11 returns you to the top of the list.

Pressing PF9 two times displays two different screens with more detailed printer information (see the **output examples**).

This section provides information on the screen columns, the types of printer status, the commands and the PF keys provided with the Devices function.

Screen Columns

Column	Description
Phys.Prt	Physical printer to which the report has been assigned.
Stat	**Printer status**.
Reason/Fct.	CICS: Error during the check of availability of a printer or during the start of the spool server. IMS TM: Error during START REGION command for BMP (see relevant IMS/VS literature for status code). BS2000/OSD: Return codes from the spool server, especially those of the system macros YSEND, YRECEIVE, SOLSIG and PRINT, or negative acknowledgments from the printer hardware.
Cluster	Name of the attached cluster.
O	Entered operator command.
P	Printer mode Private (Y/N).
Dest/Form	Destination and form of the report.
Job No	Job number of the report.
System	The TP system for which the printer has been defined.

Printer Status

The following table describes the various types of printer status.

Status	Description
BUSY	A free printer has been selected and the spool server has got control.
FREE	The printer is ready to be activated (a spool server can be started on the printer).
DEAC	The printer has been deactivated by the operator command DE. To restart the printer, reset it to FREE by using the command FR or AC, and enter a start command on the **Report Selection** screen.
HUNG	CICS: A start command for a spool server was issued, but failed. Reasons for failure are any exceptional conditions of the EXEC CICS START command. The most probable conditions are: the physical printer as added on the spool file is not defined or has been mistyped in the CICS Terminal Control Table; or the transaction identifier of the spool

Status	Description
	server as defined in the **CICS options** is not defined or has been mistyped in the CICS Program Control Table. To restart the printer, reset it to FREE by using FR, and enter a start command on the **Report Selection** screen. IMS TM: An IMS TM /STA REG command was issued, and a non-blank status code was returned. UTM/TIAM: The printer cannot be activated, because information on the DCAM table, the message header or the header page is missing.
INOP	CICS: A start command for a spool server has been executed successfully. After logon to SYSPRINT, it was detected that the printer: ■ was not available; or ■ was no longer available (invalid terminal ID); or ■ the terminal status (TCTTETS) of the printer is greater than 15. The most probable cause is an invalid definition in the CICS Terminal Control Table. To restart the printer, reset it to FREE by using FR, and enter a start command on the **Report Selection** screen. UTM/TIAM: A start command for a report has successfully been executed, but the printer is not available. The printer has to be restarted manually by resetting it to FREE using FR, and issuing a start command on the **Report Selection** screen.
OUTS	This status only applies to CICS. The printer is designated as OUT OF SERVICE by CICS (that is, it is not polled by CICS). To restart the printer, reset it to FREE by using FR, and enter a start command on the **Report Selection** screen. If the printer is still OUT OF SERVICE in CICS, a window appears indicating possible CICS problems. If you enter the FORCE command in this window, NATSPOOL sets the printer IN SERVICE and starts the spool server.
PDER	Error in printer definition.
PEND	A free printer has been selected but the spool server has not yet got control.

Note: For CICS usage, each status type describes the printer as it is defined to NATSPOOL. The CICS printer status (CEMT I TERM(*XXXX*)) can be different from the NATSPOOL status. For example, it is possible to set a printer FREE in NATSPOOL while it is OUT OF SERVICE in CICS.

Commands

For each printer, administration functions can be invoked by entering any of the line commands listed below in the Cmd column.

Command	Description
Status functions	
AC	Activate a printer which has the status DEAC.
DE	Deactivate the printer.
FR	Set the printer to status FREE.
Form functions	
PM	Premount a form (Destination/Form).
RM	Remove a form (Destination/Form).
Operator functions	
FL	Stop printout on the activated printer and continue with the next report.
HI	Stop the activated printer immediately.
ST	Stop the activated printer after the end of the report.
PO	Position the printout to the beginning of the page.
Miscellaneous functions	
DQ	Show the current report queue for the active printer.
ZO	Show detailed information for a physical printer.

PF Keys

- Example of Output from PF6
- Example of Output from PF9

Example of Output from PF6

```
Time 13:58:06        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                      Printer Selection                File 7/411



 Printer selection

 All printers          X
 For user ID           ________
 For printer           ________

 ------------------------------------------------------------------------------

 Optional selection parameters

 Destination _________ /Form _       Status ____        Private (Y/N)   _
 System      CICS____                                   Cluster         ________



Enter values for selection.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
```

On this screen, you can select printers.

If **Natural Security** is installed, the modifiable fields in this screen depend on the defined user type.

Note: The `Cluster` field only appears, if the cluster option has been activated (see *Function 30.5*) .

Example of Output from PF9

Pressing PF9 once displays the first **Detailed Attributes** screen.

```
Time 13:59:09        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                    Detailed Attributes 1              File 7/411

Cmd Phys.Prt Stat Std Ow St Fc La.Dest/Form  FF C. FF   LF   Ser.Exi. NTCC Type
--- -------- ---- --- -- -- -- ------------ ----- ---- ---- -------- --------
 SE _________ ____

 __ A001     FREE  N   N  Y       --      / -   B   0D0C 0D15 USPSER01 --
 __ BPM      DEAC  N   N  N  N    --      / -   B   0D0C 0D15 USPSER01 --
 __ BS2PID   FREE  N   N  Y       --      / -   B   0D0C 0D15 USPD9001 D9001
 __ DAEPRTCA FREE  N   N  N  N    --      / -   B   0C00 1500 USPSER01
 __ DAEPRT10 FREE  Y   N  N  N    --      / -   B   0D0C 0D15 USPSER01
 __ DAEPRT12 FREE  Y   N  Y  N    --      / -   B   0D0C 0D15 USPSER01
 __ DAEPRT13 FREE  Y   N          --      / -   B   0D0C 0D15 USPSER01
 __ DAEPTR10 FREE  N   N          --      / -   B   0D0C 0D15 USPSER01
 __ DAPERT13 FREE  N   N          --      / -   B   0D0C 0D15 USPSER01
 __ DEAPRTCA FREE  N   N  N  N    --      / -   B   0C00 1500   --
 __ DR1171   FREE  N   N  Y  N    --      / -   B   0D15 0D15 USPSER01 STDPRT
 __ DR1490   FREE  N   N  N  N    --      / -   B   0D0C 0D15 USPSER01 STDPRT
 __ HCTEST   FREE  N   N  N  N    --      / -   B   0D0C 0D15 USPSER01
 __ HHIPID   FREE  N   N  N       --      / -   B   0D0C 0D15 USPSER01
Enter command or press PF key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Repo        Selec  -     +    Det 2       Top   Canc
```

Column	Description
Std	Indicates whether existing standard profiles (logical printer, allocation) are used (Y/N).
Ow.	Indicates whether an owner was defined for the printer (Y/N).
St.	Indicates whether statistics have been activated (Y/N).
Fc.	Indicates whether a check for form is to occur (Y/N).
La.Dest/Form	The last or currently mounted form.
FF-C.	Form feed control definition.
FF	Definition for form feed sequence.
LF	Definition for line feed sequence.
Ser.Exi.	The name of the subprogram called by the spool server when printing on this printer.
NTCC Type	Defined printer type.

Pressing PF9 once more displays the second **Detailed Attribute**s screen. The layout of this screen depends on the operating and TP system (BS2000/OSD, CICS or IMS TM).

4 NAF - Abstracts - Function 12

When you invoke this function, the **Abstracts** screen appears.

```
Time 09:41:57        *** Natural Spool Administration ***      Date 2002-12-02
User SAG                          Abstracts

 Spool File Database 7       File No.  411   File Description Version 4.1

 Options    Logging No  Rep.Logg. No  User Stat. No  Clust. Yes Time NAT
            Default for Logical Printer setting       --
            Default Queue Sequence for Function 10  Best

 Server     Rpr.LOST Yes     Rpr.RECO  Yes   Delete by Retention Per. Yes
 Options    Check Rep. of Status WAIT  Yes
            Console Messages           Yes   Protocol Messages        Yes
 ------------------------------------------------------------------------------
 Initialization of Hardcopy Allocation uses User Profile HHIBS2

------------------------------------------------------------------------------
 Current Hardcopy Assignment           Logical Printer  PCHHI01
 Destination/Form DRHHI    / H         Physical Printer DRHHI
 ------------------------------------------------------------------------------
 New Hardcopy Device for PCHHI01       DRHHI___
Modify values, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit
```

This screen shows the settings that have been defined by using **Function 30**. For example, you can see the `FSPOOL` settings, such as database ID and file number.

A new hardcopy device for this session can be specified.

5 NAF - Applications - Function 13

When you invoke this function, the Applications window appears.

```
Time 14:20:51        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                          M e n u                      File 7/411
       +----------------------------- Application ------------------------------+
       !                                                                         !
       !     Library  Program   Notes                                           !
       !     -------- --------  ---------------------------------               !
       !  _  SYSTP    MENU      --                                              !
       !  _  TESTLIB  TESTPROG  TEST FOR APPLICATION                            !
       !                                                                         !
       !                                                                         !
       !                                                                         !
       !                                                                         !
       !                                                                         !
       !                                                                         !
       !                                                                         !
       !                                                                         !
       !                                                                         !
       !                                                                         !
       !                                                                         !
       +-------------------------------------------------------------------------+
Mark on selection list.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
           Menu  Exit                                                    Canc
```

This window shows the applications that have been defined by using **Function 31.6**. From this window, you can directly invoke another application.

6 NAF - Change Spool File - Function 14

The **Change Spool File** function is used to assign a new spool file.

When you invoke this function, the **Change Spool File** window appears on the **Natural Spool Administration** screen.

```
Time 14:25:41        *** Natural Spool Administration ***      Date 2002-11-18
User SAG                            M e n u                    File 7/411
+-----------Change Spool File------------+
!                                        !      Information
!  Current spool file  7/411             !
!                                        !      20 Cross-Reference
!                                        !      21 Statistics
! --------------------------------       !      22 Look at Spool File
!                                        !      23 CALLNAT Handling
!  Enter values for new spool file       !
!                                        !
!  Database ID     0____                 !
!  File Number     0____                 !      Control Functions
!                                        !
!  Adabas Password                       !      40 Check Spool File
!                                        !      41 Logging Data
!  Cipher Code      ________             !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!                                        !
+----------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Menu  Exit                                                 CMND  ↩
```

In the **Change Spool File** window, enter a valid database ID and file number (maximum is 5 digits). If relevant, enter an Adabas password and cipher code (maximum is 8 characters).

If you enter any incorrect values or if the user profile currently active cannot be found in the new spool file specified, the text in the **Change Spool File** window reads as shown in the window below:

```
Time 13:20:15        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                            M e n u                    File 7/411
+-----------Change Spool File------------+
!                                        !      Information
!  The currently active User Profile     !
!  PROF7411 is not defined on the        !      20 Cross-Reference
!  target spool file 10/495              !      21 Statistics
!                                        !      22 Look at Spool File
!  To refresh the assignments, enter     !      23 CALLNAT Handling
!  a new user profile which is           !
!  defined on the target spool file.     !
!                                        !
!  To ignore, press function key 4.      !      Control Functions
!                                        !
!                                        !      40 Check Spool File
!  New user profile *_______             !      41 Logging Data
!                                        !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!                                        !
+----------------------------------------+
User profile not found on spool file.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Menu  Exit  Ignor                                          Canc   ↩
```

To ignore the assignment to a new user profile but use the user profile currently active instead, press PF4. However, if the user profile currently active has not been defined in the new spool file specified, the report creation process can terminate with an error. Therefore, we recommend that you assign a valid user profile to the spool file. Use an asterisk (*) to select a profile from a list of all profiles available in the spool file, or use asterisk (*) notation to specify a range of profiles.

If the user profile currently active has been defined in the new spool file, the **Change Spool File** function generates a corresponding window. You can then decide to assign another user profile, ignore a new assignment or use the user profile currently active.

If the date and time format in the new spool file are not identical to the date and time format in the current spool file, the **Change Spool File** function generates the following output:

```
Time 14:21:26        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                             M e n u                   File 7/411
+-----------Change Spool File------------+
!                                        !      Information
!  The currently active time format      !
!  differs from the default defined      !      20 Cross-Reference
!  on the target spool file:             !      21 Statistics
!                                        !      22 Look at Spool File
!  current:             Natural Time     !      23 CALLNAT Handling
!                                        !
!  default from target  CPU Time         !
!                                        !
!                                        !      Control Functions
!  To refresh the assignment, press      !
!  Enter, or press function key 4        !      40 Check Spool File
!  to ignore.                            !      41 Logging Data
!                                        !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!                                        !
+----------------------------------------+
Enter name of user profile, or use * to select.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
           Menu  Exit  Ignor                                          Canc   ↩
```

Press Enter to refresh the assignment and overwrite the current values for date/time with the new values, or press PF4 to maintain the current values.

After the date/time verification, the new spool file is assigned to the user profile and the **Change Spool File** function terminates with the following screen:

```
Time 14:21:26        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                              M e n u                  File 7/411
+-----------Change Spool File------------+
!                                        !      Information
!  Current spool file  7/411             !
!                                        !      20 Cross-Reference
!                                        !      21 Statistics
! -------------------------------        !      22 Look at Spool File
!                                        !      23 CALLNAT Handling
!  Enter values for new spool file       !
!                                        !
!  Database ID     10___                 !
!  File Number     495__                 !      Control Functions
!                                        !
!  Adabas Password                       !      40 Check Spool File
!                                        !      41 Logging Data
!  Cipher Code      ________             !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!                                        !
+----------------------------------------+
Function is completed. Press Enter.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Menu  Exit  Ignor                                          Canc
```

III NAF - Information

This section describes the functions of the **Information** section of the NATSPOOL menu.

Cross-Reference - Function 20

Statistics - Function 21

Look at Spool File - Function 22

CALLNAT Handling - Function 23

7 NAF - Cross-Reference - Function 20

- Printer - Function 20.1 48
- Allocation Table - Function 20.2 49
- Logical Printer - Function 20.3 49
- User Profile - Function 20.4 50
- Header Page - Function 20.5 50
- Configuration List - Function 20.6 50
- Cluster - Function 20.7 50
- Calendar - Function 20.8 51
- Message Header - Function 20.9 51
- RSO Devices - Function 20.A 51
- RSO Profiles - Function 20.B 51

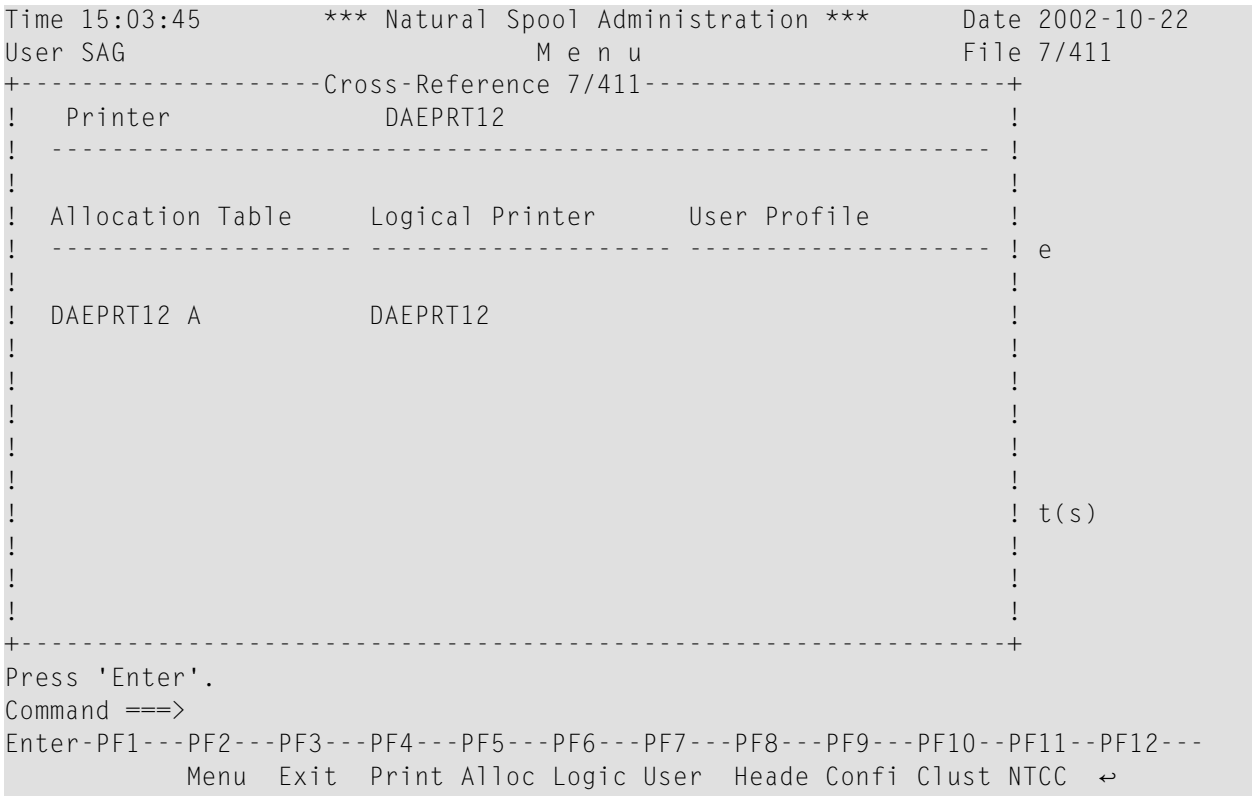
When you invoke this function, the **Cross-Reference** window appears.

```
Time 14:55:50        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                             M e n u                   File 7/411
+-------- Cross-Reference 7/411 ---------+
!                                        !      Information
!   1     Printer                        !
!   2     Allocation Table               !      20 Cross-Reference
!   3     Logical Printer                !      21 Statistics
!   4     User Profile                   !      22 Look at Spool File
!   5     Header Page                    !      23 CALLNAT Handling
!   6     Configuration List             !
!   7     Cluster                        !
!   8     Calendar                       !
!   9     Message Header                 !      Control Functions
!   A     RSO Device                     !
!   B     RSO Profile                    !      40 Check Spool File
!                                        !      41 Logging Data
!   .     Exit                           !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!   Command / _  /                       !
+----------------------------------------+
Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Print Alloc Logic User  Heade Confi Clust       ↩
```

Printer - Function 20.1

When you invoke this function, you can specify the name of a physical printer, or enter an asterisk (*) to select the printer from a list.

All allocation tables and the corresponding logical printers and user profiles in which this physical printer is referenced are then shown.



Allocation Table - Function 20.2

When you invoke this function, you can specify the name of an allocation table, or enter an asterisk (*) to select the allocation table from a list.

All logical printers and the corresponding user profiles in which this allocation table is referenced are then shown. The output is similar to that shown for a **printer**.

Logical Printer - Function 20.3

When you invoke this function, you can specify the name of a logical printer, or enter an asterisk (*) to select the logical printer from a list.

All user profiles in which this logical printer is referenced are then shown. The output is similar to that shown for a **printer**.

User Profile - Function 20.4

When you invoke this function, you can specify the name of a user profile, or enter an asterisk (*) to select the user profile from a list.

All logical printers and the corresponding allocation tables and printers in which this user profile is referenced are then shown. The output is similar to that shown for a **printer**.

Header Page - Function 20.5

When you invoke this function, you can specify the name of a header page, or enter an asterisk (*) to select the header page from a list.

All allocation tables and the corresponding logical printers and user profiles in which this header page is referenced are then shown. The output is similar to that shown for a **printer**.

Configuration List - Function 20.6

When you invoke this function, you can specify values for the printout (logical printer, profile, page size and column for left margin).

All references of user profiles and the corresponding logical printers, allocations, physical printers etc. are then listed. The configuration list is automatically written to the spool file. The output is similar to that shown for a **printer**.

Cluster - Function 20.7

When you invoke this function, you can specify the name of a cluster, or enter an asterisk (*) to select the cluster from a list.

All logical printers and the corresponding allocation tables and physical printers in which this cluster is referenced are then shown. The output is similar to that shown for a **printer**.

Calendar - Function 20.8

When you invoke this function, you can specify the name of a calendar, or enter an asterisk (*) to select the calendar from a list.

All logical printers and the corresponding allocation tables and physical printers in which this calendar is referenced are then shown. The output is similar to that shown for a **printer**.

Message Header - Function 20.9

This function is only available under BS2000/OSD.

When you invoke this function, you can specify the name of a message header, or enter an asterisk (*) to select the message header from a list.

All allocations in which this message header is referenced are then shown. The output is similar to that shown for a **printer**.

RSO Devices - Function 20.A

This function is only available under BS2000/OSD.

When you invoke this function, you can specify the name of an RSO device, or enter an asterisk (*) to select the device from a list.

All logical printers and the corresponding form and user profiles in which this device is referenced are then shown. The output is similar to that shown for a **printer**.

RSO Profiles - Function 20.B

This function is only available under BS2000/OSD.

When you invoke this function, you can specify the name of an RSO profile, or enter an asterisk (*) to select the profile from a list.

All user profiles in which this profile is referenced are then shown. The output is similar to that shown for a **printer**.

8 NAF - Statistics - Function 21

- Snapshot - Function 21.1 54
- Form, Printer and User Statistics 56

When you invoke this function, the **Statistics** window appears.

```
Time 15:21:22        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                            M e n u                    File 7/411
+------------Statistics 7/411------------+
!                                        !      Information
!   1     Snapshot                       !
!   2     Form Statistics                !      20 Cross-Reference
!   3     Printer Statistics             !      21 Statistics
!   4     User Statistics                !      22 Look at Spool File
!                                        !      23 CALLNAT Handling
!                                        !
!                                        !
!                                        !
!                                        !      Control Functions
!                                        !
!                                        !      40 Check Spool File
!                                        !      41 Logging Data
!   .     Exit                           !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!   Command / _  /                       !
+----------------------------------------+
Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Entr  Help  Menu  Exit  Snaps Form  Print User                          Canc  ↩
```

The functions provided in the Statistics window are described in the following sections.

Snapshot - Function 21.1

When you invoke this function, the Snapshot window appears.

A snapshot of the spool file provides information on formatting, the number of existing profiles, and the amount of unused resources. In addition, it indicates whether the chosen format is appropriate for the reports to be created. Important for this are the values provided in the fields `Reports greater than one group` and `Unused Records/group (average)`.

```
Time 15:21:22        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                          M e n u                      File 7/411
+---------------------- Snapshot  Spool File : 7/411 -----------------------+
!                         Usage of Report Data Area                         !
! Records/group            3         Reports in total                    7 !
! Groups formatted      1000         Reports greater than one group      1 !
! Groups used              8          14.2 % greater than one group        !
! Groups free             992         Unused Records/group (average)      2 !
!                                                                           !
!                         Records used for Object Area                      !
! User profile         20  Logical printer         60 Model               2 !
! Allocation           29  Physical printer        33 Format info         1 !
! Header page           1  Application              9 Acc. Author.        0 !
! Statistics            1  Cluster                  3                       !
! Logging               3  NTCC table              12                       !
! Calendar/Year         0  Message header           2                       !
!                                                                           !
!                         Records used for Internal Area                    !
! Report Area      3002       Checkpoint Area   176          Total   3178   !
+---------------------------------------------------------------------------+
Press Enter.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Entr  Help  Menu  Exit                                                 Canc
```

In the above example window, the following information is provided:

- The spool file is formatted with 1000 groups of 3 records each. 8 of these groups are in use, 992 of them are free.
- The spool file contains 7 reports. 6 of these reports cover one group. 1 report uses more than one group. That means that 14.2% of the reports cover more than one group.
- 20 records are used for user profiles, 60 records for logical printers, 29 records for allocations, 33 records for physical printers, and so on.

Take care that the number of reports that are greater than one group is kept to a small percentage. Otherwise, the spool file should be reformatted with a higher number of records per group (see ***Function 30.3***).

The information `Unused Records/group (average): 2` tells you that on average, two records per group are not in use. Thus, in the above example, formatting with two records per group would be sufficient.

Form, Printer and User Statistics

When you invoke the function **Form Statistics** (Function 21.2), **Printer Statistics** (Function 21.3) or **User Statistics** (Function 21.4), a selection window similar to the one below appears.

```
Time 09:40:43        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                              M e n u                  File 7/411
+-------- Form Statistics 7/411 ---------+
!                                        !      Information
!   1     Display                        !
!   2     Print                          !      20 Cross-Reference
!   3     Reset                          !      21 Statistics
!   4     Hit List                       !      22 Look at Spool File
!   5     Define                         !      23 CALLNAT Handling
!                                        !
!                                        !
!                                        !
!                                        !      Control Functions
!                                        !
!                                        !      40 Check Spool File
!                                        !      41 Logging Data
!   .     Exit                           !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!   Command / _  /                       !
+----------------------------------------+
Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Entr  Help  Menu  Exit  Displ Print Reset Hitli       Defin             Canc ↩
```

From this window, you can perform any of the following functions:

- **Display**
- **Print**
- **Reset**
- **Hit List**
- **Define** (not applicable to **Users Statistics**)

Display

When you select Function 1, the data collected for the selected statistics type are displayed on the screen, similar as shown for **Form Statistics** below.

```
Time 09:43:32        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                      Form Statistics                  File 7/411

 Cm Dest./Fo. No.Lines  No.Pages  No.Repor. First/Last date using CPU Time
 -- --------- --------- --------- --------- -----------------------------------
 SE _________
 __ DDR1171 A       532       112         4 97-08-19 09:12:15 97-08-19 17:23:16
 __ DDR1490 A       856       214         3 97-07-11 08:23:01 97-08-22 19:11:18
 __ STD     2      2689       354         1 97-08-20 10:23:53 97-08-21 20:12:44
 __ STD     R      1629        28         1 97-08-18 13:34:43 97-08-21 10:09:39









Enter command or press PF key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Entr  Help  Menu  Exit  Snaps Displ Print Defin +     Reset Hitli TOP   Canc
```

For each active object, the number of lines, pages and reports is shown. In addition, the date and time for the first and last value that was processed are provided.

If the statistics are activated for an object, the object name is highlighted. Normal display of the object name indicates that the statistics are currently deactivated.

If a counter is highlighted, the maximum value to be stored was exceeded and all following data can no longer be accumulated.

To maintain the data shown, you can enter one of the following function codes for an object:

Function Code	Description
AC	Activate the statistics function for the object.
DA	Deactivate the statistics function for the object. The data stored for this object will still be available.
DE	Delete statistics data. The statistics status for this object is set to deactivated.
RE	Delete statistics data. The statistics status for this object (active/deactivated) is not modified.

Function Code	Description
MT	Modify the **Time Window** which schedules data collection for this object (date and/or time for start and/or end of data collection).

Print

When you select Function 2, a window similar to the one below appears.

```
Time 09:45:58        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                              M e n u                  File 7/411
+---------------------------------------+
!                                       !      Information
!   Enter a logical printer, which      !
!   is to be used for the spool-out     !      20 Cross-Reference
!   of the statistics ..... ________    !      21 Statistics
!   and number of positions for         !      22 Look at Spool File
!   the left margin  ...... 0__         !      23 CALLNAT Handling
!                                       !
!   Mark function to be executed after  !
!   spool-out                           !
!                                       !      Control Functions
!    Reset  statistics .... _           !
!    Delete statistics .... _           !      40 Check Spool File
!                                       !      41 Logging Data
!   If no function is marked, the       !      42 Create Test Reports
!   statistics are not modified.        !      43 Delete Reports by Date
!                                       !
+---------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Entr  Help  Menu  Exit  Displ Print Reset Hitli       Defin             Canc ↩
```

In the window, specify the following:

- The logical printer which is used for the spool-out. You can also enter an asterisk (*) to select the logical printer from a list.
- A column number for the left margin.
- If you want to reset or delete the statistics data after generating the spool-out, mark the corresponding function.

Reset

When you invoke Function 3, a window appears similar to the example below, where you can specify whether to reset the statistical data of all objects for the statistics function specified.

```
Time 14:50:11        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                            M e n u                    File 7/411
+------- Printer Statistics 7/411 -------+
!                                         !      Information
!   1     Display                         !
!   2     Print                           !      20 Cross-Reference
!   3     Reset                           !      21 Statistics
!   4     Hit List                        !      22 Look at Spool File
!   5     Define                          !      23 CALLNAT Handling
!                                         !
!                                         !
+-----------------------------------+     !
!  With this function all records  !     !      Control Functions
!  for  Printer Statistics   are   !     !
!  reset.                          !     !      40 Check Spool File
!                                  !     !      41 Logging Data
!  Execute Reset function Y / N  _ !     !      42 Create Test Reports
+-----------------------------------+     !      43 Delete Reports by Date
!   Command / 3  /                        !
+---------------------------------------+

Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Entr  Help  Menu  Exit  Displ Print Reset Hitli       Defin             Canc    ↩
```

Enter `Y` to confirm the action and reset the statistics data, or enter `N` to cancel the action.

Hit List

When you invoke Function 4, a window appears similar to the example of **Hit List Form Statistics** below.

```
Time 14:56:47        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                            M e n u                    File 7/411

+---- Hit List Form Statistics 7/411 ----+
!                                        !      Information
!   Select sort function                 !
!                                        !      20 Cross-Reference
!                                        !      21 Statistics
!   Number of lines .......... x         !      22 Look at Spool File
!                                        !      23 CALLNAT Handling
!                                        !
!   Number of pages .......... _         !
!                                        !
!                                        !      Control Functions
!   Number of reports ........ _         !
!                                        !      40 Check Spool File
!                                        !      41 Logging Data
!                                        !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!                                        !
+----------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Entr  Help  Menu  Exit                                                  Canc
```

In the **Hit List Statistics** window, mark one of the sort criteria listed:

- The number of lines.
- The number of pages.
- The number of reports.

When you press Enter, a screen appears similar to the example of **Hit List Form Statistics** below. This screen shows the most active objects for the statistics type selected. The sort criterion specified is highlighted. The maximum number of entries on this screen is 12.

```
Time 14:58:31        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                  Hit List Form Statistics             File 7/411


  Dest./Fo.
No.Lines

     %        No.Pages     %         No.Repor.    %
  ---------   ---------   -----     ---------   -----      ---------   -----
  DDR1171 A         532     9.3           112    15.8              4    44.5
  DDR1490 A         856    15.0           214    30.2              3    33.3
  STD     2        2689    47.2           354    50.0              1    11.1
  STD     R        1629    28.5            28     4.0              1    11.1









  ------------------------------------------------------------------------------
                   5706                   708                     9

Press 'Enter' to continue
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Entr  Help  Menu  Exit                                                  Canc
```

Define

Not applicable to **Users Statistics**.

When you invoke Function 5, a window appears similar to the example of **Define Printer Statistics** below.

```
Time 15:24:46        *** Natural Spool Administration ***      Date 2002-11-25
 User SAG                              M e n u                   File 19999/1241
 + Define  Printer Statistics 19999/1241 -+
 !                                        !      Information
 !  Enter name of                         !
 !                                        !      20 Cross-Reference
 !       Printer                          !      21 Statistics
 !                                        !      22 Look at Spool File
 !  or                                    !      23 CALLNAT Handling
 !                                        !
 !      *    for Selection                !
 !                                        !
 !      ?    for Help                     !      Control Functions
 !                                        !
 !      .    for End                      !      40 Check Spool File
 !                                        !      41 Logging Data
 !      -------------------------         !      42 Create Test Reports
 !      / ________ /                      !      43 Delete Reports by Date
 !                                        !
 +----------------------------------------+
 Enter values.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr  Help  Menu  Exit                                                 Canc  ↩
```

In the **Define Statistics** window, depending on the type of statistics (Form or Printer Statistics), enter the name of the allocation table or printer. You can also enter an asterisk (*) to select the object from a list.

When you press Enter, the statistics flag for the selected object is set to active.

Additionally, a window appears similar to the example below, where you can specify whether to invoke the **Time Window** for the allocation table (`Dest./Fo.` = Destination/Form) or printer (`Phy. Prtr.` = Physical Printer) specified. In the **Time Window**, you can define a data and time range for the data colletion.

```
Time 09:51:25        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                            M e n u                    File 7/411
+--------------Selection---------------+ +
!     Start value ..... _________ ! !      Information
!     ------------------------------- ! !
!      _  DAEPRT10        _  DRHHI     ! !      20 Cross-Reference
!      _  DR1171          x  D9001     ! !      21 Statistics
!      _  EXIT3           _  IMSPRI    ! !      22 Look at Spool File
!      _  RSOEXAM         _  SYSTEM    ! !      23 CALLNAT Handling
!      _  TESTWIN                      ! !
!                                      ! !
!                                      +-----------------------------------+
!                                      !  Do you wish to define or modify  !
!                                      !  time windows for statistics      !
!                                      !  concerning  Phy.Prtr. D9001      !
!                                      !                                   !
!                                      !      (Y/N)   Y                    !
!  ---------------------------------- +-----------------------------------+
!  Mark   X (Select)      . (End)      ! !
+-------------------------------------+ +

Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
           Menu  Exit                                                 Canc ↩
```

Enter `N` if you do not want to define a date/time range.

When you enter `Y` (this is the default), the **Time Window** appears as shown in the example of **Printer Statistics** below.

```
Time 09:51:25        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                           M e n u                     File 7/411
+--------------Selection------------ +--------------Time Window---------------+
!     Start value ..... _______ !                                             !
!     ------------------------------ !  Phy.Prtr.    D9001                    !
!      _  DAEPRT10        _  DRHHI   !                                          !
!      _  DR1171          x  D9001   !  Date/time for start of statistics      !
!      _  EXIT3           _  IMSPRI  !                                          !
!      _  RSOEXAM         _  SYSTEM  !   YYYY-MM-DD  HH:II:SS  Null value     !
!      _  TESTWIN                    !   __________  00:00:00  Y (Y/N)        !
!                                    !                                         !
!                                    !  Date/time for end of statistics       !
!                                    !                                         !
!                                    !   YYYY-MM-DD  HH:II:SS  Null value     !
!                                    !   __________  00:00:00  Y (Y/N)        !
!                                    !   ---------------------------------    !
!                                    !   Note:                                 !
!  ------------------------------- !   using time format CPU Time            !
!  Mark   X (Select)      . (End)    !                                         !
+----------------------------------- +-----------------------------------------+
Modify values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Menu  Exit                                                 Canc
```

In the **Time Window**, in the corresponding fields, enter a valid start and end end value. A date must be specified in the format *YYYY-MM-DD* (*YYYY*= year, *MM*= month, *DD*= day). The time must be specified in the format *HH:II:SS* (*HH*= hours, *II*= minutes, *SS*= seconds).

If you do not want a start or end date/time to be evaluated, in the field `Null value`, enter a `Y` (this is the default).

If you press Enter, a window appears with the date/time specified in Natural or CPU format (see also **Function 30.5** - Set Spool Option).

Enter `Y` to confirm the date/time settings, or enter `N` to cancel the action.

9 NAF - Look at Spool File - Function 22

- By Job Number - Function 22.1 66
- By Destination/Form - Function 22.2 69
- Records with Status In Use - Function 22.3 69
- All Records - Output to Screen - Function 22.4 69
- Records of a Report - Function 22.5 69
- All Records - Output to Printer 1 - Function 22.6 71

With this function, all reports on the spool file can be displayed in hexadecimal format, including pointer information.

When you invoke this function, the **Display Spool File** window appears.

```
Time 15:03:39        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                              M e n u                  File 7/411
+------ Display  Spool File 7/411 -------+
!                                        !      Information
!   1     by Job Number                  !
!   2     by Destination/Form            !      20 Cross-Reference
!   3     Records with status In Use     !      21 Statistics
!   4     All records                    !      22 Look at Spool File
!   5     Records of a Report            !      23 CALLNAT Handling
!   6     by Job Number                  !
!         (output to printer 1)          !
!                                        !
!                                        !      Control Functions
!                                        !
!                                        !      40 Check Spool File
!                                        !      41 Logging Data
!   .     Exit                           !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!   Command / _  /                       !
+----------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  JobNo De/Fo Used  All   Point                  Canc
```

By Job Number - Function 22.1

When you invoke this function, you can specify a job number or press Enter to select a job number from a list.

The specified job is then shown, for example:

```
+-- Look for Record 00000001 Occ. 1 Status  Record In Use File 7/411       ---+
I St.  Job.No.    Rec.Gr.  Pre. Gr.   Next Gr.  La.R.Gr.  Pag.i.Gr.  Pag.i.Re.I
I 10   000000001  1        00000000 / 00000000  00000001  00000001 / 00000001 I
+-------------------------------------------------------------------------------+
  ◆ ◆?TEST LINE PRINTER 80 CHARACTERS LONG                        Line 0001  1
 05050ECEE4DCDC4DDCDECD4FF4CCCDCCECDE4DDDC4444444444444444444444444D8984FFFF44F
 0503C352303955079953590800381913359203657000000000000000000000000395500001001
 ----+----I----+----I----+----I----+----I----+----I----+----I----+----I----+---
 0:10:38
 F7FF7FF000000000000000000000000000000000000000000000000000000000000000000000
 0A10A380000000000000000000000000000000000000000000000000000000000000000000000
 -I---- <===EOR -+----I----+----I----+----I----+----I----+----I----+----I----+-

 000000000000000000000000000000000000000000000000000000000000000000000000000000
 000000000000000000000000000000000000000000000000000000000000000000000000000000
 ---I----+----I----+----I----+----I----+----I----+----I----+----I----+----I----
                      +-----------------------------------------------------+
 0000000000000000     I Function :   Display by Job Number                   I
 0000000000000000     +-----------------------------------------------------+
 +----I----+----I             2002-09-27 10:10:41:2       2002-09-27 10:10:38:2
Occurrence 1 of record. Press Enter to continue.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                          Occ +       Occ -       Canc
```

For each record of the spool file, the 2 KB data block is shown by 8 occurrences with 250 bytes. The data are displayed in alphanumeric and vertical hexadecimal format.

Example:

In vertical hexadecimal format, the string `TEST` in the above screen is displayed as follows:

```
ECEE
3523
```

This corresponds to the following horizontal hexadecimal notation:

```
E3C2E2E3
```

Values not displayable in alphanumeric format are shown as question marks (?).

Depending on the selected function, the end of a 2 KB block is marked with `EOB` or the end of a report is marked with `EOR`.

At the top of the screen, general information is provided:

Field	Description
Record	Internal record number.
Occ.	Current occurrence of a 2 KB block.
Status	Current status of record.
St.	Internal value for status.
Job No.	Current job number of an active report.
Pre. Gr.	Previous group number.
Next Gr.	Next group number.
La.R.Gr.	Last record in current group.
Pag.i.Gr.	Current page number in group.
Pag.i.Re.	Current page number in record.

When you press Enter, the next occurrence of the pointer is shown.

Protected Reports

If a report is protected, only the pointer information is shown. The report itself is invisible, as in the following example:

```
+--------- Look for Record 00000001 Occ. 1 with Status  Protected    ---------+
I St.  Job.No.             Pre. Gr.   Next Gr.  La.R.Gr.  Pag.i.Gr. Pag.i.Re. I
I 00   000000001           00000000 / 00000000  00000001  00000001 / 00000001 I
+-------------------------------------------------------------------------------+

 4444444444444444444444444444444444444444444444444444444444444444444444444444
 0000000000000000000000000000000000000000000000000000000000000000000000000000
 ----+----I----+----I----+----I----+----I----+----I----+----I----+----I----+---

 4444444444444444444444444444444444444444444444444444444444444444444444444444
 0000000000000000000000000000000000000000000000000000000000000000000000000000
 -I----+----I----+----I----+----I----+----I----+----I----+----I----+----I----+-

 4444444444444444444444444444444444444444444444444444444444444444444444444444
 0000000000000000000000000000000000000000000000000000000000000000000000000000
 ---I----+----I----+----I----+----I----+----I----+----I----+----I----+----I----
                     +-----------------------------------------------------+
  4444444444444444   I Function :   Display by Job Number                   I
  0000000000000000   +-----------------------------------------------------+
  +----I----+----I             2002-09-27 10:10:41:2       2002-09-27 10:10:38:2
Occurence 1 of pointer. Press Enter to continue.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                          Occ +       Occ -       Canc
```

By Destination/Form - Function 22.2

When you invoke this function, you can specify a Destination/Form, or press Enter to select a Destination/Form from a list.

The specified Destination/Form is then shown. See *Function 22.1* for information on the contents of the resulting screen.

Records with Status In Use - Function 22.3

When you invoke this function, all records that are currently used are shown. See *Function 22.1* for information on the contents of the resulting screen.

All Records - Output to Screen - Function 22.4

When you invoke this function, you can specify a start value, or press Enter to start with the first record.

The spool file records are then shown. See *Function 22.1* for information on the contents of the resulting screen.

Records of a Report - Function 22.5

When you invoke this function, you can specify a job number, or press Enter to select a job number from a list.

The report pointers for the specified job are then shown.

```
Time 15:10:01        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                   Show Records of a Report            File 7/411

 Job No.  F Pointer  Prev. Gr Next Gr. La. R/Gr Prev.Re. Next Re. Pag/Gr Pag/Re
 -------  - -------- -------- -------- -------- -------- -------- ------ ------
 88       S 00000058 00000000 0000005B 0000005A 00000000 00000059      2      1
            00000059 00000000 0000005B 0000005A 00000058 0000005A      2      1
            0000005A 00000000 0000005B 0000005A 00000059 00000000      2      2
          * 0000005B 00000058 0000005E 0000005D 00000000 0000005C      3      2
            0000005C 00000058 0000005E 0000005D 0000005B 0000005D      3      2
            0000005D 00000058 0000005E 0000005D 0000005C 00000000      3      3
          * 0000005E 0000005B 00000000 00000060 00000000 0000005F      4      3
            0000005F 0000005B 00000000 00000060 0000005E 00000060      4      4
          E 00000060 0000005B 00000000 00000060 0000005F 00000000      4      4
            00000000 00000000 00000000 00000000 00000000 00000000
            00000000 00000000 00000000 00000000 00000000 00000000
            00000000 00000000 00000000 00000000 00000000 00000000
             3 used Groups            9 used Records          0 unused Records
        18.000 allocated         18.000 used                  0 unused Bytes

End of Report. Enter function, mark with cursor or press PF key
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                          +    Bot    -    Top   Canc
```

For each pointer, information concering next group, next record, previous group, previous record and the last record in a group is shown.

The flag in front of a line indicates the following:

Flag	Description
S	Start of report.
*	Start of group.
E	End of report.

At the end of the report, information on the used space is given.

To display information on a specific pointer of the report, mark the corresponding value and press Enter. See ***Function 22.1*** for information on the contents of the resulting screen.

All Records - Output to Printer 1 - Function 22.6

When you invoke this function, you can specify a job number, or press Enter to select a job number from a list.

The job specified is printed to the assigned Printer 1 by using the format described for **Function 22.1**.

10 NAF - CALLNAT Handling - Function 23

With Natural Advanced Facilities, a large number of Natural subprograms is provided. They can be invoked by using a `CALLNAT` statement in a Natural program.

When you invoke this function, the **CALLNATs** screen appears with a list of all example programs available that invoke subprograms.

```
Time 15:16:14        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                          CALLNATs                     File 7/411

Cmd  Example   Subprogram Comment                                          Prod
---  --------  ---------- ------------------------------------------------ ---
 _   USP0001P  USP0001N   Get currently active Logical Printers             NAF
 _   USP0002P  USP0002N   Get current status of a physical printer          NAF
 _   USP0003P  USP0003N   Get names of objects from spool file              NAF
 _   USP0004P  USP0004N   Get report data from spool file                   NAF
 _   USP0005P  USP0005N   Get currently active job numbers                  NAF
 _   USP0006P  USP0006N   Get currently active printers                     NAF
 _   USP0007P  USP0007N   Get currently assigned allocations                NAF
 _   USP0008P  USP0008N   Allocate physical printer for hardcopy           NAF
 _   USP0009P  USP0009N   Delete reports on spool file                      NAF
 _   USP0010P  USP0010N   Check a logical printer                           NAF
 _   USP0011P  USP0011N   Set a physical printer to status FREE            NAF
 _   USP0012P  USP0012N   Modify report attributes                          NAF

Keyword .... _________________

Mark line or use PF key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                    --    +                      CANC
```

In the `Cmd` column, you can enter one of the following function codes:

Function Code	Description
E	Edit example source.
L	List example source.
R	Run example source.
X	Execute example source.
D	List documentation.
K	List keywords attached to the object.

Example of Function Code D:

```
16:10:25  Text        USP0001T  Library SYSPOOL          User SAG    2002-10-23
Get currently active Logical Printers             NAF
.
Name of User API ........  USP0001N    /*  Cataloged interface
Name of Source ..........  USP0000P    /*  Example for the programmer
.
Function ................  Logical printers active for the current ses-
                           sion are returned to the calling program


.
Keywords ................  LPF, ACTIVE, NAF
.
Parameter layout:
-----------------
  01 PARM-1  (A250)        /* First parameter
  01 REDEFINE PARM-1
    02 PARM-11 (N2)          /* Number of entries
    02 PARM-12 (A8/1:31)     /* Logical Printers
  01 PARM-2  (B2)          /* Return code
.

Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Print Exit  Prev  Next  --    -     +     ++    <     >     Canc
```

When the documentation exceeds one screen page, press Enter to display the next screen page.

IV NAF - Maintenance - Overview

This section describes the Maintenance functions of the NATSPOOL menu:

Spool File Properties - Function 30
Objects - Function 31

Further Maintenance functions of the NATSPOOL menu are described in the following sections.

- **Mass Update - Function 32**
- **Hardcopy Allocations - Function 33**
- **Transfer Objects - Function 34**

11 NAF - Spool File Properties - Function 30

- Format - Function 30.1 78
- Reset - Function 30.2 83
- Increase - Function 30.3 83
- Recover Password - Function 30.4 84
- Set Spool Option - Function 30.5 84
- Modify Password - Function 30.6 96
- Access Authorization - Function 30.7 97
- Display Last Modification - Function 30.8 99

When you invoke this function, the **Spool File Properties** window appears.

```
Time 09:46:48        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                             M e n u                   File 7/411
                                    +------Spool File Properties 7/411-------+
       Administration               !                                        !
                                    !   1     Format                         !
       10 Reports/Queues            !   2     Reset                          !
       11 Devices                   !   3     Increase                       !
       12 Abstracts                 !   4     Recover Password               !
       13 Applications              !   5     Set Spool Options              !
       14 Change Spool File         !   6     Modify Password                !
                                    !   7     Access Authorization           !
                                    !   8     Display Last Modifications     !
       Maintenance                  !                                        !
                                    !                                        !
       30 Spool File Properties     !                                        !
       31 Objects                   !                                        !
       32 Mass Update               !   .     Exit                           !
       33 Hardcopy Allocations      !                                        !
       34 Transfer Objects          !   Command / _  /                       !
                                    +-----------------------------------------+
 Enter command, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr  Help  Menu  Exit  Forma Reset Increase Recov Set S Modif Acces Displ Canc
```

Format - Function 30.1

When you invoke this function, the **Format Spool File** window appears.

```
Time 10:34:10        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                             M e n u                   File 7/411
                                      +------- Format  Spool File 7/411 -------+
      Administration                  !                                        !
                                      !       Layout of Report Area            !
      10 Reports/Queues               !                                        !
      11 Devices                      !                                        !
      12 Abstracts                    !  Number of groups .......   500___     !
      13 Applications                 !                                        !
      14 Change Spool File            !  Number of records/group .. 3_____     !
                                      !                                        !
                                      !                                        !
      Maintenance                     !       Password                         !
                                      !                                        !
      30 Spool File Properties        !                                        !
      31 Objects                      !  Password .................            !
      32 Mass Update                  !                                        !
      33 Hardcopy Allocations         !  New password .............            !
      34 Transfer Objects             !                                        !
                                      +----------------------------------------+
Modify values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Entr  Help  Menu  Exit  Forma Reset Incre Recov Set S Modif Acces Displ Canc
```

In this window, enter the following information:

- The number of groups to be created.
- The number of records for each group.
- An initial password, `SYSPOOL`.
- A new password. This new password is required the first time the spool file is formatted; either to change the initial password, or to confirm it. Thereafter, it is only necessary if the password is to be changed.

Note: When formatting the spool file, all existing reports will be deleted. All existing allocations, profile and printer definitions will be kept.

After the spool file has been (re-)formatted, restarting the Natural session is not required .

The following sections provide a general idea as to what values should be taken into account when formatting the spool file. They are not rules which must be followed.

Estimation of Number of Groups

The number of groups and records per group in the spool file affects the number of reports that can be held on the spool file at a time. When allocating space for a report, NATSPOOL acquires a group of records from the spool file even if the output would fit into a single record. Each record of the spool file which is to contain lines of output is 2 KB long.

Therefore, if the average output is small (not greater than 2 KB), it is recommended that only one record per group be defined and as many groups as reports are expected on the spool file at one time.

To calculate the output size, it should be taken into account that each line is compressed by NATSPOOL in such a way that trailing blanks are skipped before the lines are stored on the spool file. Lines which may be considered as blank (that is, which do not contain text) contain a printer control character. The trailing blanks will be skipped, but the printer control character will be stored.

If a report has been printed and deleted (DISP=D in the logical printer), its space is re-used by NATSPOOL. This means that it would be sufficient to define only one group with only one record if small reports (not greater than 2 KB) are created one after the other. However, if such a report is created before the previous one is printed (deleted), a NATSPOOL FILE FULL condition occurs.

In general, the number of groups required depends on the size of each report, the number of records per group, and the number of reports to be held on the spool file at a time.

The number of records per group is:

```
records per group = average number of characters per report in KB / 2 KB
```

The number of groups required by a single report is:

```
number of groups = size of report in KB / number of records per group
```

The total number of groups required to ensure space for reports which are to be held at one time is approximately:

```
total number of groups = number of reports × average size of reports in KB / number of records per group
```

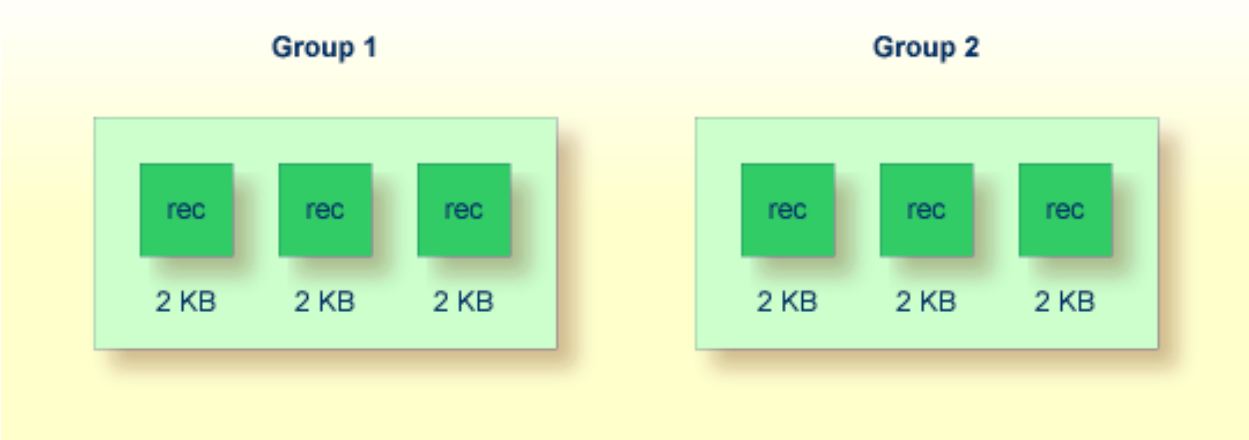
Storage Requirements

When NATSPOOL allocates space for a report, it acquires not one record, but a group of records. After the first group is filled, NATSPOOL acquires another group, and so on. The number of groups and records per group in the spool file affects the amount of storage allocated on the spool file.

storage = (number of groups) × (number of records per group) × 2 KB

Example:

There are two groups, each containing three records.



Since each record which is to contain lines of output is 2 KB long, the amount of storage required for output is calculated as follows:

storage = (2 groups) × (3 records per group) × 2 KB

The required amount of storage in this example is 12 KB.

Formatting in Batch Mode

If the spool file is to be formatted in batch mode, the program SPPBATFO can be used. This program requires the following input:

- the number of groups (N6),
- the number of records per group (N6),
- the password (A8).

Example - Execution of SPPBATFO under z/OS:

```
//SPPBATFO  JOB  CLASS=G,MSGCLASS=X
//FORMAT    EXEC PGM=NATBATCH,PARM='IM=D,FSPOOL=(XXX,XXX)'
//STEPLIB   DD   DSN=NATURAL.V41.LOAD,DISP=SHR
//          DD   DSN=ADABAS.V61.LOAD,DISP=SHR
//DDCARD    DD   NATURAL.V41.SOURCE(ADAPARM),DISP=SHR
//CMPRINT   DD   SYSOUT=X
//CMSYNIN   DD   *
LOGON SYSPOOL
SPPBATFO
100,5,xxxxxxxx
FIN
```

Example - Execution of SPPBATFO under z/VSE:

```
//JOB SPPBATFO
//OPTION LOG
//ASSGN SYSLST,00E
//EXEC PROC=ADAV61LB
//EXEC PROC=ALL41LB
//ASSGN SYS000,READER
//EXEC NATBATCH,SIZE=NATBATCH,PARM='SYSRDR'
FSPOOL=(xxx,xxx),IM=D
/*
ADARUN DA=xxx,SVC=xxx,TNAE=999999,TT=99999
/*
LOGON SYSPOOL
SPPBATFO
100,5,xxxxxxxx
FIN
/*
/&
```

Example - Execution of SPPBATFO under BS2000/OSD:

```
/.FORMAT LOGON
/REMARK ***********************************
/REMARK *** Format Spool File with      ***
/REMARK *** 100 Groups, 5 Records       ***
/REMARK ***********************************
/SYSFILE SYSLST=LI.LST.FORMAT
/SYSFILE SYSOUT=LI.OUT.FORMAT
/SYSFILE SYSDTA=(SYSCMD)
/EXEC NAT41B
AUTO=ON,ETID=' ',IM=D
/EOF
LOGON SYSPOOL
```

```
SPPBATFO
100,5,xxxxxxxx
FIN
/SYSFILE SYSLST=(PRIMARY)
/SYSFILE SYSOUT=(PRIMARY)
/LOGOFF NOSPOOL
```

Note: *xxxxxxxx*= current password

Reset - Function 30.2

With the Reset function, the spool file is reset to its original status. All definitions concerning profiles, printers, etc. are deleted, and the spool file is newly formatted.

When you invoke this function, the **Reset Spool File** window appears.

This window is similar to the **Format Spool File** window, and the same information has to be entered (see *Format - Function 30.1*).

Note: Before this function is executed, you are prompted for confirmation (`Y/N`).

Increase - Function 30.3

During operation, the spool file may be increased by a certain number of new groups. Existing reports are not deleted by this function. The record-to-group assignment remains the same. The execution of this function might be useful after error message `NAT1556` (spool file is full).

When you invoke this function, the **Increase Spool File** window appears.

```
Time 09:52:49        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                            M e n u                    File 7/411
                                  +------ Increase  Spool File 7/411 ------+
       Administration             !                                        !
                                  !  Current layout of report data area    !
       10 Reports/Queues          !                                        !
       11 Devices                 !  Number of groups ........  500        !
       12 Abstracts               !                                        !
       13 Applications            !  Number of records/group .. 3          !
       14 Change Spool File       ! -------------------------------------- !
                                  !                                        !
                                  !  New layout of report data area        !
       Maintenance                !                                        !
                                  !  New number of groups ....  ______     !
       30 Spool File Properties   !                                        !
       31 Objects                 !  Number of records/Group .. 3          !
       32 Mass Update             ! ---------------------------------------  !
       33 Hardcopy Allocations    !                                        !
       34 Transfer Objects        !  Password .................            !
                                  +-----------------------------------------+
 Modify values.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr  Help  Menu  Exit  Forma Reset Incre Recov Set S Modif Acces Displ Canc
```

Recover Password - Function 30.4

If you have forgotten your password, you can invoke this function to reset the password to the original default password `SYSPOOL`.

The password is immediately reset as soon as you invoke this function.

Note: This function can only be executed by the user who last changed the password.

Set Spool Option - Function 30.5

When you invoke this function, the **Spool Options** window appears.

```
Time 09:53:52        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                              M e n u                  File 7/411
                                    +--------- Spool Options 7/411 ----------+
       Administration               !                                        !
                                    !   1     Spool File Options             !
       10 Reports/Queues            !   2     Defaults and Models            !
       11 Devices                   !   3     General Spool Server Options   !
       12 Abstracts                 !   4     BS2000 Options                 !
       13 Applications              !   5     CICS Options                   !
       14 Change Spool File         !   6     IMS TM Options                 !
                                    !                                        !
                                    !                                        !
       Maintenance                  !                                        !
                                    !                                        !
       30 Spool File Properties     !                                        !
       31 Objects                   !                                        !
       32 Mass Update               !   .     Exit                           !
       33 Hardcopy Allocations      !                                        !
       34 Transfer Objects          !   Command / _  /                       !
                                    +----------------------------------------+
 Enter command, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr  Help  Menu  Exit  Spool Defau Gener BS200 CICS  IMS/D             Canc   ↩
```

Note: Display of the BS2000/OSD, CICS and IMS TM options in this window (Options 4 to 6) depends on your specification in the **Spool File Options** window.

- Spool File Options - Option 1
- Defaults and Models - Option 2
- General Spool Server Options - Option 3
- BS2000/OSD Options
- CICS Options
- IMS TM Options

Spool File Options - Option 1

When you select this option, the **Spool File Options** window appears.

```
Time 09:53:52        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                             M e n u                   File 7/411
                                   +------- Spool File Options 7/411 -------+
       Administration              !  Operators ..................... N   !
                                   !  ----------------------------------   !
       10 Reports/Queues           !  Type of hardcopy allocation (U/T) T   !
       11 Devices                  !  using mask                  ________  !
       12 Abstracts                !  for positions              12345678   !
       13 Applications             !  ------------------------------------  !
       14 Change Spool File        !  User statistics      (Y/N)       N   !
                                   !  Clusters             (Y/N)       N   !
                                   !  Logging for objects  (Y/N)       N   !
       Maintenance                 !  Logging for reports  (Y/N)       N   !
                                   !  Sequence of report queues        0   !
       30 Spool File Properties    !  Date/time format     (C/N)       C   !
       31 Objects                  !  Different Op./TP systems   (Y/N) N   !
       32 Mass Update              !  BS2000: Y CICS: N IMS TM: N (Y/N)    !
       33 Hardcopy Allocations     !  ----------------------------------   !
       34 Transfer Objects         !  Password                             !
                                   +-------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr  Help  Menu  Exit  Spool Defau Gener BS200 CICS  IMS/D            Canc ↩
```

In this window, you can define the following settings globally for the spool file (not per user):

- The type of hardcopy allocation: `T`=via terminal ID, `U`=via user ID.
- The mask for hardcopy allocation. This allows you to specify a hardcopy allocation for a group of terminals/users. To do so, you can mask any position of the name (terminal or user, depending on the type of hardcopy allocation) with any character other than a question mark (?). When the hardcopy allocation is performed, the positions in the name you have masked are not evaluated. For example, all users on the same floor are to use the same printer and the terminal ID is used. The system administrator defines terminal IDs in which the positions 5 and 6 indicate the floor. In this case, the type of hardcopy allocation is `T` and the mask is *####_ _##* (the positions 1-4 and 7-8 will be ignored). The allocation is done via a logical printer with the name `- - --01- -` for the first floor. The corresponding definitions can now be allocated to this printer.
- Whether user statistics are to be activated (`Y`/`N`). When activated, the number of reports, pages and lines is output for each user.
- Whether usage of clusters is to be activated (`Y`/`N`). See also ***Clusters - Function 31.7***.
- Whether logging for objects is to be activated (`Y`/`N`). When activated, the last 12 modifications are logged for each object. Using **Function 41**, you can check the log.
- Whether logging for reports is to be activated (`Y`/`N`). When activated, all report actions are logged. For reasons of performance, this function should only be activated if required.
- The sequence in which to list the reports (see also ***Reports/Queues - Function 10***):

J	Job numbers
D	Destination/Form, status, priority, creation date
U	Sending user ID, Destination/Form, status, priority, creation date
O	Best sequence to be decided by the selection criteria defined in the program.

To modify the default for the current session, use the line command SQ or Function 10.

- The time format in which to the display date and time fields or to be used for input. All date and/or time specifications (for example, time windows, creation date) are stored in the spool file in CPU (store clock value) format. The value specified controls the display of or the input in a date or time field:

C	Displays all date/time values in CPU format. Input values (for example, in time windows) are also considered store clock values.
N	Converts all store clock values into the Natural time format considering the settings of the Natural parameter DD, TD and/or YD. The conversion also includes input values. Example of TD=-2: Input 21.01.2002 18:00 will be converted into CPU format 21.01.2002 20:00 and stored as such. Creation date of report 04.05.2002 09:30 will be displayed as 04.05.2002 07:30.

- Whether the current spool file is to be used by different operating systems / TP monitors (Y/N).
- When different operating systems / TP monitors are to be used, you have to specify which ones are to be used: BS2000/OSD, CICS and/or IMS TM (Y/N).

You have to enter a password to execute this function.

Defaults and Models - Option 2

In certain environments (such as a test environment or Entire Output Management), it is not required to define different logical printers. In this case, you can define a logical printer as default printer. This default printer will always be used when no value or an invalid value is specified.

When you have many objects with the same values, it may be helpful to predefine these recurring values by using models.

When you select this option, the **Defaults and Models** window appears.

```
Time 12:21:16        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                             M e n u                   File 7/411
                                   +------ Defaults and Models 7/411 -------+
       Administration              !                                        !
                                   !  Define  logical printer               !
       10 Reports/Queues           !  to be used as default (Y/N) N         !
       11 Devices                  !  ------------------------------------  !
       12 Abstracts                !            Models                      !
       13 Applications             !                                        !
       14 Change Spool File        !  Mark object types                     !
                                   !                                        !
                                   !  _ User Profile                        !
       Maintenance                 !  _ Logical Printer                     !
                                   !  _ Allocation Table                    !
       30 Spool File Properties    !  _ Printer                             !
       31 Objects                  !  _ NTCC Table                          !
       32 Mass Update              !  _ Calendar                            !
       33 Hardcopy Allocations     ! ------------------------------------- !
       34 Transfer Objects         ! Password                               !
                                   +----------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr  Help  Menu  Exit  Spool Defau Gener BS200 CICS  IMS/D             Canc
```

In this window, you can specify the following:

- Whether a logical printer is to be used as default (`Y/N`),
- The object types for which you want to define models.

You have to enter a password to execute this function.

When you specify that a logical printer is to be used as default printer, the following window appears in which you can define/modify all information on the logical printer:

```
Time 12:21:16        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                             M e n u                   File 7/411
                                    +-------DEFAULT LOG.PRINTER 7/411--------+
       Administration               !                                        !
                                    !  Name ............... ________         !
       10 Reports/Queues            !  Type ..............  ________         !
       11 Devices                   !  Destination/Form ... ________ / _     !
       12 Abstracts                 !  Physical printer ..  ________         !
       13 Applications              !                                        !
       14 Change Spool File         !  Duplicates ......... 0__              !
                                    !  Disposition .......  _                !
                                    !  Priority ........... 0__              !
       Maintenance                  !                                        !
                                    !  Protection ........  N                !
       30 Spool File Properties     !                                        !
       31 Objects                   !  Retention period ... 0___             !
       32 Mass Update               !  for Dispositions  D N H N K N L N     !
       33 Hardcopy Allocations      !                                        !
       34 Transfer Objects          !  Calendar ..........  ________         !
                                    +-----------------------------------------+
 Name of logical printer missing, reenter.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr  Help  Menu  Exit  Spool Defau Gener BS200 CICS  IMS/D             Canc   ↩
```

When a default printer has already been defined, an additional `Delete` field appears in the window. If you specify `Y`, all values that have previously been defined are reset to zero or blank.

See ***Maintaining a Logical Printer*** for more information on the fields in this window.

When you define a model, for example, for user profiles, the following window appears. You can now define/modify all required information.

```
Time 12:21:16        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                            M e n u                    File 7/411
   +-------------------------Model for user profile--------------------------+ +
   !   Add                   Default                                         ! !
   !   ------------------------------------------------------------------    ! !
   !   Select existing logical printers from the spool file ............ _   ! !
   !   - ----------------------------------------------------------------    ! !
   !   No. LPF Name      No. LPF Name      No. LPF Name       No. LPF Name   ! !
   !   1   ________      2   ________      3   ________       4   ________   ! !
   !   5   ________      6   ________      7   ________       8   ________   ! !
   !   9   ________      10  ________      11  ________       12  ________   ! !
   !   13  ________      14  ________      15  ________       16  ________   ! !
   !   17  ________      18  ________      19  ________       20  ________   ! !
   !   21  ________      22  ________      23  ________       24  ________   ! !
   !   25  ________      26  ________      27  ________       28  ________   ! !
   !   29  ________      30  ________      31  ________       HC  ________   ! !
   !   ------------------------------------------------------------------    ! !
   !   Notes                                                                 ! !
   !   ____________________________________________________________________  ! !
   +-----------------------------------------------------------------------+ +
 Enter a name, or mark a logical printer.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc   ↩
```

When you define models for object types, see the descriptions of the functions listed below for information on the fields in the resulting window.

Object Type	See
User Profile	**Function 31.1**.
Logical Printer	**Function 31.2**.
Allocation Table	**Function 31.3**.
Printer	**Function 31.4**.
NTCC Table	**Function 31.8**.
Calendar	**Function 31.9**.

General Spool Server Options - Option 3

When you select this option, the **General Spool Server Options** window appears.

```
Time 12:25:33        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                           M e n u                     File 7/411
       +----------------- General Spool Server Options 7/411 -----------------+
       !  Reprint Options for reports                                         !
       !  with status LOST (Y/N)          N                                   !
       !  with status RECO (Y/N)          N                                   !
       ! ------------------------------------------------------------------- !
       !  Protocol Options                                                    !
       !  Messages to console             Y                                   !
       !  Messages to protocol file (Y/N) Y                                   !
       !  ------------------------------------------------------------------- !
       !  Delete Options for reports                                          !
       !  by retention period (Y/N) N    Time interval for check (Min.) 0___  !
       !  ------------------------------------------------------------------- !
       !  Start Option for reports                                            !
       !  with status WAIT (Y/N)    N    Time interval for check (Min.) 0___  !
       !  ------------------------------------------------------------------- !
       !                                                                      !
       !  Password                                                            !
       +----------------------------------------------------------------------+
 Modify values.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr  Help  Menu  Exit  Spool Defau Gener BS200 CICS  IMS/D            Canc   ↩
```

The options in this window apply for all platforms.

You can define the following:

- Whether there will be a reprint for reports with status `LOST` and/or `RECO` (`Y`/`N`).
- Whether messages will be written to the console and/or a protocol file (`Y`/`N`).
- Whether there will be a delete by retention period (`Y`/`N`).
- The time interval in minutes between two checks when a delete by retention period is to occur.
- Whether there will be an automatic start of the spool-out for reports with status `WAIT` (`Y`/`N`).
- The time interval in minutes between two checks when a start of the spool-out for reports with status `WAIT` is to occur.

You have to enter a password to execute this function.

BS2000/OSD Options

This option is only available if usage of BS2000/OSD has been specified in the **Spool File Options window**.

When you select this option, the **BS2000/OSD Options** window appears.

```
Time 12:29:35        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                           M e n u                     File 7/411
                                  +--------- BS2000 Options 7/411 ---------+
       Administration             !  Parameters for the Spool Server       !
                                  !  ------------------------------------- !
       10 Reports/Queues          !                                        !
       11 Devices                 !  Restart option (Y/N)        N         !
       12 Abstracts               !                                        !
       13 Applications            !  Max. No. of restarts        0__       !
       14 Change Spool File       !  Min. time interval (minutes) 10__     !
                                  !  ------------------------------------- !
                                  !                                        !
       Maintenance                !  Time function  (Y/N)        Y         !
                                  !                                        !
       30 Spool File Properties   !  Max. No. of starts          0__       !
       31 Objects                 !  Min. time interval (minutes) 10__     !
       32 Mass Update             !  ------------------------------------- !
       33 Hardcopy Allocations    !                                        !
       34 Transfer Objects        !  Password                              !
                                  +----------------------------------------+
 Modify values.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr  Help  Menu  Exit  Spool Defau Gener BS200 CICS  IMS/D            Canc   ↩
```

The specifications in this window are only validated by spool servers running under BS2000/OSD.

You can define the following for the `Restart option`:

- Whether printers with status `INOP` are to be restarted (`Y/N`).
- The maximum number of printers that are to be restarted at the same time. The value `0` indicates an unlimited number of print jobs. The value `999` means that all printers are set to status `FREE` and that print jobs are not generated.
- The minimum amount of minutes between two actions.

You can define the following for the Time function:

- Whether reports are to be started (`Y/N`) according to the time interval specified for the corresponding allocation (see ***Function 31.3***).
- The maximum number of starts that can be generated at the same time. The value `0` indicates an unlimited number of print jobs.

- The minimum amount of minutes between two actions.

You have to enter a password to execute this function.

CICS Options

This option is only available if usage of CICS has been specified in the **Spool File Options window**.

When you select this option, the CICS Options window appears.

```
Time 12:40:01        *** Natural Spool Administration ***      Date 2002-10-18
User SAG               NAF Parameter for CICS environment      File 7/411

 Values taken from NAF parameter module

 CICS Transaction ID NA41     CICS System ID --      Terminate task (Y/N) -

 INIT function (Y/N)  ......... Y      CICS System ID for INIT function. FCT4
 INIT messages to console (Y/N)  -      INIT messages to log file (Y/N) . N

 ------------------------------------------------------------------------------
 Values taken from Spool File if not defined in NAF parameter module

 CICS Transaction ID ____     CICS System ID ____    Terminate task (Y/N) _

 INIT function (Y/N)  ......... _      CICS System ID for INIT function  ____
 INIT messages to console (Y/N)  _      INIT messages to log file (Y/N) . _

 ------------------------------------------------------------------------------
Password
Modify values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                 Canc   ↩
```

The specifications in this window are only validated by spool servers running under CICS.

You can define the following parameters:

- The CICS Transaction ID of the Natural session used for the spool server.
- The CICS System ID of the Natural session used for the spool server (optional).
- Whether a new CICS task is to be invoked for each report (`Y`) or whether all reports of a queue are to be printed by the same CICS task (`N`).
- Whether a scan of the spool file is to occur at Natural initialization (`Y/N`) and the corresponding CICS `SYSTEM ID`.
- Whether messages of the Init function are to be written to the console and/or log file (`Y/N`).

The parameter values described above will only be considered if no NAF parameter module has been defined or if the corresponding values have not been defined in a NAF parameter module.

If no NAF parameter module exists, the following output is generated:

```
Time 12:33:22        *** Natural Spool Administration ***      Date 2002-10-18
User SAG               NAF Parameter for CICS environment      File 7/411



                 NAF parameter module not linked or not available




 ------------------------------------------------------------------------------
 Values taken from spool file if not defined in NAF parameter module

 CICS Transaction ID ____     CICS System ID ____    Terminate task (Y/N) _

 INIT function (Y/N)  .......... _      CICS System ID for INIT function  ____
 INIT messages to console (Y/N)  _      INIT messages to log file (Y/N) . _

 ------------------------------------------------------------------------------
Password
Modify values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                    Canc
```

You have to enter a password to execute this function.

IMS TM Options

This option is only available if usage of IMS TM has been specified in the **Spool File Options window**.

When you select this option, the **IMS TM Options** window appears.

```
Time 12:51:00        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                             M e n u                   File 7/411
                                    +--------- IMS TM Options 7/411 ---------+
      Administration                ! Values from NAF parameter module       !
                                    !                                        !
      10 Reports/Queues             !                                        !
      11 Devices                    ! BMP Transaction ID ........ --         !
      12 Abstracts                  ! BMP JCL Member ............ --         !
      13 Applications               ! Wait for input (Y/N)  ..... -          !
      14 Change Spool File          ! ---------------------------------------  !
                                    !                                        !
                                    ! Values used if NAF parameter module    !
      Maintenance                   ! is not linked                          !
                                    !                                        !
      30 Spool File Properties      ! BMP Transaction ID ........ ________   !
      31 Objects                    ! BMP JCL Member ............ ________   !
      32 Mass Update                ! Wait for input (Y/N)  ..... _          !
      33 Hardcopy Allocations       ! ---------------------------------------  !
      34 Transfer Objects           ! Password                               !
                                    +-----------------------------------------+
Modify values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
```

The specifications in this window are only validated by spool servers running under IMS TM.

You can define the following parameters:

- The BMP ID and JCL Member,
- Whether the BMP is to wait for input (`Y/N`).

The parameter values described above will only be considered if no NAF parameter module has been defined or if the corresponding values have not been defined in a NAF parameter module.

If no NAF parameter module exists, the following output is generated:

```
Time 12:50:49        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                              M e n u                  File 7/411
                                    +--------- IMS TM Options 7/411 ---------+
       Administration               !                                        !
                                    !          NAF parameter module          !
       10 Reports/Queues            !                                        !
       11 Devices                   !      not linked or not available       !
       12 Abstracts                 !                                        !
       13 Applications              !                                        !
       14 Change Spool File         ! --------------------------------------  !
                                    !                                        !
                                    !  Values used if NAF parameter module   !
       Maintenance                  !  is not linked                         !
                                    !                                        !
       30 Spool File Properties     !  BMP Transaction ID ........ ________  !
       31 Objects                   !  BMP JCL Member ............ ________  !
       32 Mass Update               !  Wait for input (Y/N)  ..... _         !
       33 Hardcopy Allocations      !  ------------------------------------- !
       34 Transfer Objects          !  Password                              !
                                    +--------------------------------------+
 Modify values.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr  Help  Menu  Exit  Spool Defau Gener BS200 CICS  IMS/D             Canc
```

You have to enter a password to execute this function.

Modify Password - Function 30.6

When you invoke this function, you can modify your password.

```
Time 12:53:09        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                            M e n u                    File 7/411

       Administration                                Information

       10 Reports/Queues                             20 Cross-Reference
       11 Devices                                    21 Statistics
       12 Abstracts                                  22 Look at Spool File
       13 Applications                               23 CALLNAT Handling
       14 Change Spool File

                                    +----- Spool File 7/411 :  Password -----+
       Maintenance                  !                                        !
                                    !  Current password ...........          !
       30 Spool File Properties     !                                        !
       31 Objects                   !  New password ...............          !
       32 Mass Update               +-----------------------------------------+
       33 Hardcopy Allocations                       43 Delete Reports by Date
       34 Transfer Objects

 Enter password.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr        Menu  Exit  Forma Reset Incre Recov Set S Modif Acces Displ Canc ↩
```

In the resulting window, enter your current password and the new password. Press Enter and confirm the new password by entering it once more.

Access Authorization - Function 30.7

When you invoke this function, you are first prompted for a password.

If the password is correct, the Access Authorization window appears in which you enter a user ID, or an asterisk (*) to select the user ID from a list.

When access authorizations have not yet been defined for the specified user, you can now add them for this user.

When access authorizations have already been defined for the specified user, you can now modify them. An additional `Delete` field is provided, in case you want to delete all access authorizations for this user.

```
Time 12:54:08        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                            M e n u                    File 7/411
                                  +--------- Access Authorization ---------+
       Administration             !  Add                  KOL               !
                                  !                       _                 !
       10 Reports/Queues          !  ------------------------------------- !
       11 Devices                 !                    Op.  Owner  Priv.    !
       12 Abstracts               !                    --   -----  -----    !
       13 Applications            !  Spool File        N  I      I      I   !
       14 Change Spool File       !  User Profile         I  N   I      I   !
                                  !  Logical Printer      I  N   I      I   !
                                  !  Allocation           I  N   I      I   !
       Maintenance                !  Printer              I  N   I  N   I   !
                                  !  Header Page          I  N   I      I   !
       30 Spool File Properties   !  Application          I  N   I  N   I   !
       31 Objects                 !  Cluster              I  N   I      I   !
       32 Mass Update             !  NTCC Table           I  N   I      I   !
       33 Hardcopy Allocations    !  Calendar             I  N   I      I   !
       34 Transfer Objects        !  Message Header       I  N   I      I   !
                                  +---------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                                                 Canc
```

There are three types of authorization:

Operator
A user can be defined as spool file operator. However, the defined user is only allowed to use Function 10 (Reports/Queues) and Function 11 (Devices).

Owner
A user can be defined as an owner of an object. An owner is allowed to modify or delete an object.

Private
Usage of some objects (printers and application) can be restricted to specific users.

You can specify the following in the access authorization window:

Code	Description
Y	Can only be specified for the spool file to define the user as operator. In all other cases, Y indicates that access authorization was granted by using S.
N	The user has no access authorization.
*	Access authorization is granted for all objects of this type. This code cannot be specified for the spool file.
S	Access authorization is granted for selected objects of this type. In the resulting window, you specify Y next to each desired object. This code cannot be specified for the spool file.

Display Last Modification - Function 30.8

When you invoke this function, the **Last Modification** window appears.

```
Time 12:55:35        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                           M e n u                     File 7/411
 +------------------ Spool File 7/411 :  Last Modifications ------------------+
 !                                                                             !
 !   Date / Time  2002-10-18  12:33:17  CPU time                              !
 !                2002-10-18  12:33:17  Natural time                          !
 !                                                                             !
 !   User ID      SAG                                                        !
 !                                                                             !
 !   Last executed function: Set/modify the spool file options.                !
 !   ----------------------------------------------------------------          !
 !                                                                             !
 !   Date / Time  2002-10-18  12:55:31  CPU time                              !
 !                2002-10-18  12:55:31  Natural time                          !
 !                                                                             !
 !   User ID      SAG                                                        !
 !                                                                             !
 !   Last executed function: Password modified                                 !
 !                                                                             !
 +-----------------------------------------------------------------------------+
 Press Enter to continue.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
 Entr        Menu  Exit  Forma Reset Incre Recov Set S Modif Acces Displ Canc
```

This window provides information on the last modification of the spool file properties and the last modification of the password. The date and time are displayed in internal CPU format (store clock value) and, additionally, in the equivalent Natural time format as defined with the parameters `DD`, `TD` and/or `YD`.

12 NAF - Objects - Function 31 - Overview

- Deleting an Object 102

When you invoke this function, the **Objects** window appears:

```
Time 13:00:45        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                            M e n u                    File 7/411
                                      +-------------Objects 7/411--------------+
       Administration                 !                                        !
                                      !   1     User Profile                   !
       10 Reports/Queues              !   2     Logical Printer                !
       11 Devices                     !   3     Allocation Table               !
       12 Abstracts                   !   4     Printer                        !
       13 Applications                !   5     Header Page                    !
       14 Change Spool File           !   6     Application                    !
                                      !   7     Cluster                        !
                                      !   8     NTCC Table                     !
       Maintenance                    !   9     Calendar                       !
                                      !   A     Message Header                 !
       30 Spool File Properties       !                                        !
       31 Objects                     !                                        !
       32 Mass Update                 !   .     Exit                           !
       33 Hardcopy Allocations        !                                        !
       34 Transfer Objects            !   Command / _  /                       !
                                      +-----------------------------------------+
 Enter command, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

The Cluster function can be **deactivated**.

Deleting an Object

In general, if you delete an object from the spool file, only the object itself is deleted, not its possible references in other objects.

Example:

If you delete a logical printer profile from the spool file, possible references of this printer profile in user profiles are *not* deleted. If you want to also delete the printer profile in some or all referenced user profiles, you need to modify the user profile(s) involved accordingly.

Use the ***Cross-Reference Function 20*** (Information section) to find out in which objects a given object is referenced.

This section covers the following topics:

User Profile - Function 31.1
Logical Printer - Function 31.2
Allocation Table - Function 31.3
Printer - Function 31.4
Header Page - Function 31.5
Applications - Function 31.6
Cluster - Function 31.7
NTCC Table - Function 31.8
Calendar - Function 31.9
Message Header - Function 31.A

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- 14 NAF - Logical Printer - Function 31.2 113
- 15 NAF - Allocation Table - Function 31.3 119
- 16 NAF - Printer - Function 31.4 125
- 17 NAF - Header Page - Function 31.5 135
- 18 NAF - Application - Function 31.6 141
- 19 NAF - Cluster - Function 31.7 145
- 20 NAF - NTCC Table - Function 31.8 151
- 21 NAF - Calendar - Function 31.9 165
- 22 NAF - Message Header - Function 31.A 171
- 23 NAF - Mass Update - Function 32 175
- 24 NAF - Hardcopy Allocations - Function 33 185
- 25 NAF - Transfer Objects - Function 34 193

13 NAF - User Profile - Function 31.1

- Invoking User Profile 108
- Selecting a User Profile from a List 109
- Maintaining a User Profile 110

A user profile contains information on the logical printers to be used. For each `WRITE (rep)` statement a logical printer is defined. For example, if the statement `WRITE (2)` is executed, the second logical printer contained in the currently active user profile will be used to describe the characteristics of the reports produced by the `WRITE (2)` statement.

You can also define a logical printer for the hardcopy function.

This feature enables a user to select a printer which is convenient (that is, a printer which is located near the user's terminal, or a printer into which a special form has been inserted).

Invoking User Profile

When you invoke this function, the **User Profile** window appears:

```
Time 10:02:37        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                          M e n u                      File 7/411
                                   +---------- User Profile 7/411 _---------+
      Administration               !                                         !
                                   !  Enter name of                          !
      10 Reports / Queues          !                                         !
      11 Devices                   !       User Profile                      !
      12 Abstracts                 !                                         !
      13 Applications              !  or                                     !
      14 Change Spool File         !                                         !
                                   !      *    for Selection                 !
      Maintenance                  !                                         !
                                   !      ?    for Help                      !
      30 Spool File Properties     !                                         !
      31 Objects                   !      .    for End                       !
      32 Mass Update               !                                         !
      33 Hardcopy Allocations      !      -------------------------          !
      34 Transfer Objects          !      / ________ /                       !
                                   !                                         !
                                   +-----------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc   ↩
```

In this window, you can specify the name of an existing user profile, select a profile from a list of profiles available or add a new profile to the spool file.

Selecting a User Profile from a List

To select a user profile from a list, enter one of the following:

- a partly-qualified name (e.g. `CA*` to list all user profiles starting alphabetically from `CA`),
- an asterisk (*) to list all user profiles in the `NATSPOOL` system.

A list of user profiles is then shown in a window.

```
Time 10:14:38        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                            M e n u                    File 7/411
                                    +------------Select with CA*-------------+
       Administration               !  New start value ......... _________   !
                                    !  ----------------------------------   !
       10 Reports / Queues          !  Fl Cm  Name         Fl Cm  Name       !
       11 Devices                   !  -- --  ---------    -- --  ---------  !
       12 Abstracts                 !      _  CAYIMS           _  CAYIMS01   !
       13 Applications              !      _  CAYPRINT         _  CYTEST     !
       14 Change Spool File         !      _  DWI010           _  GRE10      !
                                    !      _  HBNPROF          _  HHIUPF01   !
       Maintenance                  !      _  HUGO             _  NOM        !
                                    !      _  REC              _  RRI        !
       30 Spool File Properties     !      _  RRICICS          _  SAG        !
       31 Objects                   !      _  SAGILQ           _  SAG00001   !
       32 Mass Update               !      _  SET1             _  SET2       !
       33 Hardcopy Allocations      !      _  TMA              _  URANIMS    !
       34 Transfer Objects          !                                        !
                                    !                                        !
                                    +----------------------------------------+
 Mark on selection list.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                    --                          Canc   ↩
```

The user profile which was used for the initialization of the current Natural session is highlighted in the window.

In the `Cm` column, you can enter one of the following codes:

Code	Description
`C`	Copy user profile.
`D`	Delete user profile.
`R`	Rename user profile.
.	Exit function.
`X` or any other character	Display user profile for modification or deletion, see below.

Maintaining a User Profile

If the specified user profile exists, it is displayed. You can modify the list of allocated logical printers (LPFs) or delete the whole user profile.

Note: If you specify a name that does not yet exist, you can add a new user profile. In this case, the `Delete` option is not provided in the window.

```
Time 10:09:47        *** Natural Spool Administration ***     Date 2002-10-21
User SAG                          M e n u                     File 7/411
   +---------------------------- User Profile -------------------------------+
   !   Modify                SET1                   Delete (Y/N)         N   !
   !   ------------------------------------------------------------------    !
   !   Owner (Y/N) N        Mark for selection of existing log. printers _   !
   !   - ----------------------------------------------------------------    !
   !   Mk. No. LPF Name Mk. No. LPF Name Mk. No. LPF Name Mk. No. LPF Name   !
   !    _  1   PROF3___  _  2   PROF2___  _  3   PROF1___  _  4   NOMPRT01   !
   !    _  5   ________  _  6   ________  _  7   ________  _  8   ________   !
   !    _  9   ________  _  10  ________  _  11  ________  _  12  ________   !
   !    _  13  ________  _  14  ________  _  15  ________  _  16  ________   !
   !    _  17  ________  _  18  ________  _  19  ________  _  20  ________   !
   !    _  21  ________  _  22  ________  _  23  ________  _  24  ________   !
   !    _  25  ________  _  26  ________  _  27  ________  _  28  ________   !
   !    _  29  ________  _  30  ________  _  31  ________  _  HC  ________   !
   !   ------------------------------------------------------------------    !
   !   Notes                                                                 !
   !   ____________________________________________________________        !
   +-------------------------------------------------------------------------+
 Enter name or mark logical printer.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc   ↩
```

The window prompts for a list of names of logical printers to be associated with the user profile. Up to 31 logical printer names may be entered, since this is the maximum number of logical printers which can be specified in a single user profile.

If you mark the field for selection of existing logical printers, a list of all available logical printers is displayed, where the desired logical printers may be selected by number. The logical printer names are positional. If, for example, the first and third elements of the user profile are defined, only the statements `WRITE (1)` and `WRITE (3)` will be valid. The statement `WRITE (2)`, however, would receive error message `NAT1573` (logical printer not found on spool file).

In the `HC` field, you can define a logical printer for the hardcopy function.

Example:

The user profile UPFSTART contains the following entries:

1: LDR4711
2: LDR1805
3: LRZ
HC: LHCOP

The positions 4 to 31 are empty.

These definitions result in the following:

When WRITE (1) is executed, the logical printer LDR4711 is used. When WRITE (2) is executed, the logical printer LDR1805 is used. When WRITE (3) is executed, the logical printer LRZ is used. When %H is executed, the logical printer LHCOP is used.

The prerequisite, however, is that the PRINT parameter was dynamically defined, or that the NTPRINT macro was defined in the Natural parameter module for at least 3 printers:

```
NTPRINT (1-3),AM=NAF
```

If a value smaller than 3 was defined, the corresponding entries in the user profile are ignored.

14 NAF - Logical Printer - Function 31.2

- Invoking Logical Printer 114
- Selecting a Logical Printer from a List 115
- Maintaining a Logical Printer 116

A logical printer (LPF) defines the attributes that are to be applied to a report.

Using the `DEFINE PRINTER` statement, it is possible to modify the assignment - independent of the settings used during initialization or logon.

If you have modified the assignment using the `DEFINE PRINTER` statement (e.g. you have specified a new value for `OUTPUT`), the new assignment is not automatically reset at program end.

It is valid until a new assignment is made using the `DEFINE PRINTER` statement or until a new initialization (via logon) occurs (only when using Natural Security).

Print output can also be forwarded to other spool systems. This is controlled by a logical printer.

Invoking Logical Printer

When you invoke this function, the Logical Printer window appears:

```
Time 10:18:01        *** Natural Spool Administration ***      Date 2002-10-21
 User SAG                             M e n u                    File 7/411
                                    +------- Logical Printer 7/411 ----------+
       Administration               !                                        !
                                    !  Enter name of                         !
       10 Reports / Queues          !                                        !
       11 Devices                   !       Logical Printer                  !
       12 Abstracts                 !                                        !
       13 Applications              !  or                                    !
       14 Change Spool File         !                                        !
                                    !      *    for Selection                !
       Maintenance                  !                                        !
                                    !      ?    for Help                     !
       30 Spool File Properties     !                                        !
       31 Objects                   !      .    for End                      !
       32 Mass Update               !                                        !
       33 Hardcopy Allocations      !      -------------------------         !
       34 Transfer Objects          !      / ________ /                      !
                                    !                                        !
                                    +----------------------------------------+
  Enter values.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

In this window, you can specify the name of an existing logical printer, select a logical printer from a list of available printers or add a new logical printer to the spool file.

Selecting a Logical Printer from a List

To select a logical printer from a list, in the selection window, enter

1 A partly-qualified name (e.g. `D*` to list all logical printers starting alphabetically from D),

2 An asterisk (*) to list all logical printers in the `NATSPOOL` system.

A list of logical printers is then shown in a window.

```
Time 10:29:11        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                              M e n u                  File 7/411
                                    +-------------Select with *--------------+
       Administration               !  New start value ......... _________   !
                                    !  ----------------------------------   !
       10 Reports / Queues          !  Fl Cm  Name        Fl Cm  Name        !
       11 Devices                   !  -- --  ---------   -- --  ---------   !
       12 Abstracts                 !   5  _  -------      5  _  ---0        !
       13 Applications              !   5  _  ---1         5  _  ---2        !
       14 Change Spool File         !   5  _  ---4         5  _  ---6        !
                                    !   5  _  ---8         5  _  --23        !
       Maintenance                  !      _  #RRI            _  BPM-----     !
                                    !      _  BRU1            _  CMPRT08      !
       30 Spool File Properties     !   6  _  DAELC107        _  DAEN0526     !
       31 Objects                   !      _  DAEN0541        _  DAEPRT10     !
       32 Mass Update               !      _  DAEPRT12        _  DAEPRT13     !
       33 Hardcopy Allocations      !      _  DAEPRT45     6  _  FRIPRT17     !
       34 Transfer Objects          !      _  GRE10        1  _  H-------     !
                                    !   8  _  HHI-----        _  HHILPF       !
                                    +---------------------------------------+
 Mark on selection list.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                    --   +                     Canc   ↩
```

The logical printers which were used for the initialization of the current Natural session are highlighted in the window.

The `Fl` (flag) column indicates the usage of the logical printer. For the possible values in this column, see the online help.

Names containing a hyphen (-) are created for hardcopy allocation by using a mask to build up the corresponding name. See the **spool file options**.

In the `Cm` column, you can enter one of the following codes:

Code	Description
C	Copy logical printer.
D	Delete logical printer.
R	Rename logical printer.
.	Exit function.
X or any other character	Display logical printer for modification or deletion, see below.

Maintaining a Logical Printer

If the specified logical printer exists, it is displayed. You can modify the individual parameters or delete the whole logical printer.

Note: If you specify a name that does not yet exist, you can add a new logical printer. In this case, the Delete option is not provided in the window.

```
Time 09:59:08        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                           M e n u                     File 7/411
   +---------------------------- Logical Printer ----------------------------+ +
   !   Modify                PROF1                  Delete (Y/N)         N   ! !
   !   ------------------------------------------------------------------   ! !
   !   Mark for selection of existing alloctions (Destination/Form)      _   ! !
   !   Mark to show values for assigned allocation                       _   ! !
   !   ------------------------------------------------------------------   ! !
   !   Destination ....... STD_____       Form .....................     I   ! !
   !                                                                        ! !
   !   Duplicates ........ 0__            Disposition ..............     K   ! !
   !   Priority .......... 1__            Protected reports ........     N   ! !
   !   Retention period .. 9999  Days     for Dispositions      D  H  K  L   ! !
   !   using calendar ...  ________       (Y/N) ..............  _  _  _  _   ! !
   !                                                                        ! !
   !   Type .............. NAF_____       linked to cluster .....   --        ! !
   !                                     Owner ................. N          ! !
   !   Notes                                                                ! !
   !   ____________________________________________________________       ! !
   +------------------------------------------------------------------------+ +
 Enter values for the logical printer.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc ↩
```

If you mark the field for selection of existing allocations, a list of all available allocations is displayed, and you can mark the desired allocation.

You can also display the values of the assigned allocation. To do so, mark the corresponding field.

The window above prompts you for the following parameters used to define the logical printer:

Parameter	Description
Destination	The name (maximum 8 characters) of the logical destination which, with Form, identifies all reports generated using this logical printer.
Form	A character which, with Destination, identifies all reports generated using this logical printer.
Duplicates	A numeric value giving the number of copies of the report which are to be printed.
Disposition	An alphanumeric character which indicates the initial status of the report after it has been produced. Possible values are: **D** — Keep the report on file in a printable status, that is, print it either when the physical printer is ready or upon an explicit request. After the report has been printed, it is deleted from the spool file. **H** — Hold the report on file. To print the report, the user has to change the Disposition to a valid value different from H, see *Function 10*. **K** — Keep the report on file in a printable status, that is, print it either when the physical printer is ready, or upon an explicit request. After the report has been printed, the Disposition is set to L.
Priority	A numeric value (0-255) giving the order in which the reports will be printed. A higher value means higher priority.
Protected Reports	Reports created for a logical printer with type NAF can be protected. Possible values are: **R** — Only the user who created the report can display it. **P** — Only the user who created the report can purge it. **S** — Only the user who created the report can start it. **G** — Only the user who created the report can display or start it. **N** — No protection.
Retention period	The number of days that the report is to be held on the spool file. The value 9999 indicates unlimited retention. The retention period can be limited to certain types of Disposition: in addition to the values D, H and K (see above), the value L (for printed reports with Disposition K) is also supported.
using calendar	When using the retention period, you can also specify the name of a calendar to take into account weekends and holidays.
Type	**NAF** — The report is for NAF and is stored on the NAF spool file. **NOM** — The report is for Entire Output Management and is stored on the NOM container file. **RSO** — The report is for RSO and is routed to RSO directly. **EXIT4** — A user-written exit which is linked to the front part of Natural under BS2000/OSD gets control for opening, writing and closing the report.

Parameter	Description
Notes	A short description of the logical printer.

The attributes Duplicates, Priority and Disposition can also be set dynamically by using the DEFINE PRINTER statement.

15 NAF - Allocation Table - Function 31.3

- Invoking Allocation Table 120
- Selecting an Allocation from a List 121
- Maintaining an Allocation 122

Allocations must be defined so that a relation is established between the reports and the physical printers to which the reports can be routed. An allocation is identified by the parameters which were defined for the logical printer (Destination and Form).

When a report is generated, NATSPOOL uses the associated allocation to start the printing activity on the first physical printer with status FREE (the Disposition value for that report must be either K or D). If the allocation is not found, or if none of the allocated physical printers is in FREE status, the report is kept on the spool file.

Invoking Allocation Table

When you invoke this function, the **Allocation Table** window appears:

```
Time 10:53:49        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                              M e n u                  File 7/411
                                      +------ Allocation Table 7/411 ------ ---+
        Administration                !                                        !
                                      !  Enter name of                         !
        10 Reports / Queues           !                                        !
        11 Devices                    !      Destination / Form.               !
        12 Abstracts                  !                                        !
        13 Applications               !  or                                    !
        14 Change Spool File          !                                        !
                                      !      *    for Selection                !
        Maintenance                   !                                        !
                                      !      ?    for Help                     !
        30 Spool File Properties      !                                        !
        31 Objects                    !      .    for End                      !
        32 Mass Update                !                                        !
        33 Hardcopy Allocations       !      -------------------------         !
        34 Transfer Objects           !      / _________ / _                   !
                                      !                                        !
                                      +----------------------------------------+
  Enter values.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

In this window, you can specify the name an existing Destination/Form, select a Destination/Form from a list of Destinations/Forms available or add a Destination/Form to the spool file.

Selecting an Allocation from a List

To select an allocation from a list, enter one of the following:

- a partly-qualified name (e.g. `BS2*` to list all allocations starting alphabetically from BS2),
- an asterisk (*) to list all allocations in the `NATSPOOL` system.

A list of allocations is then shown in a window.

```
Time 11:16:46        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                              M e n u                  File 7/411
                                      +-------------Select with *--------------+
       Administration                 !  New start value ......... _________   !
                                      !  ------------------------------------   !
       10 Reports / Queues            !  Fl Cm  Name        Fl Cm  Name        !
       11 Devices                     !  -- --  ---------   -- --  ---------   !
       12 Abstracts                   !      _  BS2PID  H       _  CAYIMS  A   !
       13 Applications                !      _  DAEPRT10A       _  DAEPRT10H   !
       14 Change Spool File           !      _  DAEPRT12A       _  DAEPRT13A   !
                                      !      _  DAEPRT45A       _  DARMSTD A   !
       Maintenance                    !      _  DARMSTD 1       _  DARMSTD 2   !
                                      !      _  DARMSTD 3       _  DARMSTD 4   !
       30 Spool File Properties       !      _  DARMSTD 5       _  DARMSTD 8   !
       31 Objects                     !      _  DDR1171 A       _  DDR1490 A   !
       32 Mass Update                 !      _  DHCDEST H       _  DR1171  H   !
       33 Hardcopy Allocations        !      _  GRE10   H       _  HC      H   !
       34 Transfer Objects            !      _  HCDEST  H       _  HHI     A   !
                                      !      _  HHIDEST A       _  HHIPID  H   !
                                      +---------------------------------------+
 Mark on selection list.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                    --   +                      Canc   ↩
```

The allocations which were used for the initialization of the current Natural session are highlighted in the window.

In the `Cm` column, you can enter one of the following codes:

Code	Description
`C`	Copy allocation.
`D`	Delete allocation.
`R`	Rename allocation.
.	Exit function.
`X` or any other character	Display allocation for modification or deletion, see below.

Maintaining an Allocation

If the specified Destination/Form exists, the allocation is displayed. You can modify the list of allocated physical printers, specify a header page for the report or delete the whole allocation.

Note: If you specify a name that does not yet exist, you can add a new allocation. In this case, the Delete option is not provided in the window.

```
Time 11:13:03        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                            M e n u                    File 7/411
   +-------------------------- Allocation Table ----------------------------+
   !  Modify                 DARMSTD A              Delete (Y/N)         N   !
   !  ---------------------------------------------------------------------   !
   !  Owner............... N                linked to Cluster ... TESTCLUS   !
   !  ---------------------------------------------------------------------   !
   !  Header Page      ________                              Queue Status A   !
   !  Statistics (Y/N) Y                  Add/Modify Time values ....... N   !
   !  ---------------------------------------------------------------------   !
   !  Physical Printer(s)                              Printer Selection _   !
   !                                                                         !
   !       Name    Ty.       Name    Ty.      Name    Ty.      Name    Ty.   !
   !  _  1 P007____ M   _  2 P002____ B  _  3 P003____ A  _  4 MK1_____ B    !
   !  _  5 MK2_____ A   _  6 MK3_____ B  _  7 MK4_____ A  _  8 MK5_____ B    !
   !  _  9 MK6_____ A   _ 10 MK7_____ B  _ 11 MK8_____ A  _ 12 MK9_____ B    !
   !  _ 13 MK10____ A   _ 14 MK11____ B  _ 15 MK12____ A  _ 16 MK13____ B    !
   !  --------------------------- Notes ----------------------------------   !
   !  ____________________________________________________________________      !
   +-------------------------------------------------------------------------+
 Enter name of printer.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                                                  Canc
```

Note: Under BS2000/OSD, this window contains the additional field `Time Window`.

The window prompts for a list of up to 16 physical printers to which reports with the given destination and form can be routed. If you mark the field for printer selection, a list of all available physical printers is displayed, where the desired physical printer(s) may be marked by number. The number indicates the position in the list of physical printers in the screen above.

When you enter an asterisk (*) to the left of the printer name, the attributes for this printer are shown.

The first printer is the main printer (indicated by *M* in the type column). For this printer, the type cannot be modified.

When you define more than one physical printer, you have to define the type of printer. The following types can be defined for Printers 2 to 16:

Type	Usage
A	Alternate printer. Will be used if all other printers are already active or in INOP status.
B	Backup printer. Will only be used if all other printers are in INOP status.

In addition, you can specify the following:

- The name of a header page for the report to be printed or an asterisk (*) to select the header page from a list.
- The queue status. All reports for an allocation are called "queue". The queue status can be set to A (activated, all reports will be printed, if possible) or D (deactivated, all reports are collected on the spool file until the queue is activated). Under BS2000/OSD it is possible to define a monitor queue and set the queue status to M (reports are created on the spool file and printing is started by using a monitor).
- Whether you require statistics (Y/N). When you specify Y, the number of pages, lines and reports for this allocation are collected and can be maintained by using Function 20. When Y is specified, an additional field appears (Add/modify time values). When you specify Y for this additional field and press Enter, the **Time Window** appears in which you can restrict this function to a user-defined time range.
- Whether you want to add/modify a time window (Y/N). This feature applies only under BS2000/OSD. When you specify Y, printing of reports can also be started by using a time window. An additional window appears in which you specify the desired time range for the start and end of printing. The prerequisite is that the Time function has been activated by using **Function 30.5**.

When an allocation (between a logical and a physical printer) is added to the spool file by a user, NATSPOOL checks whether the corresponding physical printer is present on the spool file. If the printer is not present, it is added automatically. In other words, it is not necessary to execute **Function 31.4**.

16 NAF - Printer - Function 31.4

- Invoking Physical Printer 126
- Selecting a Physical Printer from a List 127
- Maintaining a Physical Printer 128

One or more physical printers must be defined to NATSPOOL to indicate where reports are to be routed.

Besides general information, a physical printer describes technical data required to establish a connection. This information depends on the operating system: CICS, BS2000/OSD or IMS TM.

Invoking Physical Printer

When you invoke this function, the Printer window appears:

```
Time 15:02:17        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                              M e n u                  File 7/411
                                     +---------- Printer 7/411 ---------------+
        Administration               !                                        !
                                     !  Enter name of                         !
        10 Reports / Queues          !                                        !
        11 Devices                   !       Printer                          !
        12 Abstracts                 !                                        !
        13 Applications              !  or                                    !
        14 Change Spool File         !                                        !
                                     !      *    for Selection                !
        Maintenance                  !                                        !
                                     !      ?    for Help                     !
        30 Spool File Properties     !                                        !
        31 Objects                   !      .    for End                      !
        32 Mass Update               !                                        !
        33 Hardcopy Allocations      !      -------------------------         !
        34 Transfer Objects          !      / _________ /                     !
                                     !                                        !
                                     +----------------------------------------+
  Enter values.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

In this window, you can specify the name of an existing physical printer, select a physical printer from a list of printers available or add a new physical printer to the spool file.

Selecting a Physical Printer from a List

To select a physical printer from a list, enter one of the following:

- a partly-qualified name (e.g. `D*` to list all physical printers starting alphabetically from D),
- an asterisk (*) to list all physical printers in the `NATSPOOL` system.

A list of physical printers is then shown in a window.

```
Time 15:23:06        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                             M e n u                   File 7/411
                                   +-------------Select with D*-------------+
       Administration              !  New start value ......... _________   !
                                   !  ------------------------------------   !
       10 Reports / Queues         !  Fl Cm  Name        Fl Cm  Name        !
       11 Devices                  !  -- --  ---------   -- --  ---------   !
       12 Abstracts                !      _  DAEPRTCA       _  DAEPRT10    !
       13 Applications             !   S  _  DAEPRT12       _  DAEPRT13    !
       14 Change Spool File        !      _  DAEPTR10       _  DAPERT13    !
                                   !      _  DEAPRTCA    S  _  DR1171      !
       Maintenance                 !   S  _  DR1490         _  HCTEST      !
                                   !      _  HHIPID         _  HUGO        !
       30 Spool File Properties    !      _  MK1            _  MK10        !
       31 Objects                  !      _  MK11           _  MK12        !
       32 Mass Update              !      _  MK13           _  MK2         !
       33 Hardcopy Allocations     !      _  MK3            _  MK4         !
       34 Transfer Objects         !      _  MK5            _  MK6         !
                                   !      _  MK7            _  MK8         !
                                   +---------------------------------------+
 Mark on selection list.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                    --   +                      Canc   ↩
```

The physical printer which was used for the initialization of the current Natural session is highlighted in the window.

The `Fl` (flag) column indicates the following:

Flag	Description
`P`	Protected by administrator(s).
`S`	Physical printer is defined for usage by another operating/TP system.

In the `Cm` column, you can enter one of the following codes:

Code	Description
C	Copy physical printer.
D	Delete physical printer.
R	Rename physical printer.
.	Exit function.
X or any other character	Display physical printer for modification or deletion, see below.

Maintaining a Physical Printer

If the specified physical printer exists, it is displayed. You can modify the form feed parameters or delete the whole physical printer.

Note: If you specify a name that does not yet exist, you can add a new physical printer. In this case, the Delete option is not provided in the window.

```
Time 10:29:04        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                           M e n u                     File 7/411
   +-------------------------------- Printer ---------------------------------+ +
   !  Modify                 DAEPRT10               Delete (Y/N)         N   ! !
   ! ------------------------------------------------------------------------   ! !
   ! Owner ........... N        Private printer N    Cluster ....   --        ! !
   ! ------------------------------------------------------------------------   ! !
   ! Standard profiles N                             Opsys/Tpsys  CICS____    ! !
   ! Statistics ...... N                                                      ! !
   !                                                                          ! +
   ! Check for form .. N    Initial form ________ / _  FF control B           ! !
   ! FF sequence ..... 0C00 LF sequence  1500          Sever exit ________    ! !
   !                                                                          ! !
   ! NTCC type  ...... ________                                               ! !
   ! ------------------------------------------------------------------------   ! !
   ! CICS System ID .. ____                                                   ! +
   ! ------------------------------------------------------------------------   ! !
   ! Notes                                                                    ! !
   !  ____________________________________________________________________    ! !
   +--------------------------------------------------------------------------+ +
 Enter values for the printer.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

Note: The layout of the window above changes depending on the operating system specified.

The physical printer name must correspond to one of the following, according to the operating system used:

- the CICS Terminal ID, as specified in the CICS Terminal Control Table TCT; or
- it must be an IMS TM LTERM name; or
- the physical name (PDN) of a BS2000/OSD printer.

You can specify the following for all operating systems:

- Whether standard profiles are to be used (`Y/N`). When you add a physical printer, a logical printer and Destination/Form are automatically created. The names of the logical printer and destination correspond to the name of the physical printer. As a form name, `A` is provided. If you specify `N`, these objects are deleted.
- The operating system or TP monitor for which you define the printer. You can specify CICS, BS2000/OSD or IMS TM.
- Whether you require statistics (`Y/N`). If you specify `Y`, the number of pages, lines and reports for this allocation are collected and can be maintained by using **Function 20**. When `Y` is specified, an additional field appears (Add/modify time values). If you specify `Y` for this additional field and press Enter, the **Time Window** appears in which you can restrict this function to a user-defined time range.
- Whether the spool server is to check which form (Destination/Form) was printed on this physical device before (`Y/N`). If the form differs, printout is not started and a message is sent to the console. This check is not done under BS2000/OSD using system printers and for printers being accessed via a user application programming interface (API).
- The initial form to be used if `Check for form` is set to `Y`. If you do not specify an initial form and this flag is set to `Y`, the first printout will be started and the Destination/Form of this report will then be used.
- When a form feed is to be performed. This information is only evaluated at print time (not when the report is stored on the spool file). Enter one of the following values:

Value	Description
`A`	Form feed at beginning and end.
`B`	Form feed at beginning only.
`E`	Form feed at end only.
`F`	Form feed at end only. (Leading form feed is ignored.)
`I`	No form feed at beginning and end. (Leading form feed is ignored.)
`N`	No form feed at beginning and end.
`T`	Transparent (no modifications).

- Control sequences for the form feed and line feed.
- The type of printer if you work with printer-specific NTCC tables (see *Function 31.8* and the `DEFINE PRINTER` statement).

- The name of the subprogram that takes control in the spool server over each block sent to the printer. If you do not specify a name, control is passed to the user exit USPSER01. If you do not want a user exit to take control, enter *DUMMY.
- A description of the physical printer can be added in the `Notes` field.

All other fields in the screen depend on the operating system currently:

- **Maintaining a Physical Printer under CICS**
- **Maintaining a Physical Printer under IMS TM**
- **Maintaining a Physical Printer under BS2000/OSD**

Maintaining a Physical Printer under CICS

```
Time 13:53:29        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                          M e n u                      File 7/411
   +-------------------------------- Printer ---------------------------------+ +
   !  Modify                 DAEPRT10               Delete (Y/N)         N   ! !
   ! ------------------------------------------------------------------------   ! !
   ! Owner ........... N        Private printer N    Cluster ....   --        ! !
   ! ------------------------------------------------------------------------   ! !
   ! Standard profiles N                             Opsys/Tpsys  CICS____    ! !
   ! Statistics ...... N                                                      ! !
   !                                                                          ! +
   ! Check for form .. N    Initial form ________ / _  FF control B           ! !
   ! FF sequence ..... 0C00 LF sequence  1500          Sever exit ________    ! !
   !                                                                          ! !
   ! NTCC type  ...... ________                                               ! !
   ! ------------------------------------------------------------------------   ! !
   ! CICS System ID .. ____                                                   ! +
   ! ------------------------------------------------------------------------   ! !
   ! Notes                                                                    ! !
   !  ____________________________________________________________________    ! !
   +--------------------------------------------------------------------------+ +
 Enter values for the printer.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc ↩
```

A specific CICS system ID can be defined for each printer. If you do not specify a value, the value from the spool file options is used (see *Function 30.5*).

Maintaining a Physical Printer under IMS TM

```
Time 14:05:10        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                          M e n u                      File 7/411
   +-------------------------------- Printer ---------------------------------+ +
   !  Modify                 IMSPRI                 Delete (Y/N)         N   ! !
   ! ------------------------------------------------------------------------   ! !
   ! Owner ........... N        Private printer N    Cluster ....   --        ! !
   ! ------------------------------------------------------------------------   ! !
   ! Standard profiles N                             Opsys/Tpsys  IMS TM__    ! !
   ! Statistics ...... N                                                      ! !
   !                                                                          ! +
   ! Check for form .. N    Initial form _________ / _ FF control  B          ! !
   ! FF sequence ..... 0C00 LF sequence  1500          Server exit _________   ! !
   ! ------------------------------------------------------------------------   ! !
   ! Printer Type .... _________  SCS printer (Y/N) Y  Buffer size 1024        ! !
   ! ------------------------------------------------------------------------   ! !
   ! IMS BMP Transaction ID .. _________                                      ! +
   ! IMS BMP JCL Member ...... _________                                      ! !
   ! Notes                                                                    ! !
   !  ____________________________________________________________________    ! !
   +--------------------------------------------------------------------------+ +
 Enter values for the printer.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

Report data are processed differently. Therefore, you must specify SCS printers by entering `Y` (yes) or `N` (no) in the field SCS Printer. In addition, in the Buffer Size field, enter the size of the buffer used by the blocks transferred to the physical printer. The buffer size is defined in bytes and must be in the range of `256` and `4048`.

BMP name and JCL member can be defined for each printer. If you do not specify any values, the values from the spool file options are used (see *Function 30.5*).

Maintaining a Physical Printer under BS2000/OSD

```
Time 14:06:43        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                            M e n u                    File 7/411
   +------------------------------- Printer --------------------------------+ +
   !  Modify               DR1171                   Delete (Y/N)         N   ! !
   ! ---------------------------------------------------------------------   ! !
   ! Owner ........... N   Private printer N          Opsys/Tpsys BS2000__   ! !
   ! ---------------------------------------------------------------------   ! !
   ! Standard profiles N    Statistics N                                     ! !
   ! Check form ...... N    Init. form  ________ / _  FF control  N          ! !
   ! FF sequence       0D0C LF sequence 0D15          Server Exit ________   ! !
   ! ---------------------------------------------------------------------   ! !
   ! User exit _____   NTCC type   ________  RSO (Y/N) N  RSO form ______    ! !
   ! ---------------------------------------------------------------------   ! !
   ! Protocol type     NEAR  Processor      VR3_____  Trace (Y/N)   N        ! !
   ! SEC. retry        20_   SEC. timeout   60___                            ! !
   ! Max.No. restarts   0    Buffer size    1920                             ! !
   ! Connection type   S     Message header *STD____  Cluster       --       ! !
   ! ---------------------------------------------------------------------   ! !
   ! Notes ____________________________________________________________  ! !
   +-----------------------------------------------------------------------+ +
 Enter values for the printer.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc   ↩
```

You can specify the following:

- The name of a user exit:

User Exit	Description
EXIT1	A user-written program gets control for each line of a report created for this physical printer. The control sequences for line feed and form feed are not modified. The program name for this type of exit is NAFEXIT1.
EXIT2	A user-written program gets control for each block before it is send to the physical printer using the YSEND macro. The program name for this type of exit is NAFEXIT2.
EXIT3	A user-written program gets control for all required functions (that is, open connection, start report, send data, close report, close connection). These functions must be executed by the user-written program. The program name for this type of exit is NAFEXIT3.
no specification	A user-written program will not be invoked.

- Whether the SNI spool system RSO is to be used (Y/N).
- An RSO form parameter for printers that are controlled using the SNI spool system RSO. If you do not specify a parameter, the destination value from the allocation is used. It is also possible to define a value in the NAF parameter module which ignores all other values.
- A protocol type (NEAR or ISO).

- The name of the processor which controls the printers.
- Whether the trace option is to be activated (`Y/N`) to get information on the `DCAM` and `PRNT` macros that are executed for this physical printer. When activated, trace messages (that is, the functions, their return codes, the name of the physical printer, date and time) are written to the protocol file `SYSOUT`.
- The number of seconds after which the system tries to reestablish the connection to a printer. After 3 unsuccessful attempts, this is canceled.
- The spool server expects an acknowledgement for each message sent to a printer. You can specify the period in seconds after which a timeout is to occur.
- If the Restart option is active (see ***Function 30.5***), you can specify the maximum number of restarts. When the maximum number is reached, the printer is deactivated for the spool server. Value `99` means that the number of restarts is unlimited. Value `0` means that there is no restart and that the printer will be set to `FREE` status.
- The buffer size, that is, the maximum size of a block that is sent to a printer. The maximum number is 4048 bytes.
- The connection types for physical printers that are accessed by DCAM calls. You can specify one of the following:

Value	Description
`B`	Should be used for devices defined as bypass printers in the PDN definition. This is important for printers used as hardcopy devices.
`N`	Should be used for devices connected to directly to VR or to a MSF using the BAM protocol.
S	Should be used for devices connected to a MSN or an emulation.
P	Should be used to access a device or application (emulation) without modification to the data stream.

- The name of a message header. See also ***Function 31.A***.

Example of Connection Type and Message Header:

The name of the message header is `D9001` and the connection type is `B`. The spool server looks for a message header named `D9001_ _ _B`. If this message header is not defined, the spool server uses the standard message header for the corresponding connection type: `*STD_ _ _ _N` (BAM) or `*STD_ _ _ _B` (bypass).

Standard values are used for bypass and BAM connections only. When a printer is accessed via `EXIT3` or is set to Connection Type `P`, the spool server searches for a correct message header. If a message header is not found, the data are processed without message header values.

17 NAF - Header Page - Function 31.5

- Invoking Header Page 136
- Selecting a Header Page from a List 136
- Maintaining a Header Page 137

You can define a header page that is to be printed in front of each report.

Invoking Header Page

When you invoke this function, the **Header Page** window appears:

```
Time 15:59:41        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                              M e n u                  File 7/411
                                    +--------- Header Page 7/411 ------------+
        Administration              !                                        !
                                    !  Enter name of                         !
        10 Reports / Queues         !                                        !
        11 Devices                  !       Header Page                      !
        12 Abstracts                !                                        !
        13 Applications             !  or                                    !
        14 Change Spool File        !                                        !
                                    !      *    for Selection                !
        Maintenance                 !                                        !
                                    !      ?    for Help                     !
        30 Spool File Properties    !                                        !
        31 Objects                  !      .    for End                      !
        32 Mass Update              !                                        !
        33 Hardcopy Allocations     !      -------------------------         !
        34 Transfer Objects         !      / _________ /                     !
                                    !                                        !
                                    +----------------------------------------+
  Enter values.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

In this window, you can specify the name of an existing header page, select a header page from a list of header pages available or add a new header page to the spool file.

Selecting a Header Page from a List

To select a header page from a list, enter one of the following:

- a partly-qualified name (e.g. `S*` to list all header pages starting alphabetically from S),
- an asterisk (*) to list all header pages in the `NATSPOOL` system.

A list of header pages is then shown in a window.

```
Time 16:13:44        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                            M e n u                    File 7/411
                                     +-------------Select with *--------------+
        Administration               !  New start value ......... _________   !
                                     !  ------------------------------------   !
        10 Reports / Queues          !  Fl Cm  Name        Fl Cm  Name         !
        11 Devices                   !  -- --  ---------   -- --  ---------    !
        12 Abstracts                 !      _  NAFSTDHP        _  STDHEAD      !
        13 Applications              !                                         !
        14 Change Spool File         !                                         !
                                     !                                         !
        Maintenance                  !                                         !
                                     !                                         !
        30 Spool File Properties     !                                         !
        31 Objects                   !                                         !
        32 Mass Update               !                                         !
        33 Hardcopy Allocations      !                                         !
        34 Transfer Objects          !                                         !
                                     !                                         !
                                     +-----------------------------------------+
  Mark on selection list.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit                    --                          Canc
```

The header pages defined for the allocations that were used for the initialization of the current Natural session are highlighted in the window.

In the `Cm` column, you can enter one of the following codes:

Code	Description
`C`	Copy header page.
`D`	Delete header page.
`R`	Rename header page.
`.`	Exit function.
`X` or any other character	Display header page for modification or deletion, see below.

Maintaining a Header Page

If the specified header page exists, it is displayed. You can modify the header page or delete it.

Note: If you specify a name that does not yet exist, you can add a new header page. In this case, the Delete option is not provided in the window.

The standard header page NAFSTDHP can be used as a template for your own header pages. This header page is protected and can only be displayed/modified by using the password for the spool file.

```
Time 14:13:18        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                     Header Page NAFSTDHP              File 7/411

  Name of header page   NAFSTDHP  Internal FFFFFFFF   Delete (Y/N)           N
  Owner  N
  Allowed number of columns  130   / lines    62      current last line     49

 Col/   1        11        21        31        41        51        61        71
 Line   I---------I---------I---------I---------I---------I---------I---------I
  1
  2                   SSSSSSSSSSSSSSSS                     SOFTWARE  AG
  3                 SSSSSSSSSSSSSSSSSS
  4               SSSSSSSSSSSSSSSSSSSS                     Darmstadt - Ebersta
  5              SSSSSSSS
  6              SSSSSSS
  7              SSSSSSS       SSSSSSSS
  8              SSSSSSS       SSSSSSSS
  9              SSSSSSS       SSSSSSSS
  10             SSSSSSS       SSSSSSSS                     NATURAL SPOOL OUTPU

 Modify values for the header page.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  Store  <<    --     -    +    Full   <     >    Canc   ↩
```

Each header page may be up to 62 lines long and 130 columns wide. It may contain free text as well as keywords that are replaced during printing.

You can insert the following keywords in your header page:

Keyword	Description
NAFCC	Function (start, restart etc.).
NAFJB	Job number.
NAFDT	Current date.
NAFTI	Current time.
NAFID	User ID for the report.
NAFDF	Allocation for the report.
NAFNA	Report name from DEFINE PRINTER statement.
NAFPR	NTCC table name (profile).
NAFFO	Form name from DEFINE PRINTER statement.
NAFLP	Logical printer for the report.
NAFCD	Date of report creation.

Keyword	Description
NAFCT	Time of report creation.
NAFPG	Program name.
NAFLI	Library name.

The keywords above must be entered in upper-case letters. For an example, see the screen below.

```
Time 12:19:35        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                     Header Page NAFSTDHP              File 7/411

   Name of header page    NAFSTDHP   Intern  FFFFFFFF   Delete (Y/N)           N
   Owner  N
   Allowed number of columns  130   / lines    62      current last line     49

  Col/  11        21        31        41        51        61        71        81
  Line   I---------I---------I---------I---------I---------I---------I---------I
   31     I                                                                    I
   32     I                                                                    I
   33     I Spool  Function    :  NAFFC                                        I
   34     I                                                                    I
   35     I Current Date       :  NAFDT         Current Time    : NAFTI        I
   36     I                                                                    I
   37     I Job Number         :  NAFJB         User ID         : NAFID        I
   38     I                                                                    I
   39     I Destination / Form :  NAFDF         Logical Printer : NAFLP        I
   40     I                                                                    I

  Modify values for header page.
  Command ==>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit  Store  <<    --     -    +    Full   <     >    Canc
```

You can use the following standard Natural editor line commands with all possible combinations, such as `.CX-Y` (see the online help):

- `.X`
- `.Y`
- `.C`
- `.D`
- `.M`
- `.I`

To store the header page, press PF4.

18 NAF - Application - Function 31.6

- Invoking Application 142
- Selecting an Application from a List 142
- Maintaining an Application 143

You can define applications that are to be accessed from within SYSPOOL. To access a defined application, use **Function 13**.

Invoking Application

When you invoke this function, the **Application** window appears:

```
Time 16:30:10        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                              M e n u                  File 7/411
                                    +---------Application 7/411 -------------+
        Administration              !                                        !
                                    !  Enter name of                         !
        10 Reports / Queues         !                                        !
        11 Devices                  !       Application                      !
        12 Abstracts                !                                        !
        13 Applications             !  or                                    !
        14 Change Spool File        !                                        !
                                    !      *    for Selection                !
        Maintenance                 !                                        !
                                    !      ?    for Help                     !
        30 Spool File Properties    !                                        !
        31 Objects                  !      .    for End                      !
        32 Mass Update              !                                        !
        33 Hardcopy Allocations     !      --------------------------        !
        34 Transfer Objects         !      / _________ /                     !
                                    !                                        !
                                    +----------------------------------------+
  Enter values.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

In this window, you can specify the name of an existing application, select an application from a list of applications available or add a new application to the spool file.

Selecting an Application from a List

To select an application from a list, enter one of the following:

- a partly-qualified name (e.g. S* to list all applications starting alphabetically from S),
- an asterisk (*) to list all applications in the NATSPOOL system.

A list of applications is then shown in a window.

```
Time 16:31:42        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                            M e n u                    File 7/411
                                    +-------------Select with *--------------+
        Administration              !  New start value ......... _________   !
                                    !  ------------------------------------   !
        10 Reports / Queues         !  Fl Cm  Name        Fl Cm  Name         !
        11 Devices                  !  -- --  ---------   -- --  ---------    !
        12 Abstracts                !      _  ADABAS          _  BUFFER       !
        13 Applications             !      _  ERROR           _  HHI          !
        14 Change Spool File        !      _  MYAPPL          _  NOM          !
                                    !      _  SAGSIS          _  SYSMAIN      !
        Maintenance                 !      _  TP                              !
                                    !                                         !
        30 Spool File Properties    !                                         !
        31 Objects                  !                                         !
        32 Mass Update              !                                         !
        33 Hardcopy Allocations     !                                         !
        34 Transfer Objects         !                                         !
                                    !                                         !
                                    +-----------------------------------------+
  Mark on selection list.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit                    --                          Canc
```

`P` in the `Fl` (flag) column indicates that the application has been protected by its owner.

In the `Cm` column, you can enter one of the following codes:

Code	Description
`C`	Copy application.
`D`	Delete application.
`R`	Rename application.
`.`	Exit function.
`X` or any other character	Display application for modification or deletion, see below.

Maintaining an Application

If the specified application exists, it is displayed. You can modify the parameters or delete the whole application.

Note: If you specify a name that does not yet exist, you can add a new application. In this case, the Delete option is not provided in the window.

```
Time 16:31:42        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                            M e n u                    File 7/411
                                      +----------- Application ----------------+
        Administration                !  Modify                    ADABAS      !
                                      !  Delete (Y/N)                      N    !
        10 Reports / Queues           !  ----------------------------------    !
        11 Devices                    !  Owner ........................... N    !
        12 Abstracts                  !                                        !
        13 Applications               !                                        !
        14 Change Spool File          !  Private ......................... N    !
                                      !                                        !
        Maintenance                   !  ----------------------------------    !
                                      !  Library Name ............ SYSAOS__    !
        30 Spool File Properties      !                                        !
        31 Objects                    !  Start program ........... MENU____    !
        32 Mass Update                !                                        !
        33 Hardcopy Allocations       !  Notes                                 !
        34 Transfer Objects           !  Adabas Online System____________      !
                                      !  ______________________________      !
                                      +----------------------------------------+
  Modify values or press PF-Key.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

For each application, a library and a start program has to be defined. You can also provide a short description.

With **Function 30.7** the access rights for an application can be restricted to specific users.

19 NAF - Cluster - Function 31.7

- Invoking Cluster 146
- Selecting a Cluster from a List 147
- Maintaining a Cluster 148

When using Natural Advanced Facilities in an environment which requires decentralized administration of printers, you can create groups of logical printers. These groups are called clusters. Administration of reports and printers (Functions 10 and 11) can be restricted to these clusters.

Each cluster is defined by a number of logical printers. When a logical printer is assigned to a cluster, all allocations and physical printers defined to the logical printer are automatically assigned to the cluster. Each logical printer, allocation and physical printer can only be assigned to one cluster.

Note: Since active clusters result in more Adabas calls, usage of clusters can be deactivated with **Function 30.5**. In this case, Function 31.7 cannot be invoked.

Invoking Cluster

When you invoke this function, the **Cluster** window appears:

```
Time 11:43:31        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                          M e n u                      File 7/411
                                    +-----------Cluster 7/411 ---------------+
       Administration               !                                        !
                                    !  Enter name of                         !
       10 Reports / Queues          !                                        !
       11 Devices                   !       Cluster                          !
       12 Abstracts                 !                                        !
       13 Applications              !  or                                    !
       14 Change Spool File         !                                        !
                                    !      *    for Selection                !
       Maintenance                  !                                        !
                                    !      ?    for Help                     !
       30 Spool File Properties     !                                        !
       31 Objects                   !      .    for End                      !
       32 Mass Update               !                                        !
       33 Hardcopy Allocations      !      -------------------------         !
       24 Transfer Objects          !      / _________ /                     !
                                    !                                        !
                                    +----------------------------------------+
  Enter values.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit  User  Logic Alloc Print Heade Appli Clust NTCC  Canc
```

In this window, you can specify the name of an existing cluster, select a cluster from a list of clusters available or add a new cluster to the spool file.

Selecting a Cluster from a List

To select a cluster from a list, enter one of the following:

- a partly-qualified name (e.g. `C*` to list all clusters starting alphabetically from C),
- an asterisk (*) to list all clusters in the `NATSPOOL` system.

A list of clusters is then shown in a window.

```
Time 12:16:16        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                            M e n u                    File 7/411
                                      +-------------Select with *--------------+
        Administration                !  New start value ......... _________   !
                                      !  ------------------------------------   !
        10 Reports / Queues           !  Fl Cm  Name        Fl Cm  Name        !
        11 Devices                    !  -- --  ---------   -- --  ---------   !
        12 Abstracts                  !      _  CLU01           _  TESTCLUS    !
        13 Applications               !                                        !
        14 Change Spool File          !                                        !
                                      !                                        !
        Maintenance                   !                                        !
                                      !                                        !
        30 Spool File Properties      !                                        !
        31 Objects                    !                                        !
        32 Mass Update                !                                        !
        33 Hardcopy Allocations       !                                        !
        34 Transfer Objects           !                                        !
                                      !                                        !
                                      +----------------------------------------+
  Mark on selection list.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit                    --                          Canc
```

`P` in the `Fl` (flag) column indicates that the cluster has been protected by an administrator.

In the `Cm` column, you can enter one of the following codes:

Code	Description
`D`	Delete cluster.
`R`	Rename cluster.
.	Exit function.
`X` or any other character	Display cluster for modification or deletion, see below.

Maintaining a Cluster

If the specified cluster exists, it is displayed. You can modify the individual parameters or delete the whole cluster.

Note: If you specify a name that does not yet exist, you can add a new cluster. In this case, the Delete option is not provided in the window.

```
Time 10:52:30        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                            M e n u                    File 7/411
                                    +-------------- Cluster -----------------+
        Administration              !  Modify                   TESTCLUS      !
                                    !  Delete (Y/N)                    N      !
        10 Reports / Queues         !  --------------------------------      !
        11 Devices                  !  Owner(s) ..................... N      !
        12 Abstracts                !  --------------------------------      !
        13 Applications             !  Display/remove assigned               !
        14 Change Spool File        !  Logical Printer(s) ........... N      !
                                    !                                        !
        Maintenance                 !  Add/remove from list of               !
                                    !  all Logical Printers ......... N      !
        30 Spool File Properties    !                                        !
        31 Objects                  !  Notes                                 !
        32 Mass Update              !  ____________________________________  !
        33 Hardcopy Allocations     !  ____________________________________  !
        34 Transfer Objects         !                                        !
                                    !  Save Cluster ................. _      !
                                    +------------------------------------------+
  Modify values or press PF-Key.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit  User  Logic Alloc Print Heade Appli Clust NTCC  Canc
```

In the window above, you can specify the following:

- Whether a list of the logical printers that have already been assigned to the cluster is to be displayed (`Y/N`). When you specify `Y`, you can mark a printer in the resulting window with `N` to remove it.
- Whether a list of all logical printers on the spool file is to be displayed (`Y/N`). When you specify `Y`, you can mark the printers that you want to assign to the current cluster with `Y` in the resulting window. To remove a printer from the current cluster, mark it with `N`. When a printer is marked with a plus sign (+), it has already been assigned to another cluster and can therefore not be assigned to the current cluster. A minus sign (-) means that the printer cannot be assigned since it is not a NAF printer.
- You can also provide a short description.

To save the cluster, mark the corresponding field in the window.

20 NAF - NTCC Table - Function 31.8

- Invoking NTCC Table 152
- Selecting an NTCC Table from a List 152
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An NTCC table contains printer-specific control information that is used during printing.

Invoking NTCC Table

When you invoke this function, the **NTCC Table** window appears:

```
Time 15:06:07        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                             M e n u                   File 7/411
                                   +----------- NTCC Table 7/411 -----------+
       Administration              !                                         !
                                   !  Enter name of                          !
       10 Reports/Queues           !                                         !
       11 Devices                  !       NTCC Table                        !
       12 Abstracts                !                                         !
       13 Applications             !  or                                     !
       14 Change Spool File        !                                         !
                                   !      *    for Selection                 !
                                   !                                         !
       Maintenance                 !      ?    for Help                      !
                                   !                                         !
       30 Spool File Properties    !      .    for End                       !
       31 Objects                  !                                         !
       32 Mass Update              !      -------------------------          !
       33 Hardcopy Allocations     !      / ________ /                       !
       34 Transfer Objects         !                                         !
                                   +-----------------------------------------+
 Enter values.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli Clust NTCC  Canc
```

In this window, you can specify the name of an existing NTCC table, select an NTCC table from a list of NTCC tables available or add a new NTCC table to the spool file.

Selecting an NTCC Table from a List

To select an NTCC table from a list, enter one of the following:

- a partly-qualified name (e.g. `T*` to list all NTCC tables starting alphabetically from T),
- an asterisk (*) to list all NTCC tables in the `NATSPOOL` system.

A list of NTCC tables is then shown in a window.

```
Time 15:06:45        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                              M e n u                  File 7/411
                                    +-------------Select with *--------------+
       Administration               !  New start value ......... _________   !
                                    !  ------------------------------------   !
       10 Reports/Queues            !  Fl Cm  Name        Fl Cm  Name         !
       11 Devices                   !  -- --  ---------   -- --  ---------    !
       12 Abstracts                 !      _  NAF             _  TEST1        !
       13 Applications              !                                         !
       14 Change Spool File         !                                         !
                                    !                                         !
                                    !                                         !
       Maintenance                  !                                         !
                                    !                                         !
       30 Spool File Properties     !                                         !
       31 Objects                   !                                         !
       32 Mass Update               !                                         !
       33 Hardcopy Allocations      !                                         !
       34 Transfer Objects          !                                         !
                                    +-----------------------------------------+
 Mark on selection list.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                    --                          Canc   ↩
```

`P` in the `Fl` (flag) column indicates that the NTCC table has been protected by its owner.

In the `Cm` column, you can enter one of the following codes:

Code	Description
`C`	Copy NTCC table.
`D`	Delete NTCC table.
`R`	Rename NTCC table.
`.`	Exit function.
`X` or any other character	Display NTCC table for modification or deletion, see below.

Maintaining an NTCC Table

If the specified NTCC table exists, it is displayed. You can modify the individual parameters or delete the whole NTCC table.

Note: If you specify a name that does not yet exist, you can add a new NTCC table. In this case, the Delete option is not provided in the window.

```
Time 15:07:41        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                             M e n u                   File 7/411
                                   +-------------- NTCC Table --------------+
       Administration              !  Modify                TESTPROF        !
                                   !  Delete (Y/N)          N               !
       10 Reports/Queues           !  ------------------------------------ !
       11 Devices                  !  Owner (Y/N) ..................  N     !
       12 Abstracts                !  ------------------------------------ !
       13 Applications             !  Maintenance                          !
       14 Change Spool File        ! - user-defined attributes (Y/N) N     !
                                   ! - conversion table (Y/N)        N     !
                                   !                                      !
       Maintenance                 !  Notes                               !
                                   !  ____________________________________ !
       30 Spool File Properties    !  ____________________________________ !
       31 Objects                  !  ------------------------------------ !
       32 Mass Update              !  Enter  Printer Type                  !
       33 Hardcopy Allocations     !  * for selection or                   !
       34 Transfer Objects         !  . for exit function  ________        !
                                   +--------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                                                 Canc
```

For each NTCC table, you can define different printer types. For each printer type, you can define standard attributes and/or user-defined attributes.

In the window above, you can specify the following:

- Whether you want to **add or delete user-defined attributes** that are valid for all printer types defined in the current NTCC table (`Y/N`).
- Whether you want to add or delete a conversion table for hexadecimal values that is valid for all printer types defined in the current NTCC table (`Y/N`).
- The name for a **new printer type or of an existing printer type**.

You can also enter an asterisk (*) to select an existing printer type from a list. In the `Cm` column of the resulting window, you can then enter one of the following codes:

Code	Description
`C`	Copy printer type.
`D`	Delete printer type.
`R`	Rename printer type.
`.`	Exit function.
`X` or any other character	Display **printer type** for modification or deletion.

Maintaining User-Defined Attributes for All Printer Types

User-defined attributes are freely defined strings that can be up to 10 bytes long. While printing, these strings are replaced with printer-specific control sequences.

When you specify `Y` to add or delete user-defined attributes that are valid for all printer types defined in the current NTCC table, the following screen appears:

```
Time 10:29:26        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                           M e n u                     File 7/411
    +------------User defined attributes for  NTCC Table : TESTPROF-------------+
    !  _ #DEV#_____   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    !  _ __________   _ __________   _ __________   _ __________   _ __________ !
    +-----------------------------------------------------------------------------+
  Mark with function or press PF key
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit                                                  Canc
```

You can define up to 60 user-defined attributes.

In the example above, `#DEV#` was defined as a user-defined attribute.

You can mark an attribute with one of the following codes:

Code	Description
`D`	Delete user-defined attribute.
.	Exit function.
`X` or any other character	Add/modify a note for this attribute in a window.

Maintaining a Conversion Table

With the option Conversion Table, you can convert hexadecimal values by using the internal NAF conversion table.

If you choose this option, a screen similiar to the one below appears:

```
Time 10:36:46        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                  Conversion Table for TESTPROF        File 7/411

        0   1   2   3   4   5   6   7   8   9   A   B   C   D   E   F
    0  40  01  02  03  04  05  06  07  08  09  0A  0B  0C0D 0E  0F
    1  10  11  12  13  14  15 16  17  18  19  1A  1B  1C  1D  1E  1F
    2  20  21  22  23  24  25  26  27  28  29  2A  2B  2C  2D  2E  2F
    3  30  31  32  33  34  35  36  37  38  39  3A  3B  3C  3D  3E  3F
    4  40  41  42  43  44  45  46  47  48  49  4A  4B  4C  4D  4E  4F
    5  50  51  52  53  54  55  56  57  58  59  5A  5B  5C  5D  5E  5F
    6  60  61  62  63  64  65  66  67  68  69  6A  6B  6C  6D  6E  6F
    7  70  71  72  73  74  75  76  77  78  79  7A  7B  7C  7D  7E  7F
    8  80  81  82  83  84  85  86  87  88  89  8A  8B  8C  8D  8E  8F
    9  90  91  92  93  94  95  96  97  98  99  9A  9B  9C  9D  9E  9F
    A  A0  A1  A2  A3  A4  A5  A6  A7  A8  A9  AA  AB  AC  AD  AE  AF
    B  B0  B1  B2  B3  B4  B5  B6  B7  B8  B9  BA  BB  BC  BD  BE  BF
    C  C0  C1  C2  C3  C4  C5  C6  C7  C8  C9  CA  CB  CC  CD  CE  CF
    D  D0  D1  D2  D3  D4  D5  D6  D7  D8  D9  DA  DB  DC  DD  DE  DF
    E  E0  E1  E2  E3  E4  E5  E6  E7  E8  E9  EA  EB  EC  ED  EE  EF
    F  F0  F1  F2  F3  F4  F5  F6  F7  F8  F9  FA  FB  FC  FD  FE  FF
Modify values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Reset                                          Canc
```

In the example above, the hexadecimal value `00` has been replaced by the hexadecimal value `40` in all lines of the report. You can specify a conversion table for an entire NTCC table, but also for further table specifications in order to define a special printer type. The table defining the printer type is then processed before the entire NTCC table.

Note: The spool server interprets the hexadecimal values `0C`, `0D` and `15` as form feed, carriage return and line feed respectively. You cannot define any substitutes for these values. You can use these values for replacing other values. However, this can lead to undesirable side effects, such as unintended form feeds or line feeds.

Maintaining a Printer Type

If the specified printer type exists, it is displayed. You can modify the individual parameters or delete the whole printer type.

Note: If you specify a name that does not yet exist, you can add a new printer type. In this case, the Delete option is not provided in the window.

```
Time 15:11:52        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                            M e n u                    File 7/411
                                      +-------------- NTCC Table --------------+
       Administration                 !  Modify                  TESTPROF       !
                                      !  Printer Type            PTYPE          !
       10 Reports/Queues              !  Delete (Y/N)                    N      !
       11 Devices                     !  ----------------------------------    !
       12 Abstracts                   !  Replacement for ESCAPE (H'27')   #    !
       13 Applications                !                                         !
       14 Change Spool File           !  Notes                                  !
                                      !  _____________________________________  !
                                      !  _____________________________________  !
       Maintenance                    !  ----------------------------------    !
                                      !  Maintenance functions                  !
       30 Spool File Properties       !  Standard attributes  ..... _          !
       31 Objects                     !  User-defined attributes  ..... _      !
       32 Mass Update                 !  Conversion table ..... _              !
       33 Hardcopy Allocations        !                                         !
       34 Transfer Objects            !  Save and exit function ..... _        !
                                      +-----------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                                                  Canc
```

You can specify the following:

- A replacement character for the escape character (`H'27'`) which normally indicates a control sequence. This is helpful, since escape characters often corrupt a screen.
- Whether you want to define, modify or delete standard attributes for the current printer type. See below.
- Whether you want to **modify the user-defined attributes for the current printer type**.
- Whether you want to modify the conversion table for hexadecimal values that is valid for the current printer type.

Below is information on:

- **Maintaining Standard Attributes**

- Maintaining Standard Attribute Definitions
- Maintaining User-Defined Attributes for Current Printer Type

Maintaining Standard Attributes

The standard attributes are the Natural attributes `AD`, `BX`, `CD`, `OPEN` and `CLOSE`.

The `OPEN` information is processed before the report is printed. It can consist of either text or control sequences (for example, to switch to landscape format). The `CLOSE` information is processed after the report has been printed and can also consist of text or control sequences.

When you choose to maintain the standard attributes that are valid for the current printer type, the following screen appears:

```
Time 10:29:26        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                          M e n u                      File 7/411
                                    +--------- Standard Attributes ----------+
        Administration              !                                         !
                                    !                                         !
        10 Reports / Queues         !    _  AD=U  +          _  AD=C          !
        11 Devices                  !    _  AD=I             _  AD=V          !
        12 Abstracts                !                                         !
        13 Applications             !    _  BX=L             _  BX=T          !
        14 Change Spool File        !    _  BX=R             _  BX=B          !
                                    !                                         !
        Maintenance                 !    _  CD=NE            _  CD=YE         !
                                    !    _  CD=TU            _  CD=GR         !
        30 Spool File Properties    !    _  CD=PI            _  CD=RE         !
        31 Objects                  !    _  CD=BL                             !
        32 Mass Update              !                                         !
        33 Hardcopy Allocations     !    _  OPEN  +          _  CLOSE         !
        34 Transfer Objects         !                                         !
                                    !                                         !
                                    +-----------------------------------------+
  Mark with function or press PF key
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit                                                 Canc
```

This screen contains all available attributes. A plus (+) sign next to an attribute indicates that an attribute definition has already been provided.

You can mark an attribute with one of the following codes:

Code	Description
D	Delete attribute definition.
X or any other character	Display attribute definition for modification, see below.

Maintaining Standard Attribute Definitions

When you mark a standard attribute definition for modification or deletion, the following screen appears:

```
Time 11:03:29        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                   Standard Attributes AD=U            File 7/411

   Attribute P2UL       NTCC Table TESTPROF Printer Type PTYPE1          Save _
   Replace character for ESCAPE #
   Hexadecimal Format          On Sequence :<U:       Alphanumeric Format
   ------------------------------------------------- -------------------------
   271100000000000000000000000000000000000000000000 #?_____________________
   000000000000000000000000000000000000000000000000 _____________________
   000000000000000000000000000000000000000000000000 _____________________
   000000000000000000000000000000000000000000000000 _____________________
   000000000000000000000000000000000000000000000000 _____________________
   Hexadecimal Format         Off Sequence :U>:       Alphanumeric Format
   ------------------------------------------------- -------------------------
   279100000000000000000000000000000000000000000000 #j_____________________
   000000000000000000000000000000000000000000000000 _____________________
   000000000000000000000000000000000000000000000000 _____________________
   000000000000000000000000000000000000000000000000 _____________________
   000000000000000000000000000000000000000000000000 _____________________
  Notes ...... ___________________________________________________________
  Mark with function or press PF key
  Command===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit                                                 Ca ↩
```

The internal attribute name for the standard attribute is shown. In the example above, the internal name for AD=U (underscoring) is P2UL. The corresponding internal On and Off sequences are :<U: and :>U:.

The following table lists the Natural attributes and the corresponding internal On and Off sequences.

Natural Attribute	On Sequence	Off Sequence
AD=U	:<U:	:U>:
AD=C	:<C:	:C>:
AD=I	:<I:	:I>:
AD=V	:<V:	:V>:
BX=L	:<BL:	:BL>:

Natural Attribute	On Sequence	Off Sequence
BX=T	:<BT:	:BT>:
BX=R	:<BR:	:BR>:
BX=B	:<BB:	:BB>:
CD=NE	:<N:	:N>:
CD=YE	:<Y:	:Y>:
CD=TU	:<T:	:T>:
CD=GR	:<G:	:G>:
CD=PI	:<P:	:P>:
CD=RE	:<R:	:R>:
CD=BL	:<B:	:B>:

The replacement character for the escape character (H'27') that has been defined for the example above is a hash (#)

In the example above, the hexadecimal value 2711 is defined as the On sequence. This is the string which replaces the AD=U attribute when underscoring is switched on. As the Off sequence, the hexadecimal value 2791 is defined. This is the string which replaces the AD=U attribute when underscoring is switched off.

When you mark the OPEN or CLOSE attribute, the resulting screen is slightly different:

```
Time 15:35:18        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                     Standard Attribute                File 7/411


   Attribute OPEN       NTCC Table TESTPROF  Printer Type PTYPE1      Save _
   Replace character for ESCAPE #

   Hexadecimal Format                                  Alphanumeric Format
   -------------------------------------------------- -------------------------
   C995A596898385000000000000000000000000000000000000 Invoice_____________________
   000000000000000000000000000000000000000000000000000 _________________________
   000000000000000000000000000000000000000000000000000 _________________________
   000000000000000000000000000000000000000000000000000 _________________________
   000000000000000000000000000000000000000000000000000 _________________________

   OPEN       to be used as control sequence _
   OPEN       to be used as text information *

  Notes ...... ____________________________________________________________

  Mark with function or press PF key
  Command===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit                                                  Canc
```

For the OPEN and CLOSE attributes, you can specify the following:

- A hexadecimal or alphanumeric value for a control sequence, or text that is to be used before (OPEN) or after (CLOSE) a report is printed.
- Whether the OPEN or CLOSE attribute is to be used as control sequence or text information. You can only mark one of the two options.

To save the new definition, mark the Save field.

Maintaining User-Defined Attributes for Current Printer Type

When you choose to maintain the user-defined attributes that are valid for the current printer type, the following screen appears:

```
Time 11:04:56        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                           M e n u                     File 7/411
               +---User defined attributes for  NTCC Table TESTPROF / PTYPE1----+
        Admini !  _ #DEV#                                                      !
               !                                                               !
        10 Rep !                                                               !
        11 Dev !                                                               !
        12 Abs !                                                               !
        13 App !                                                               !
        14 Cha !                                                               !
               !                                                               !
        Mainte !                                                               !
               !                                                               !
        30 Spo !                                                               !
        31 Obj !                                                               !
        32 Mas !                                                               !
        33 Har !                                                               !
        34 Tra !                                                               !
               !                                                               !
               +---------------------------------------------------------------+
  Modify values or press PF-Key.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit                                                 Canc
```

In the example above, #DEV# was defined as a user-defined attribute. This attribute was **defined for all printer types** in the NTCC table.

You can mark an attribute with one of the following codes:

Code	Description
D	Delete attribute definition.
X or any other character	Display attribute definition for modification, see below.

When you mark an attribute and press Enter, the following screen appears and you can modify the attribute definition for the current printer type.

```
Time 11:05:41        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                      User-defined Attribute           File 7/411


  Attribute #DEV#        NTCC Table TESTPROF  Printer Type PTYPE1        Save
 _

  Replace Character for ESCAPE  #

  Hexadecimal Format                                    Alphanumeric Format
  ------------------------------------------------- -------------------------
  D3C1E2C5D940F1000000000000000000000000000000000000 LASER 1_________________
  000000000000000000000000000000000000000000000000000 _____________________
  000000000000000000000000000000000000000000000000000 _____________________
  000000000000000000000000000000000000000000000000000 _____________________
  000000000000000000000000000000000000000000000000000 _____________________


 Notes ...... Replacement for #DEV# for all printers with type PTYPE1


 Command===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                                                  Canc
```

In the example above, the alphanumeric value LASER 1 was defined. While printing, the attribute #DEV# will be replaced with LASER 1.

Example:

This example explains how NTCC tables and reports work together.

The NTCC table TESTPROF contains the user-defined attribute #DEV# and printer types PTYPE1 and PTYPE2. For these printer types, the following definitions apply:

- PTYPE1: the user-defined attribute #DEV# will be replaced with LASER 1. The standard attribute AD=U will be replaced with the On sequence H'2711' and the Off sequence H'2791'. For the standard attribute OPEN, the text information “Invoice” was defined.
- PTYPE2: the user-defined attribute #DEV# will be replaced with INK 2. The standard attribute AD=U will be replaced with the On sequence H'2714' and the Off sequence H'2794'.

There is a DEFINE PRINTER statement with the PROFILE parameter set to TESTPROF. Using the allocation DEST/A, this logical printer refers to the physical printers PRINTER1 and PRINTER2. For these physical printers, the following applies:

- For PRINTER1, PTYPE1 is defined as the printer type.
- For PRINTER2, PTYPE2 is defined as the printer type.

The WRITE statement contains the following:

```
'The' 'report' (AD=U) 'is printed on #DEV#'
```

This creates a report for the logical printer containing the following line:

```
The :U<:report:>U: is printed on #DEV#
```

When the report is output on the physical printer PRINTER1, the spool server recognizes the connection between the NTCC table TESTPROF (of the DEFINE PRINTER statement) and the printer type PTYPE1 (of the physical printer). The line above is then rendered as follows:

```
The H'2711'reportH'2791' is printed on LASER 1
```

which results in the following output:

```
Invoice
The report is printed on LASER 1
```

When the same report is output on PRINTER2, the line above is rendered as follows:

```
The H'2714'totalH'2794' is printed on INK 2
```

which results in the following output:

```
The report is printed on INK 2
```

Restrictions

If a report is created using an NTCC table defined in the NTCCTAB of the Natural parameter module, printer-specific replacement is not done by Natural Advanced Facilities. Replacement then occurs, as usual, when the report is created.

When the replacement is done by Natural Advanced Facilities and the required NTCC table with a printer type definition does not exist, the report cannot be printed and its status is set to MINT (missing NTCC table).

The assignment of the NTCC table of Natural Advanced Facilities can only be done dynamically by using the `DEFINE PRINTER` statement (`PROFILE` clause).

21 NAF - Calendar - Function 31.9

- Invoking Calendar 166
- Selecting a Calendar from a List 166
- Maintaining a Calendar 167

Using a calendar, you can control the deletion of reports.

Invoking Calendar

When you invoke this function, the **Calendar** window appears:

```
Time 11:23:19        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                             M e n u                   File 7/411
                                      +------------ Calendar 7/411 ------------+
      Administration                  !                                        !
                                      !  Enter name of                         !
      10 Reports/Queues               !                                        !
      11 Devices                      !       Calendar                         !
      12 Abstracts                    !                                        !
      13 Applications                 !  or                                    !
      14 Change Spool File            !                                        !
                                      !      *    for Selection                !
                                      !                                        !
      Maintenance                     !      ?    for Help                     !
                                      !                                        !
      30 Spool File Properties        !      .    for End                      !
      31 Objects                      !                                        !
      32 Mass Update                  !      -------------------------         !
      33 Hardcopy Allocations         !      / ________ /                      !
      34 Transfer Objects             !                                        !
                                      +----------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  User  Logic Alloc Print Heade Appli Clust NTCC  Canc
```

In this window, you can specify the name of an existing calendar, select a calendar from a list of calendars available or add a new profile to the spool file.

Selecting a Calendar from a List

To select a calendar from a list, enter one of the following:

- a partly-qualified name (e.g. `T*` to list all calendars starting alphabetically from T),
- an asterisk (*) to list all calendars in the `NATSPOOL` system.

A list of calendars is then shown in a window.

```
Time 14:15:33        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                              M e n u                  File 7/411
                                     +-------------Select with *--------------+
        Administration               !  New start value ......... _________   !
                                     !  ------------------------------------   !
        10 Reports / Queues          !  Fl Cm  Name        Fl Cm  Name         !
        11 Devices                   !  -- --  ---------   -- --  ---------    !
        12 Abstracts                 !      _  CAL01           _  MYCAL        !
        13 Applications              !      _  TESTCAL                         !
        14 Change Spool File         !                                         !
                                     !                                         !
        Maintenance                  !                                         !
                                     !                                         !
        30 Spool File Properties     !                                         !
        31 Objects                   !                                         !
        32 Mass Update               !                                         !
        33 Hardcopy Allocations      !                                         !
        34 Transfer Objects          !                                         !
                                     !                                         !
                                     +-----------------------------------------+
  Mark on selection list.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit                    --                          Canc
```

The calendars defined for the logical printer which was used for the initialization of the current Natural session are highlighted in the window.

In the `Cm` column, you can enter one of the following codes:

Code	Description
`C`	Copy calendar.
`D`	Delete calendar.
`R`	Rename calendar.
`.`	Exit function.
`X` or any other character	Display calendar for modification or deletion, see below.

Maintaining a Calendar

If the specified calendar exists, it is displayed. You can modify the individual parameters or delete the whole calendar.

Note: If you specify a name that does not yet exist, you can add a new calendar. In this case, the Delete option is not provided in the window.

```
Time 14:15:00        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                          M e n u                      File 7/411
        +-------------------------- Calendar TESTCAL ---------------------------+
        !  Modify               TESTCAL                 Delete (Y/N)         N !
        !  ------------------------------------------------------------------- !
        !  Owner N                                                              !
        !  ------------------------------------------------------------------- !
        !  Default day for start of week (1-7) 1  / start of weekend (0,1-7)  6 !
        !  (1 - Monday          ,   7 Sunday)                        !
        !  ------------------------------------------------------------------- !
        !  Notes                                                                !
        !  ____________________________________________________________        !
        !                                                                       !
        !  Mk Year Mk Year Mk Year Mk Year Mk Year Mk Year Mk Year Mk Year      !
        !  -- ---- -- ---- -- ---- -- ---- -- ---- -- ---- -- ---- -- ----      !
        !   _ 1996                                                              !
        !                                                                       !
        !                                                                       !
        !   Mark or enter year ____                                    !
        +-----------------------------------------------------------------------+
  Mark on selection list or enter new year.
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
        Help  Menu  Exit                                                 Canc
```

In this window, you can enter the following:

- The default for the first day of the week.
- The default for the first day of the weekend. The value `0` means that weekends are not considered.
- A short description.
- A year (see below).

When you specify a year (for example, `2002`) and press Enter, the calendar for the first half of the specified year appears. Pressing Enter once more displays the second half.

```
Time 11:00:05        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                   Calendar TESTCAL / 2002             File 7/411
                  January                 February                March
  Monday              7 14 21 28              4 11 18 25              4 11 18 25
  Tuesday          1  8 15 22 29              5 12 19 26              5 12 19 26
  Wednesday        2  9 16 23 30              6 13 20 27              6 13 20 27
  Thursday         3 10 17 24 31              7 14 21 28              7 14 21 28
  Friday           4 11 18 25              1  8 15 22              1  8 15 22 29
  Saturday         5 12 19 26              2  9 16 23              2  9 16 23 30
  Sunday           6 13 20 27              3 10 17 24              3 10 17 24 31
                  April                   May                     June
  Monday           1  8 15 22 29              6 13 20 27              3 10 17 24
  Tuesday          2  9 16 23 30              7 14 21 28              4 11 18 25
  Wednesday        3 10 17 24              1  8 15 22 29              5 12 19 26
  Thursday         4 11 18 25              2  9 16 23 30              6 13 20 27
  Friday           5 12 19 26              3 10 17 24 31              7 14 21 28
  Saturday         6 13 20 27              4 11 18 25              1  8 15 22 29
  Sunday           7 14 21 28              5 12 19 26              2  9 16 23 30
 --------------------------------------------------------------------------------
  Reset calendar _  Modify start/end of week _  Save values _   Exit function _
 Modify values, or press a PF-key.
 Command==>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  Save  Modif Reset                            Canc
```

Non-working days, such as weekends are highlighted. Working days are not highlighted. To modify the status of a day (working or non-working day), mark the day with any character and press Enter.

Using the fields of the bottom of the screen, you can:

- reset the calendar to the default values,
- modify the first day of the week and of the weekend (for the current year only),
- save the values.

22 NAF - Message Header - Function 31.A

- Invoking Message Header 172
- Selecting a Message Header from a List 173
- Maintaining a Message Header 174

This function is only available under BS2000/OSD.

For printers directly connected to a processor or terminal, it is often required to print a header before the actual message. This message header contains information on acknowledgments and printing itself (`LA1` function for hardcopy devices). For detailed information, see the corresponding SNI manuals.

The standard message headers `*STD B` (bypass printers) and `*STD N` (processor connection) are delivered with the spool file. If the connection type (for example, `S`) does not allow the usage of message headers, message processing is left to the operating system.

Invoking Message Header

When you invoke this function, the **Message Header** window appears where you can specify the name of a message header and the connection type in a window. This corresponds to the message header and connection type specified with **Function 31.4**.

```
Time 11:06:24        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                            M e n u                    File 7/411
                                      +--------- Message Header 7/411 ---------+
       Administration                 !                                        !
                                      !  Enter name of                         !
       10 Reports/Queues              !                                        !
       11 Devices                     !       Message Header                   !
       12 Abstracts                   !                                        !
       13 Applications                !  or                                    !
       14 Change Spool File           !                                        !
                                      !      *    for Selection                !
                                      !                                        !
       Maintenance                    !      ?    for Help                     !
                                      !                                        !
       30 Spool File Properties       !      .    for End                      !
       31 Objects                     !                                        !
       32 Mass Update                 !      --------------------------        !
       33 Hardcopy Allocations        !      / ________ / _                    !
       34 Transfer Objects            !                                        !
                                      +----------------------------------------+
 Enter values.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli Clust NTCC  Canc
```

From the **Message Header** window, you can also select a message header from a list of message headers available or add a new message header to the spool file.

Selecting a Message Header from a List

To select a message header from a list, enter one of the following:

- a partly-qualified name (e.g. `S*` to list all message headers starting alphabetically from S),
- an asterisk (*) to list all message headers in the `NATSPOOL` system.

A list of message headers is then shown in a window.

```
Time 11:07:01        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                            M e n u                    File 7/411
                                      +-------------Select with *--------------+
       Administration                 !  New start value ......... _________   !
                                      !  ------------------------------------   !
       10 Reports/Queues              !  Fl Cm  Name         Fl Cm  Name        !
       11 Devices                     !  -- --  ---------    -- --  ---------   !
       12 Abstracts                   !      _  *STD    B        _  *STD    N   !
       13 Applications                !                                          !
       14 Change Spool File           !                                          !
                                      !                                          !
                                      !                                          !
       Maintenance                    !                                          !
                                      !                                          !
       30 Spool File Properties       !                                          !
       31 Objects                     !                                          !
       32 Mass Update                 !                                          !
       33 Hardcopy Allocations        !                                          !
       34 Transfer Objects            !                                          !
                                      +------------------------------------------+
 Mark on selection list.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                    --                           Canc
```

In the Cmcolumn, you can enter one of the following codes:

Code	Description
`C`	Copy message header.
`D`	Delete message header.
`R`	Rename message header.
.	Exit function.
`X` or any other character	Display message header for modification or deletion, see below.

Maintaining a Message Header

If the specified message header exists, it is displayed. You can modify the individual parameters or delete the whole message header.

Note: If you specify a name that does not yet exist, you can add a new message header. In this case, the Delete option is not provided in the window.

The standard message headers are protected and can only be displayed/modified by using the password for the spool file. Standard message headers cannot be deleted.

```
Time 11:07:01        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                          M e n u                      File 7/411
                                    +------------ Message Header ---More:   ++
       Administration               !  Modify                                !
                                    !  Message header *STD     or Bypass     !
       10 Reports/Queues            !                                        !
       11 Devices                   !  ------------------------------------- !
       12 Abstracts                 !  Owner .......................         !
       13 Applications              !                                        !
       14 Change Spool File         !  ------------------------------------- !
                                    !                                        !
                                    !                                        !
       Maintenance                  !  NBZ    7C                             !
                                    !                                        !
       30 Spool File Properties     !  Par1   274081 C97C 0088F1E27CF1F27C   !
       31 Objects                   !  End1   5A                             !
       32 Mass Update               !                                        !
       33 Hardcopy Allocations      !  Par2   274081 C87C D87C7CC17C7C7C7C   !
       34 Transfer Objects          !  End2   5A                             !
                                    +----------------------------------------+
 Enter values for type/connection.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                    --                          Canc   ↩
```

For information on how to define a message header, see the corresponding SNI manuals.

23 NAF - Mass Update - Function 32

- Logical Printer - Function 32.1 176
- Allocation Table - Function 32.2 178
- Printer - Function 32.3 180

When you invoke this function, the **Mass Update** window appears.

```
Time 10:55:04        *** Natural Spool Administration ***      Date 2002-11-26
User SAG                            M e n u                    File 19999/1241
                                     +---------Mass Update 19999/1241---------+
      Administration                 !                                         !
                                     !   1     Logical Printer                 !
      10 Reports/Queues              !   2     Allocation Table                !
      11 Devices                     !   3     Printer                         !
      12 Abstracts                   !                                         !
      13 Applications                !                                         !
      14 Change Spool File           !                                         !
                                     !                                         !
                                     !                                         !
      Maintenance                    !                                         !
                                     !                                         !
      30 Spool File Properties       !                                         !
      31 Objects                     !                                         !
      32 Mass Update                 !   .     Exit                            !
      33 Hardcopy Allocations        !                                         !
      34 Transfer Objects            !   Command / _  /                        !
                                     +-----------------------------------------+
Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Logic Alloc Print                              Canc  ↩
```

You can select whether you want to update logical printers, physical printers or your allocation table. For example, you can globally modify the number of copies for all logical printers.

The following applies when you invoke any of the functions listed in the Mass Update window:

- First, mark the fields to be modified and press Enter.
- The window changes and you can now specify the values for these fields.
- When you press Enter again, you are asked whether you want to confirm each modification, whether you want to modify without confirmation, or whether you want to exit the function without modification.

Logical Printer - Function 32.1

When you invoke this function, the **Mass Update / Logical Printer**(s) window appears.

```
Time 13:09:35        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                            M e n u                    File 7/411
                                      +---- Mass Update /  Logical Printer ----+
       Administration                 !  Mark the fields to be changed         !
                                      !  for all logical printers              !
       10 Reports/Queues              !                                        !
       11 Devices                     !    Number of duplicates ..... _        !
       12 Abstracts                   !    Disposition .............. _        !
       13 Applications                !    Priority ................. _        !
       14 Change Spool File           !                                        !
                                      !    Number of days for                  !
                                      !    retention period ......... _        !
       Maintenance                    !    Dispositions for an active          !
                                      !    retention period ......... _        !
       30 Spool File Properties       !    Calendar ................. _        !
       31 Objects                     !                                        !
       32 Mass Update                 !    Protection ............... _        !
       33 Hardcopy Allocations        !    Type of                             !
       34 Transfer Objects            !    logical printer .......... _        !
                                      +-----------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  Logic Alloc Print                              Canc
```

For information on the fields in this window, see **Function 31.2**.

Example:

When you mark Report Disposition with any character, the window changes. You can now, for example, set the report Disposition for all logical printers to `K`.

```
Time 13:09:35        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                             M e n u                   File 7/411
                                   +---- Mass Update /  Logical Printer ----+
       Administration              !  Enter values to be stored             !
                                   !  for all logical printers              !
       10 Reports/Queues           !                                        !
       11 Devices                  !    Number of duplicates ... 0__        !
       12 Abstracts                !    Disposition ...... ..... K          !
       13 Applications             !    Priority ............... 0__        !
       14 Change Spool File        !                                        !
                                   !    Number of days for                  !
                                   !    retention period ....... 0___       !
       Maintenance                 !    Dispositions for an active          !
                                   !    retention period         D H K L    !
       30 Spool File Properties    !    (Y/N) .................. _ _ _ _    !
       31 Objects                  !    Calendar ............... ________   !
       32 Mass Update              !    Protection (G,N,P,R,S) . _          !
       33 Hardcopy Allocations     !    Type of                             !
       34 Transfer Objects         !    logical printer ........ ________   !
                                   +-----------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  Logic Alloc Print                             Canc
```

When you press Enter, you have to specify whether you want to confirm each modification, or whether you want to apply all modifications without confirmation.

Allocation Table - Function 32.2

When you invoke this function, the **Mass Update / Allocation Table** window appears.

```
Time 13:11:52        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                              M e n u                  File 7/411
                                    +--- Mass Update /  Allocation Table ----+
       Administration               !  Mark the fields to be changed         !
                                    !  for all allocations                   !
       10 Reports/Queues            !                                        !
       11 Devices                   !                                        !
       12 Abstracts                 !                                        !
       13 Applications              !    Name of Header Page ... _           !
       14 Change Spool File         !                                        !
                                    !    Statistics flag ....... _           !
                                    !                                        !
       Maintenance                  !    Queue Status .......... _           !
                                    !                                        !
       30 Spool File Properties     !    Reset Time Window       _           !
       31 Objects                   !                                        !
       32 Mass Update               !                                        !
       33 Hardcopy Allocations      !                                        !
       34 Transfer Objects          !                                        !
                                    +----------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  Logic Alloc Print                              Canc
```

Note: Under BS2000/OSD, this window provides the additional field **Reset Time Window**.

For information on the fields in this window, see **Function 31.3**.

Example:

When you mark **Statistics Flag** with any character, the window changes. You can now, for example, deactivate the statistics for all allocations by specifying `N`.

```
Time 13:11:52        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                             M e n u                   File 7/411
                                   +--- Mass Update /  Allocation Table ----+
       Administration              !  Enter values to be stored             !
                                   !  for all allocations                   !
       10 Reports/Queues           !                                        !
       11 Devices                  !                                        !
       12 Abstracts                !                                        !
       13 Applications             !    Name of Header Page ... ________    !
       14 Change Spool File        !                                        !
                                   !    Statistics   (Y/N) .... N           !
                                   !                                        !
       Maintenance                 !    Queue Status (A/D/M) .. _           !
                                   !                                        !
       30 Spool File Properties    !                                        !
       31 Objects                  !                                        !
       32 Mass Update              !                                        !
       33 Hardcopy Allocations     !                                        !
       34 Transfer Objects         !                                        !
                                   +----------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  Logic Alloc Print                             Canc
```

When you press Enter, you have to specify whether you want to confirm each modification or whether you want to apply all modifications without confirmation.

Printer - Function 32.3

When you invoke this function, the **Mass Update / Printer**(s) window appears and you specify the operating system for which the mass update is to occur.

```
Time 09:23:15        *** Natural Spool Administration ***      Date 2002-10-23
User SAG                           M e n u                     File 7/411
       +---------------------- Mass Update /  Printer ----------------------+
       !                                                                     !
       ! ------------------------------------------------------------------- !
       ! Enter the value for the operating System/TP monitor BS2000__       !
       !                                                                     !
       ! All physical printers, which are defined for the specified operating !
       !                                                                     !
       ! System/TP monitor, are modified.                                   !
       !                                                                     !
       ! Supported values for operating System/TP Monitor:                  !
       !                                                                     !
       !                                                                     !
       !                           BS2000                                    !
       !                           CICS                                      !
       !                           IMS TM                                    !
       !                                                                     !
       ! ------------------------------------------------------------------- !
       +---------------------------------------------------------------------+
Modify values, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Logic Alloc Print                              Canc   ↩
```

The supported values in this window depend on the operating systems defined with **Function 30.5**.

Note: When you defined that only one operating system is to be used, the above window does not appear. Instead the appropriate window for this operating system appears. See below.

CICS

For CICS, the following window appears.

```
Time 13:11:52        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                           M e n u                     File 7/411
       +-------------------- Mass Update /  Printer / CICS --------------------+
       ! Mark fields to be modified                                            !
       ! ---------------------------------------------------------------------- !
       !                                                                        !
       ! Standard profiles _   Statistics .. _    NTCC type    _               !
       !                                                                        !
       ! Check form ...... _   Initial form  _    FF control   _               !
       !                                                                        !
       ! FF sequence  .... _   LF sequence   _    Server exit  _               !
       !                                                                        !
       ! ---------------------------------------------------------------------- !
       !                                                                        !
       ! CICS System ID    _                                                    !
       ! ---------------------------------------------------------------------- !
       !                                                                        !
       +------------------------------------------------------------------------+


 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  Logic Alloc Print                             Canc ↩
```

For information on the fields in this window, see **Function 31.4**.

BS2000/OSD

For BS2000/OSD, the following window appears.

```
Time 13:11:52        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                           M e n u                     File 7/411
       +------------------- Mass Update /  Printer / BS2000 -------------------+
       ! Mark fields to be modified                                            !
       ! ---------------------------------------------------------------------- !
       ! Standard profiles _   Statistics .. _    NTCC type    _               !
       !                                                                       !
       ! Check form ...... _   Initial form  _    FF control   _               !
       !                                                                       !
       ! FF sequence  .... _   LF sequence   _    Server exit  _               !
       ! ---------------------------------------------------------------------- !
       ! User exit         _   RSO usage     _    RSO form     _               !
       ! ---------------------------------------------------------------------- !
       ! Protocol type         Processor          Trace                        !
       ! SEC. retry            SEC. timeout                                    !
       ! Max.No. restart       Buffer size                                     !
       ! Connection type       Message header                                  !
       ! ---------------------------------------------------------------------- !
       !                                                                       !
       +-----------------------------------------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  Logic Alloc Print                              Canc
```

For information on the fields in this window, see **Function 31.4**.

IMS TM

For IMS TM, the following window appears.

```
Time 13:11:52        *** Natural Spool Administration ***      Date 2002-10-18
User SAG                           M e n u                     File 7/411
       +------------------- Mass Update /  Printer / IMS TM -------------------+
       ! Mark fields to be modified                                            !
       ! ---------------------------------------------------------------------- !
       !                                                                        !
       ! Standard profiles _   Statistics .. _    Printer Type _               !
       !                                                                        !
       ! Check form ...... _   Initial form  _    FF control   _               !
       !                                                                        !
       ! FF sequence       _   LF sequence  _     Server exit  _               !
       !                                                                        !
       ! ---------------------------------------------------------------------- !
       !                                                                        !
       ! IMS BMP Transaction ID _           IMS BMP JCL Member _                !
       !                                                                        !
       ! SCS printer ..........             Buffer size ......                  !
       ! ---------------------------------------------------------------------- !
       !                                                                        !
       +------------------------------------------------------------------------+
 Modify values, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  Logic Alloc Print                              Canc
```

For information on the fields in this window, see **Function 31.4**.

24 NAF - Hardcopy Allocations - Function 33

- General Information 186
- Display Hardcopy Allocation - Function 33.1 187
- Add Hardcopy Allocation - Function 33.2 190
- Mass Update for Hardcopy Allocation - Function 33.3 191

When you invoke this function, the Hardcopy Allocation window appears. The window title indicates the type of hardcopy allocation: terminal ID or user ID.

```
Time 11:14:25        *** Natural Spool Administration ***      Date 2002-10-22
User SAG                             M e n u                   File 7/411
                                       +--- Hardcopy Allocation/Terminal ID ----+
       Administration                  !                                        !
                                       !   1     Display Hardcopy Allocation    !
       10 Reports/Queues               !   2     Add Hardcopy Allocation        !
       11 Devices                      !   3     Mass Update                    !
       12 Abstracts                    !                                        !
       13 Applications                 !                                        !
       14 Change Spool File            !                                        !
                                       !                                        !
                                       !                                        !
       Maintenance                     !                                        !
                                       !                                        !
       30 Spool File Properties        !                                        !
       31 Objects                      !                                        !
       32 Mass Update                  !   .     Exit                           !
       33 Hardcopy Allocations         !                                        !
       34 Transfer Objects             !   Command / _  /                       !
                                       +----------------------------------------+
 Enter function, mark with cursor, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  Displ Add H Mass                                 Canc
```

General Information

There are two types of hardcopy allocation:

- via user ID, or
- via terminal ID.

Allocation via user ID is recommended if the terminal ID changes between Natural sessions.

In specific environments (for example, under CICS using Autoinstall), the terminal ID is not reliable because it changes periodically. To overcome this problem, use the special subprogram provided (see **Function 23**) which can be used to modify hardcopy assignments made by Natural Advanced Facilities.

The type of hardcopy allocation can be customized by the spool file administrator and is then the same for all users or terminals.

In addition, the spool file administrator can specify a mask for hardcopy allocation. This feature allows you to globally define a hardcopy allocation for a group of users or terminals.

The type of hardcopy allocation and the hardcopy mask can be set with **Function 30.5**.

Hardcopy allocations between user terminals and physical printers are established via logical printers. Thus, the spool server is able to recognize that hardcopies requested by various terminals are sent to the same physical printer, and to print them one after the other.

Internally, the following steps are performed to allocate a physical printer to a hardcopy request:

- If a logical printer for hardcopy has been defined in the user profile used for initialization, it is stored in a NAF-internal area.
- During Natural session initialization, a check is made whether a logical printer is present on the spool file with a name identical to the user ID or terminal ID (depending on the defined type of hardcopy allocation). Before this check is performed, all positions in the logical printer name whose corresponding positions are masked are replaced by a hyphen (-). If a logical printer for hardcopy is found, it is stored in a NAF-internal area. It is later used to satisfy subsequent hardcopy requests. The physical printer is taken from the allocation table which belongs to this logical printer. If a logical printer for hardcopy is not found, initialization continues normally.
- During an actual hardcopy request, a check is made whether a logical printer for hardcopy was found during initialization. If this is the case, the physical printer is taken from the allocation which belongs to this logical printer for hardcopy. If not, error message NAT1578 is issued unless the user has entered `%H name`. In this case, *name* is first treated as a logical printer name. If it exists on the spool file, it is used as a logical printer for hardcopy. If *name* is not present as a logical printer, it is treated as a physical printer name (to be compatible with earlier NAF versions). If it exists on the spool file, it is used as a hardcopy printer, if not, a NAT1574 message is issued.

Example - Using a Hardcopy Mask:

The type of hardcopy allocation is `U` (user ID). The user ID is `SAG` and the hardcopy mask is `******` (positions 3-8 are masked).

In this case, a check is made whether a logical printer with the name `SA- - - - - -` exits on the spool file.

Display Hardcopy Allocation - Function 33.1

When you invoke this function, you can specify the name of a hardcopy allocation in a window.

The type of hardcopy allocation can either be a terminal ID or user ID. This depends on the type of hardcopy allocation specified with **Function 30.5**.

```
Time 09:39:48        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                            M e n u                    File 7/411
                                     +------ Hardcopy Allocation 7/411 -------+
       Administration                !                                         !
                                     !  Enter name of                          !
       10 Reports/Queues             !                                         !
       11 Devices                    !      Terminal ID                        !
       12 Abstracts                  !                                         !
       13 Applications               !  or                                     !
       14 Change Spool File          !                                         !
                                     !      *    for Selection                 !
                                     !                                         !
       Maintenance                   !      ?    for Help                      !
                                     !                                         !
       30 Spool File Properties      !      .    for End                       !
       31 Objects                    !                                         !
       32 Mass Update                !      -------------------------          !
       33 Hardcopy Allocations       !      / ________ /                       !
       34 Transfer Objects           !                                         !
                                     +-----------------------------------------+
 Enter values.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

When you specify the name of an existing hardcopy allocation, it is **displayed**.

You can also **select the hardcopy allocation from a list**.

Selecting a Hardcopy Allocation from a List

To select a hardcopy allocation from a list, enter one of the following:

- a partly-qualified name (e.g. `08*` to list all hardcopy allocations starting from 08),
- an asterisk (*) to list all hardcopy allocations in the `NATSPOOL` system.

A list of logical printers used for hardcopy is then shown in a window. Active entries are highlighted.

```
Time 15:40:36        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                              M e n u                  File 7/411
                                    +-------------Select with *--------------+
      Administration                ! New start value ......... _________    !
                                    ! ------------------------------------   !
      10 Reports / Queues           ! Fl Cm  Name        Fl Cm  Name         !
      11 Devices                    ! -- --  ---------   -- --  ---------    !
      12 Abstracts                  !     _  -------         _  ---0         !
      13 Applications               !     _  ---1            _  ---2         !
      14 Change Spool File          !     _  ---4            _  ---6         !
                                    !     _  ---8            _  --23         !
      Maintenance                   !     _  H-------        _  0-------     !
                                    !     _  0502            _  0506         !
      30 Spool File Properties      !     _  0512            _  0513         !
      31 Objects                    !     _  0514            _  0521         !
      32 Mass Update                !     _  0526            _  0536         !
      33 Hardcopy Allocations       !     _  0539            _  0546         !
      34 Transfer Objects           !     _  0554            _  0569         !
                                    !     _  075-----        _  076-----     !
                                    +----------------------------------------+
Mark on selection list.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                    --   +                      Canc
```

The `Fl` (flag) column indicates the usage of the logical printer defined for hardcopy:

Flag	Description
`6`	Output is routed to Entire Output Management.
`7`	Output is routed directly to the BS2000/OSD RSO spool system.
`P`	The logical printer is protected by its owner.

A hyphen (-) is used to build up the names of the logical printer when a mask is defined for the hardcopy allocation. The positions to be ignored are replaced by this character.

In the `Cm` column, you can enter one of the following codes:

Code	Description
`C`	Copy hardcopy allocation.
`D`	Delete hardcopy allocation.
`R`	Rename hardcopy allocation.
`.`	Exit function.
`X` or any other character	Display hardcopy allocation for modification or deletion, see below.

Displaying an Existing Hardcopy Allocation

If the specified hardcopy allocation exists, it is displayed.

```
Time 09:44:25        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                          M e n u                      File 7/411
   +----------------------------/ Logical Printer-----------------------------+ +
   !   Modify                PCHC1                  Delete (Y/N)         N   ! !
   !   ------------------------------------------------------------------    ! !
   !   Mark for selection of existing alloctions (Destination/Form)      _   ! !
   !   Mark to show values for assigned allocation                       _   ! !
   !   ------------------------------------------------------------------    ! !
   !   Destination ....... DRPC___        Form .....................     H   ! !
   !                                                                        ! !
   !   Duplicates ........ 0__            Disposition ..............     K   ! !
   !   Priority .......... 255            Protected reports ........     N   ! !
   !   Retention period .. 9999  Days     for Dispositions      D  H  K  L   ! !
   !   using calendar ...  ________       (Y/N) ..............  _  _  _  _   ! !
   !                                                                        ! !
   !   Type .............. NAF_____       linked to cluster .....   --       ! !
   !                                      Owner ................. N         ! !
   !   Notes                                                                ! !
   !   ____________________________________________________________         ! !
   +-------------------------------------------------------------------------+ +
 Enter values for the logical printer.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit  User  Logic Alloc Print Heade Appli       NTCC  Canc
```

For information on the fields in this window, see **Function 31.2**.

Add Hardcopy Allocation - Function 33.2

When you invoke this function, the following window appears.

```
Time 09:32:26        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                             M e n u                   File 7/411
                                      +--- Hardcopy Allocation/Terminal ID ----+
      Administration                  !                                        !
                                      !   1     Display Hardcopy Allocation    !
      10 Reports / Queues             !   2     Add Hardcopy Allocation        !
      11 Devices                      !   3     Mass Update                    !
      12 Abstracts                    !                                        !
      13 Applications                 !                                        !
      14 Change Spool File            ! +-----------------------------------+  !
                                      ! I Current hardcopy device P007     I  !
      Maintenance                     ! I for Terminal .......... 0788     I  !
                                      ! I Modified by mask to     078----- I  !
      30 Spool File Properties        ! I Enter                           I  !
      31 Objects                      ! I new printer ........... ________ I  !
      32 Mass Update                  ! I type of logical printer NAF_____ I  !
      33 Hardcopy Allocations         ! I header page ........... ________ I  !
      34 Transfer Objects             ! +-----------------------------------+  !
                                      !   Command / 2  /                       !
                                      +----------------------------------------+
Enter printer and header page.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Displ Add H Mass                              Canc
```

You can now add a hardcopy allocation, if not yet present. To do so, specify the following:

- the name for the new physical printer,
- the type of logical printer to be used for hardcopy (see **Function 31.2**),
- the name of the header page (see **Function 31.3**).

Mass Update for Hardcopy Allocation - Function 33.3

When you invoke this function, the **Hardcopy Allocations** screen appears. The first column indicates the type of hardcopy allocation: terminal ID or user ID.

```
Time 09:39:01        *** Natural Spool Administration ***      Date 2002-10-21
User SAG                     Hardcopy Allocations              File 7/411

 Terminal  Head.Pa.  Phy.Prtr LPF Type    Terminal  Head.Pa.  Phy.Prtr LPF Type
 --------  --------  -------- --------    --------  --------  -------- --------
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
 ________  ________  ________ ________    ________  ________  ________ ________
    *****  is used as mask. Positions marked with * are ignored
Enter values for hardcopy allocation or press PF key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Store Help  Menu  Exit                                                  Canc
```

You can now define hardcopy allocations for multiple terminals or users at a time.

25 NAF - Transfer Objects - Function 34

- Tansfers Objects to Work File 3 - Function 34.1 194
- Load Objects from Work File 3 - Function 34.2 195
- Transfer Objects to another Spool File - Function 34.3 196
- Transfer Report Data Area to Work File 4 - Function 34.4 198
- Load Report Data Area from Work File 4 - Function 34.5 199

When you invoke this function, the `Transfer Objects` window appears.

```
Time 09:21:01        *** Natural Spool Administration ***      Date 2002-10-25
User SAG                              M e n u                  File 7/411
+------------Transfer Objects------------+
!                                        !      Information
!   1     Transfer Objects               !
!         to work file 3                 !      20 Cross-Reference
!   2     Load Objects                   !      21 Statistics
!         from work file 3               !      22 Look at Spool File
!   3     Transfer Objects               !      23 CALLNAT Handling
!         to another spool file          !
!   4     Transfer Report Data Area      !
!         to work file 4                 !
!   5     Load Report Data Area          !      Control Functions
!         from work file 4               !
!                                        !      40 Check Spool File
!                                        !      41 Logging Data
!   .     Exit                           !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!   Command / _  /                       !
+----------------------------------------+
Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Unld3 Load3 Copy  Unld4 Load4                  Canc   ↩
```

Tansfers Objects to Work File 3 - Function 34.1

This function unloads the data of all objects or the objects specified and writes them into the assigned Work File 3.

In the **Unload Objects** screen below, specify the selection criteria for the unload:

```
Time 09:35:22        *** Natural Spool Administration ***      Date 2002-10-25
User SAG                        Unload Objects                  File 7/411

                                                  Include       Delete objects
Mk  Object Type                      Name         Acc.Author.   after unload
 -  ------------------------------  ----------   -----------   -----------------
 _   User Profile                    ________         _                _
 _   Logical Printer                 ________         _                _
 _   Allocation Table                ________ _       _                _
 _   Printer                         ________         _                _
 _   Header Page                     ________         _                _
 _   Application                     ________         _                _
 _   Cluster                         ________         _                _
 _   NTCC Table                      ________         _                _
 _   Calendar                        ________         _                _
 _   Message Header                  ________ _       _                _
 _   Statistics                      ________ _                        _
 _   Access Authorization            ________                          _

 _   All Objects                     ________         _                _
Enter values for selection.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                  Canc
```

For each Object Type, you can specify the following:

- Whether to include possible entries for access authorization in the unload.
- Whether to delete the objects from the spool file after the unload.

Load Objects from Work File 3 - Function 34.2

This function provides selection options to transfer the object data unloaded from the spool file with Function 34.1 or the program `SPPULDUS`, into the target spool file.

The selection options are listed in the **Load Objects** screen below:

```
Time 09:38:27        *** Natural Spool Administration ***      Date 2002-10-25
User SAG                         Load Objects                  File 7/411

                                                  Include       Replace existings
Mk  Object Type                      Name         Acc.Author.   objects
 -  ------------------------------  ----------   -----------   -----------------
 _   User Profile                   ________          _              _
 _   Logical Printer                ________          _              _
 _   Allocation Table               ________ _        _              _
 _   Printer                        ________          _              _
 _   Header Page                    ________          _              _
 _   Application                    ________          _              _
 _   Cluster                        ________          _              _
 _   NTCC Table                     ________          _              _
 _   Calendar                       ________          _              _
 _   Message Header                 ________ _        _              _
 _   Statistics                     ________ _                       _
 _   Access Authorization           ________                        _

 _   All Objects                    ________          _              _
Enter values for selection.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                 Canc
```

For each Object Type, additionally, you can specify the following:

- Whether to include possible entries for access authorization in the load.
- Whether to replace the data of objects that already exist in the spool file.

Transfer Objects to another Spool File - Function 34.3

To transfer objects from one spool file to another, you need to assign the target spool file first.

Function 34.3 is used to assign objects to a spool file as shown in the **Copy Objects** window below:

```
Time 09:45:28        *** Natural Spool Administration ***      Date 2002-10-25
User SAG                            M e n u                    File 7/411
+--------------------------- Copy Objects ----------------------------+
!                 Assigned spool file 7/411                           !
!                                                                     !
! ------------------------------------------------------------------  !
!                                                                     !
!  Enter values for target spool file:                                !
!                                                                     !
!  DBID 10___   FNR 495__     Adabas Password                         !
!                                                                     !
!  Cipher Code ..............  ________                               !
!                                                                     !
!  Password for spool file ..                                         !
!                                                                     !
! ------------------------------------------------------------------  !
!  Terminate function immediately _                                   !
!                                                                     ! e
!                                                                     !
+---------------------------------------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                               Canc
```

In the window, enter the database ID and file number (maximum is 5 digits) of the relevant target spool file. If relevant, enter an Adabas password and cipher code (maximum is 8 characters).

In the **Transfer Objects** screen below, specify the selection criteria for the objects:

```
Time 09:55:38        *** Natural Spool Administration ***      Date 2002-10-25
User SAG                      Transfer Objects                  File 7/411

                                                  Include       Delete objects
Mk  Object Type                        Name       Acc.Author.   after copy
 -  ------------------------------  ----------  -----------   -----------------
 _   User Profile                    ________         _              _
 _   Logical Printer                 ________         _              _
 _   Allocation Table                ________ _       _              _
 _   Printer                         ________         _              _
 _   Header Page                     ________         _              _
 _   Application                     ________         _              _
 _   Cluster                         ________         _              _
 _   NTCC Table                      ________         _              _
 _   Calendar                        ________         _              _
 _   Message Header                  ________ _       _              _
 _   Statistics                      ________ _                      _
 _   Access Authorization            ________                        _

 _   All Objects                     ________         _              _
Enter values for selection.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                 Canc
```

For each `Object Type`, additionally, you can specify the following:

- Whether to include possible entries for access authorization in the transfer.
- Whether to delete the data of the object transferred from the spool file.

Transfer Report Data Area to Work File 4 - Function 34.4

This function writes the data of all reports into one work file. Only use this function for error analyses and at the request of Software AG customer support.

An alternative of Function 34.4 is the functionality provided with the program `SPPRUNLD`.

```
Time 16:19:15        *** Natural Spool Administration ***      Date 2002-11-29
User SAG                    Unload Report Data Area            File 7/411

 The function Unload Report Data Area unloads into Work File 4
 all report data stored in Spool File 7/411

 Only execute this function at the request of Software AG
 customer support.

 Do not modify the current data in Spool File 7/411
 while performing this function.

 Enter the password defined for the spool file:









Enter password.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Menu  Exit                                                 Canc
```

Load Report Data Area from Work File 4 - Function 34.5

This function unloads all report data from one work file. Only use this function for error analyses and at the request of Software AG customer support.

An alternative of Function 34.5 is the functionality provided with the program `SPPRLOAD`.

```
Time 16:19:52        *** Natural Spool Administration ***      Date 2002-11-29
User SAG                     Load Report Data Area             File 7/411

 The function Load Report Data Area loads all report data stored
 in Work File 4 into the current Spool File 7/411

 Only execute this function at the request of Software AG
 customer support.

 This function deletes all existing reports. Do not modify
 the current data in Spool File while performimg this function.

 Enter the password defined for the spool file:









Enter password
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Menu  Exit                                                 Canc
```

VI NAF - Control Functions - Overview

This section describes the Control Functions of the NATSPOOL menu:

Check Spool File - Function 40

Logging Data - Function 41

Create Test Report - Function 42

Delete Reports by Date - Function 43

26 NAF - Check Spool File - Function 40

- Report Data Area - Function 40.1 204
- Cluster - Function 40.2 205
- Relationships - Function 40.3 206
- Synchronize Flags for Spool Server - Function 40.4 209
- NAF Parameter Module - Function 40.5 210
- Common Memory Pool - Function 40.6 211
- Status of Spool Server - Function 40.7 214

You can check the spool file for consistency.

When you invoke this function, the **Check Spool File** window appears.

```
Time 09:38:17        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                              M e n u                  File 7/411
+-------- Check  Spool File 7/411 --------+
!                                         !      Information
!   1     Report Data Area                !
!   2     Cluster                         !      20 Cross-Reference
!   3     Relationships                   !      21 Statistics
!   4     Sync. Flags for Spool Server    !      22 Look at Spool File
!   5     NAF Parameter Module            !      23 CALLNAT Handling
!   6     Common Memory Pool              !
!   7     Status of Spool Servers         !
!                                         !
!                                         !      Control Functions
!                                         !
!                                         !      40 Check Spool File
!                                         !      41 Logging Data
!   .     Exit                            !      42 Create Test Reports
!                                         !      43 Delete Reports by Date
!   Command / _  /                        !
+-----------------------------------------+
Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Repor Clust Relat Sync. NAF P Commo Statu       Canc
```

This function can be useful if reports with status `INCO` are detected. You can select report data areas to be checked for consistency.

The Cluster function can be **deactivated**.

Note: Under **BS2000/OSD**, the **Check Spool File** window provides additional functions.

Report Data Area - Function 40.1

When you invoke this function, the following checks are performed for each record with status `In Use` which has a pointer to another group:

- Whether the group exists to which the record points:
  - If the group does not exist, the Check Spool File function issues a corresponding error message.
  - If the group exists, the check below is performed.
- Whether the status of the record is equal to `In Use`:

- If the status is not equal to In Use, the Check Spool File function issues a corresponding error message.
- If the status is equal to `In Use`, the check below is performed.

```
Natural Spool Administration ***      Date 2002-10-24
User SAG                            M e n u                    File 7/411
+------- Check  Spool File 7/411 --------+
!                                         !      Information
! +-------------------------------------+ !
! I Records 1426 - 1500 completed.     I ! !      20 Cross-Reference
! +-------------------------------------+ !      21 Statistics
! +-------------------------------------+ !      22 Look at Spool File
! I Check completed normally.          I ! !      23 CALLNAT Handling
! +-------------------------------------+ !
!                                         !
!                                         !
!                                         !      Control Functions
!                                         !
!                                         !      40 Check Spool File
!                                         !      41 Logging Data
!   .     Exit                            !      42 Create Test Reports
!                                         !      43 Delete Reports by Date
!   Command / 1  /                        !
+-----------------------------------------+
Press Enter to continue.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Repor Clust Relat Sync. NAF P Commo Statu       Canc ↩
```

In case of an error, a protocol is written to the spool file. You will then be asked for the name of a logical printer.

Cluster - Function 40.2

When you invoke this function, the integrity of the clusters is checked.

Note: Usage of clusters can be deactivated with **Function 30.5**. In this case, Function 40.2 cannot be invoked.

This function reads all objects and checks whether they belong to existing clusters. It also checks whether each object belongs to exactly one cluster.

```
Time 09:38:17        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                             M e n u                   File 7/411
+------- Check  Spool File 7/411 --------+
!                                        !      Information
!   1     Report Data Area               !
!   2     Cluster                        !      20 Cross-Reference
!   3     Relationships                  !      21 Statistics
! +-----------------------------------+ !      22 Look at Spool File
! I Check completed normally.          I !      23 CALLNAT Handling
! +-----------------------------------+ !
!                                        !
!                                        !
!                                        !      Control Functions
!                                        !
!                                        !      40 Check Spool File
!                                        !      41 Logging Data
!   .     Exit                           !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!   Command / 2  /                       !
+----------------------------------------+
Press Enter to continue.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Repor Clust Relat Sync. NAF P Commo Statu       Canc
```

In case of an error, a protocol is written to the spool file. You will then be asked for the name of a logical printer.

Relationships - Function 40.3

When you invoke this function, the **Check/Recover Relationships** window appears.

```
Time 09:38:17        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                              M e n u                  File 7/411
+---- Check/ Recover  Relationships -----+
!                                        !      Information
!   1     Check                          !
!   2     Recover with confirmation      !      20 Cross-Reference
!   3     Recover without confirmation   !      21 Statistics
!                                        !      22 Look at Spool File
!                                        !      23 CALLNAT Handling
!                                        !
!                                        !
!                                        !
!   .     Exit                           !      Control Functions
!                                        !
!                                        !      40 Check Spool File
!                                        !      41 Logging Data
!                                        !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!   Command / _  /                       !
+----------------------------------------+
Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Check Recov Recov                              Canc
```

You can choose whether you want to check the relationships (Option 1) or whether you want to recover them with or without confirmation (Options 2 and 3).

The following checks are performed for all three options:

- First, a bottom-to-top check is performed. The check starts with physical printers. Next, all allocations, logical printers and user profiles are checked. However, you can specify that the check is to start with a specific object type. For example, when you specify logical printer as start object, only the relation between logical printers and user profiles is checked. For each object, a check is made whether it is referenced in one of the corresponding object types. If this is not the case, this object may be deleted.
- Next, a top-to-bottom check is performed. The check starts with user profiles. A check is made whether the objects referenced in this object exist on the spool file. If not, this is either logged (see **Option 1**) or the object is modified (see **Option 2** and **Option 3**).

Since this function causes a large number of Adabas calls, it should only be started when an error occurs (for example, unexplainable printouts on wrong devices). It is recommended that you first use Option 1 (check).

Check Relationships - Option 1

When you select this option, you can choose a start value for the bottom-to-top check in a window: printer(s), allocation table or logical printer(s).

```
Time 09:38:17        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                            M e n u                    File 7/411
+---- Check/ Recover  Relationships -----+
! Select type for start bottom-top check !      Information
!                                        !
!   1      Printer                       !      20 Cross-Reference
!   2      Allocation Table              !      21 Statistics
!   3      Logical Printer               !      22 Look at Spool File
!                                        !      23 CALLNAT Handling
!                                        !
!                                        !
!                                        !
!                                        !      Control Functions
!   .     Exit                           !
!                                        !      40 Check Spool File
!                                        !      41 Logging Data
!                                        !      42 Create Test Reports
!                                        !      43 Delete Reports by Date
!   Type    / _ /                        !
+----------------------------------------+
Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit   Prin  Allo  Logi                              Canc
```

The result of the check is printed. You are asked for the name of a logical printer.

Recover Relationships with Confirmation - Option 2

When you select this option, you can choose a start value for the bottom-to-top check in a window: printer(s), allocation table or logical printer(s).

The relationship is checked. Objects that are not related to another object are deleted. Objects that refer to non-existing objects are modified. You have to confirm the deletion/modification for each object.

Recover Relationships without Confirmation - Option 3

When you select this option, you can choose a start value for the bottom-to-top check in a window: printer(s), allocation table or logical printer(s).

The relationship is checked. Objects that are not related to another object are automatically deleted. Objects that refer to non-existing objects are automatically modified. You are not asked to confirm the deletion/modification for each object.

Synchronize Flags for Spool Server - Function 40.4

The spool server options you specify (see **Function 30.5**) result in a synchronization of the spool file. To prevent different spool servers that are currently working on the spool file from executing the same function, the spool server records the date and time when a function was executed. Before a spool server executes the same function once more, it checks whether the defined time interval has passed.

When you invoke Function 40.4, the **Server Synchronization** screen appears:

```
Time 09:51:44        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                    Server Synchronization             File 7/411

Cmd Server               current      Time  Last check executed    Next check
    Option               Status       Int.  at NAT-/CPU-Time       for object
--- -------------------  ------------ ----- -------------------    -----------
    Delete reports
 _  by Retention period  activated    5      --          --         unused

    Start reports in
 _  status WAIT          activated    5      --          --         unused

    Restart printers in                     2002-07-08 14:44:43
 _  status INOP (B2000)  activated    10     2002-07-08 14:44:40   --

    Start reports by                        2002-09-02 16:08:21
 _  time option (B2000)  activated    10     2002-09-02 16:08:18   --

 _  BS2000 Monitor       deactived    --
                                             --          --         --
Enter a command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                 Canc   ↩
```

For each spool server option listed, you can delete the date and time of the last check, assign the current date and time, or delete the start value for the next object check.

The following line commands are available:

R	Reset the values in the Last Check fields to the current date and time.
D	Delete the time and date values in the Last Check fields.
O	Delete the value in the Next Check field.

NAF Parameter Module - Function 40.5

When you invoke this function, data from the NAF parameter module are shown.The values in the example screen below apply to the operating system BS2000/OSD and the parameter module NAFB2P*n*:

```
Time 10:19:47        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                           M e n u                     File 7/411
+-------------------------NAF Parameter Module-------------------------+
!                 Parameters for Intertask Communication               !
!   Event ID1 NAF41V1    Event ID2 NAF41V2   Monitor Event ID NAF41M1  !
!   CMP name  NAF41V1    CMP size     61 KB      Usage of ISO NO       !
!   BS2 form    --       RSO form    --          RSO protocol OFF      !
!   FSEC      NO         FNAT      YES           MAXERR       5        !
!                                                                      !
!                 Parameters for Monitor Task                          !
!   STACK=(LOGON SYSNA410;SVPMON01)                                    !
!                                                                      !
!                 Parameters for Spool Server                          !
!   No DCAM App  Natural Stack Data                                    !
!    1 SP01     STACK=(LOGON SYSNA410;SVPBS201)                        !
!    2 SP02     STACK=(LOGON SYSNA410;SVPBS201)                        !
!    3 SP03     STACK=(LOGON SYSNA410;SVPBS201)                        !
!    4 SP04     STACK=(LOGON SYSNA410;SVPBS201)                        !
!    5 SP05     STACK=(LOGON SYSNA410;SVPBS201)                        !
+----------------------------------------------------------------------+
Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
            Menu  Exit                     -     +                      ↩
```

The values in the example screen below apply to the TP monitor CICS or IMS TM and the parameter module NAFPARMC or NAFPARMI:

```
Time 10:23:04        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                            M e n u                    File 7/411
+-------------------------NAF Parameter Module-------------------------+
!                 Parameters for CICS interface                        !
!                                                                      !
!   CICS Transaction ID  ..................... NA41                    !
!   CICS SYSID  .............................. --                      !
!   CICS Terminate Task  ..................... --                      !
!   CICS Initalization EXIT  ................. Yes                     !
!   CICS SYSID for initalization exit  ........ FCT4                    !
!   CICS Initalization messages to console  ... --                      !
!   CICS Initalization messages to logging data No                      !
!                                                                      !
!                                                                      !
!                 Parameters for IMS TM interface                      !
!                                                                      !
!   IMS BMP Transaction ID  .................. --                      !
!   IMS BMP JCL Member Name  ................. --                      !
!   IMS BMP Wait for Input  .................. --                      !
+----------------------------------------------------------------------+
Press Enter.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
           Menu  Exit                                                 CANC   ↩
```

Common Memory Pool - Function 40.6

This function is only available under BS2000/OSD.

When you invoke this function, information on the size and contents of the common memory pool is shown.

```
Time 10:17:14        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                     Common Memory Pool                File 7/411

 +-------------------------- Information -------------------------------------+
 I Pool ID NAF41V1         Pool address 00020000       Pool version 4.1      I
 +-----------------------------------------------------------------------------+
 I Defined   pool size     61 KB               Max. No. of entries  002043   I
 I Allocated pool size     64 KB               No. of free entries  002043   I
 I Usable    pool size     63 KB               No. of used entries  000000   I
 I                                             No. events in bourse 0        I
 +-----------------------------------------------------------------------------+
 I                          CPU Time                 Natural Time            I
 I Initialized by task 3126 2002-10-24 09:37:48      2002-10-24 09:37:45     I
 I Locked by task      --                                                    I
 +-----------------------------------------------------------------------------+
 +--------------------------- Functions -----------------------------------+
 I 1  Display Common Memory Pool            2  Reset Common Memory Pool      I
 I .  Exit                                                                   I
 I    Command / _ /                                                          I
 +-----------------------------------------------------------------------------+
Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                Canc ↩
```

You can display and/or reset the common memory pool. When you select one of these options, you have to enter the password for the spool file.

Display Common Memory Pool - Option 1

When you select this option, the following screen appears:

```
Time 10:18:05        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                 Entries in Common Memory Pool         File 7/411

 Pool ID NAF41V1   Version 4.1    locked by task NO

 Entry No.   Address    Phy.Prtr  FSPOOL       FNAT         FSEC
 ---------   --------   --------  -----------  -----------  -----------
 1           001E0004   DR1171    7/33         7/32         7/32









  Press 'Enter' to continue
  Command ===>
  Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
              Menu  Exit                                                  Canc
```

Reset Common Memory Pool - Option 2

When you select this option, the following window appears:

```
Time 10:19:11        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                      Common Memory Pool               File 7/411
                                                +----------------------------------------+
 +-------------------------- Informa !                                        !
 I Pool ID NAF41V1          Pool addr ! When resetting the common memory pool, !
 +---------------------------------- !                                        !
 I Defined   pool size     61 KB     !   - All entries are removed from       !
 I Allocated pool size     64 KB     !     the common memory pool .           !
 I Usable    pool size     63 KB     !                                        !
 I                                   !                                        !
 +---------------------------------- !  - All printers which are defined on   !
 I                          CPU Time !    the spool file 7/411       and      !
 I Initialized by task 3126 2002-10- !    which are used in the common        !
 I Locked by task      --            !    memory pool are reset to status     !
 +---------------------------------- !    FREE .                              !
 +---------------------------- Funct !                                        !
 I 1  Display Common Memory Pool     !                                        !
 I .  Exit                           !                                        !
 I    Command / 2 /                  ! Start Reset function (Y /  N) .. N   !
 +---------------------------------- +----------------------------------------+

Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                 Canc
```

To reset the common memory pool, specify `Y` and press Enter.

All entries are then removed from the common memory pool, and all printers with an entry in the common memory pool are reset to the status `FREE`.

Status of Spool Server - Function 40.7

This function is only available under BS2000/OSD.

When you invoke this function, the current status of the spool server(s) and monitor task is shown.

```
Time 10:32:10        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                    Status of Spool Servers            File 7/411

 No.   Application   Type NEAR    Type ISO
 --    ------------  ----------   --------
  1    SP01          inactive     inactive
  2    SP02          inactive     inactive
  3    SP03          inactive     inactive
  4    SP04          inactive     inactive
  5    SP05          inactive     inactive
  6    SP06          inactive     inactive
  7    SP07          inactive     inactive
  8    SP08          inactive     inactive
  9    SP09          inactive     inactive
 10    SP10          inactive     inactive
 11    SP11          inactive     inactive    +----------------------------+
 12      --            --           --        I The Natural Spool Monitor  I
 13      --            --           --        I is currently inactive      I
 14      --            --           --        +----------------------------+

Enter command, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
           Menu  Exit  Refre              -     +                      CANC ↩
```

27 NAF - Logging Data - Function 41

- Display/Select Logging Data - Function 41.1 218
- Print Logging Data - Function 41.2 221
- Reset Logging Data - Function 41.3 222

When you invoke this function, the **Logging Data** window appears.

```
Time 10:34:41        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                            M e n u                    File 7/411
+---------- Logging Data 7/411 ----------+
!                                       !      Information
!   1     Display / Select Logging Data !
!   2     Print Logging Data            !      20 Cross-Reference
!   3     Reset Logging Data            !      21 Statistics
!                                       !      22 Look at Spool File
!                                       !      23 CALLNAT Handling
!                                       !
!                                       !
!                                       !
!                                       !      Control Functions
!                                       !
!                                       !      40 Check Spool File
!                                       !      41 Logging Data
!   .     Exit                          !      42 Create Test Reports
!                                       !      43 Delete Reports by Date
!   Command / _  /                      !
+---------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Displ Print Reset                             Canc
```

You can display, print or reset the log of modifications to the spool file.

Display/Select Logging Data - Function 41.1

When you invoke this function, the following window appears.

```
Time 10:35:23        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                              M e n u                  File 7/411
+---------- Logging Data 7/411 ----------+
!                                       !      Information
!   1     Display / Select Logging Data !
!   2     Print Logging Data            !      20 Cross-Reference
!   3     Reset Logging Data            !      21 Statistics
!                                       !      22 Look at Spool File
!                                       !      23 CALLNAT Handling
!                                       !
! +---Display / Select Logging Data---+ !
! !  Select all entries _             ! !
! !                                    ! !      Control Functions
! !  or enter                          ! !
! !                                    ! !      40 Check Spool File
! !  Object type __  Name _________    ! !      41 Logging Data
! !                                    ! !      42 Create Test Reports
! +-----------------------------------+ !      43 Delete Reports by Date
!   Command / 1  /                      !
+---------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Displ Print Reset                            Canc
```

You can specify the following:

- The number of the desired object type. You can also enter an asterisk (*) to select an object type from a list. To display logging data for all objects types, you can also mark the corresponding field.
- The name of an existing object. You can also enter an asterisk (*) to display logging data for all objects or, for example, `L*` to display logging data for all object names starting with L.

When you mark the field to select all entries or when you specify an object type without a name, the following window appears:

```
Time 12:02:02        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                          M e n u                      File 7/411
+------------------------------ Select / -------------------------------+
!  M Name     Type                    M Name     Type                     !
!  - --------- --------------------    - --------- --------------------   !
!  _ STANDARD   Calendar              _ LEXIT2     Logical Printer(s)     !
!  _ DAET       Logical Printer(s)    _ LEXIT3     Logical Printer(s)     !
!  _ DEAPR      Logical Printer(s)    _ LEXIT4     Logical Printer(s)     !
!  _ DFD-----   Logical Printer(s)    _ LGROKLEI   Logical Printer(s)     !
!  _ D9001      Logical Printer(s)    _ LPF01      Logical Printer(s)     !
!  _ GRE1       Logical Printer(s)    _ LPF02      Logical Printer(s)     !
!  _ GRE2       Logical Printer(s)    _ LRSO       Logical Printer(s)     !
!  _ HHI-----   Logical Printer(s)    _ LSYSTEM    Logical Printer(s)     !
!  _ LDR1171    Logical Printer(s)    _ LTEST      Logical Printer(s)     !
!  _ LDR1490    Logical Printer(s)    _ NEWLPF     Logical Printer(s)     !
!  _ LD9001     Logical Printer(s)    _ NOMLPF     Logical Printer(s)     !
!  _ LEXIT1     Logical Printer(s)    _ NTCC       Logical Printer(s)     !
!                                                                        !
!   continue with '+' or PF8                                             !
+------------------------------------------------------------------------+
Mark on selection list.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
Entr        Menu  Exit                          +                    Canc   ↩
```

In the column `M`, you can enter one of the following codes:

Code	Description
`P`	Print logging data.
`R`	Reset logging data.
`+`	Forward logging data.
`.`	Exit function.
`X` or any other character	Display logging data, see below.

When you display logging data for an object, the following screen appears:

```
Time 12:05:10        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                        Logging Data                   File 7/411

   Logging Data for Object  LDR1171
   Type   Logical Printer(s)

   User ID  Time using CPU Time Function
   -------- ------------------- ---------------------------------------------
1  SAG      1997-08-21 14:04:31 Modified by profile maintenance.
2  SAG211   1997-08-15 13:12:58 Changed by mass update.
3     -               -
4     -               -
5     -               -
6     -               -
7     -               -
8     -               -
9     -               -
10    -               -
11    -               -
12    -               -
Press 'Enter' to continue
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                 Canc   ↩
```

Print Logging Data - Function 41.2

When you invoke this function, the following window appears.

```
Time 10:40:41        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                            M e n u                    File 7/411
+---------- Logging Data 7/411 ----------+
!                                       !      Information
!   1     Display / Select Logging Data !
!   2     Print Logging Data            !      20 Cross-Reference
!   3     Reset Logging Data            !      21 Statistics
!                                       !      22 Look at Spool File
!                                       !      23 CALLNAT Handling
!                                       !
! +--------Print Logging Data---------+  !
! !  _ Select all entries             !  !
! !    or enter                       !  !      Control Functions
! !    Object type __ Name _________  !  !
! !                                   !  !      40 Check Spool File
! !  Logical printer ________         !  !      41 Logging Data
! !  No. columns for left margin 0    !  !      42 Create Test Reports
! +-----------------------------------+  !      43 Delete Reports by Date
!   Command / 2  /                      !
+---------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Displ Print Reset                            Canc
```

You can specify the following:

- The number of the desired object type. You can also enter an asterisk (*) to select an object type from a list. To print logging data for all objects types, you can also mark the corresponding field.
- The name of an existing object. You can also enter an asterisk (*) to print logging data for all objects or, for example, `L*` to print logging data for all object names starting with L.
- The name of a logical printer. You can also enter an asterisk (*) to select a logical printer from a list.
- The column for the left margin.

When you have specified all required information, press Enter to start printing.

Reset Logging Data - Function 41.3

When you invoke this function, the following window appears.

```
Time 10:41:27        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                              M e n u                  File 7/411
+---------- Logging Data 7/411 ----------+
!                                       !      Information
!   1     Display / Select Logging Data !
!   2     Print Logging Data            !      20 Cross-Reference
!   3     Reset Logging Data            !      21 Statistics
!                                       !      22 Look at Spool File
!                                       !      23 CALLNAT Handling
!                                       !
! +--------Reset Logging Data---------+ !
! !  Select all entries _             ! !
! !                                   ! !      Control Functions
! !  or enter                         ! !
! !                                   ! !      40 Check Spool File
! !  Object type __  Name _________   ! !      41 Logging Data
! !                                   ! !      42 Create Test Reports
! +-----------------------------------+ !      43 Delete Reports by Date
!   Command / 3  /                      !
+---------------------------------------+
Enter values.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Displ Print Reset                            Canc
```

You can specify the following:

- The number of the desired object type. You can also enter an asterisk (*) to select an object type from a list. To reset logging data for all objects types, you can also mark the corresponding field.
- The name of an existing object. You can also enter an asterisk (*) to reset logging data for all objects or, for example, `L*` to reset logging data for all object names starting with L.

In the next window, you have to specify whether you want to confirm each reset, or whether each reset is to occur without confirmation.

```
10:41:27        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                              M e n u                  File 7/411
+---------- Logging Data 7/411 ----------+
!                                       !      Information
!   1     Display / Select Logging Data !
!   2     Print Logging Data            !      20 Cross-Reference
!   3     Reset Logging Data            !      21 Statistics
!                                       !      22 Look at Spool File
!                                       !      23 CALLNAT Handling
!                                       !
! +--------Reset Logging Data---------+  !
! !  Select one item                 !  !
! !                                  !  !      Control Functions
! !   _  Confirm each reset          !  !
! !   _  Reset   without confirmation !  !      40 Check Spool File
! !   _  Exit  (no reset)          !  !      41 Logging Data
! !                                  !  !      42 Create Test Reports
! +----------------------------------+  !      43 Delete Reports by Date
!   Command / 3  /                      !
+---------------------------------------+
Mark on selection list.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Displ Print Reset                             Canc
```

If you specify that each reset is to be confirmed, a window like the following appears for each selected object.

```
Time 10:41:27        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                              M e n u                  File 7/411
+---------- Logging Data 7/411 ----------+
!                                       !      Information
!   1     Display / Select Logging Data !
!   2     Print Logging Data            !      20 Cross-Reference
!   3     Reset Logging Data            !      21 Statistics
!                                       !      22 Look at Spool File
!                                       !      23 CALLNAT Handling
!                                       !
! +---------- Confirmation -----------+  !
! !    Message Header                !  !
! !                                  !  !      Control Functions
! !   To reset  *STD     / B confirm  !  !
! !   with  object name ________ / _  !  !      40 Check Spool File
! !                                  !  !      41 Logging Data
! !                                  !  !      42 Create Test Reports
! +----------------------------------+  !      43 Delete Reports by Date
!   Command / 3  /                      !
+---------------------------------------+

Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Displ Print Reset                             Canc
```

To confirm each reset, enter the object name and press Enter.

28 NAF - Create Test Report - Function 42

When you invoke this function, the Create Test Report screen appears.

```
Time 12:40:02        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                    Create Test Report                 File 7/411

 Logical printer  ________  Number of reports  1      Number of lines 1
 Duplicates .....   0       Disposition ...... D      Name  ......... ________
 Profile  ....... ________  Line size  ....... 80     Page size  .... 60
 End of line with counter ('LINE nnnn') and date ('HH:II:SS')  ...... Y

 Text for line using alphanumeric format

       TEST LINE PRINTER 80 CHARACTERS LONG_____________________________________
Col.   1---+----10---+----20---+----30---+----40---+----50---+----60---+----70

       ____________________________________________________________________________
Col.  71---+----80---+----90---+----100--+----110--+----120--+----130--+----140

       ____________________________________________________________________________
Col. 141---+----150--+----160--+----170--+----180--+----190--+----200--+----210


Enter name of logical printer.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                 Canc   ↩
```

You can now create a test program containing a `DEFINE PRINTER (rep)` and a `WRITE (rep)` statement based on your input.

You must first specify the name of a logical printer and press Enter. You can also enter an asterisk (*) to select the logical printer from a list.

When the logical printer has been specified, the following screen appears:

```
Time 12:41:34        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                    Create Test Report                 File 7/411

 Logical printer  LDR1171_  Number of reports  1      Number of lines 1
 Duplicates ..... 0         Disposition ...... K      Name  ......... ________
 Profile  ....... ________  Line size  ....... 80     Page size  .... 60
 End of line with counter ('LINE nnnn') and date ('HH:II:SS')  ...... Y

 Text for line using alphanumeric format

       TEST LINE PRINTER 80 CHARACTERS LONG_____________________________________
Col.   1---+----10---+----20---+----30---+----40---+----50---+----60---+----70

      ____________________________________________________________________________
Col.  71---+----80---+----90---+----100--+----110--+----120--+----130--+----140

      ____________________________________________________________________________
Col. 141---+----150--+----160--+----170--+----180--+----190--+----200--+----210


Modify values, use PF5 to create reports or press a PF-Key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Reset Creat Hex         Show                    Canc ↩
```

On this screen, for each report you can enter or modify the following:

- The number of reports.
- The number of lines.
- The number of duplicates.
- The Disposition. Valid values are:

D	Delete report after printing.
H	Hold report (to print the report, the Disposition must be a valid value other than H).
K	Keep report after printing.

- The name for the report to be created (optional).
- The name of the NTCC table (Profile) to be used (optional). You can also enter an asterisk (*) to select the NTCC table from a list.
- The line size (that is, the number of characters in a line).
- The page size (that is, the number of lines on a page).
- Whether each line should end with the current line counter and the current time.
- The text for the line to be repeated (defined with `Number of lines`). The maximum number of characters on this line is 210.

Use PF 6/Hex to enter or modify the text for the lines in hexadecimal format:

```
Time 12:45:48        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                    Create Test Report                 File 7/411

 Logical printer  LDR1171_  Number of reports  1      Number of lines 1
 Duplicates ..... 0         Disposition ...... K      Name  ......... ________
 Profile  ....... ________  Line size  ....... 80     Page size  .... 60
 End of line with counter ('LINE nnnn') and date ('HH:II:SS')  ...... Y

 Text for line using hexadecimal format:
       E3C5E2E340D3C9D5C540D7D9C9D5E3C5D940F8F040C3C8C1D9C1C3E3C5D9E240D3D6D5
Col.   1-------5---------10--------15--------20--------25--------30--------35
       C7404040404040404040404040404040404040404040404040404040404040404040
Col.   36------40--------45--------50--------55--------60--------65--------70
       4040404040404040404040404040404040404040404040404040404040404040404040
Col.   71------75--------80--------85--------90--------95--------100-------105
       4040404040404040404040404040404040404040404040404040404040404040404040
Col.   106-----110-------115-------120-------125-------130-------135-------140
       4040404040404040404040404040404040404040404040404040404040404040404040
Col.   141-----145-------150-------155-------160-------165-------170-------175

Modify values, use PF5 to create reports or press a PF-Key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit  Reset Creat Alpha       Show                    Canc   ↩
```

Use PF 8/Show to display the text line suffixed with counter and time:

```
Time 12:48:42        *** Natural Spool Administration ***      Date 2002-10-24
User SAG                    Create Test Report                 File 7/411

 Logical printer  LDR1171_  Number of reports  1      Number of lines 1
 Duplicates ..... 0         Disposition ...... K      Name  ......... ________
 Profile  ....... ________  Line size  ....... 80     Page size  .... 60
 End of line with counter ('LINE nnnn') and date ('HH:II:SS')  ...... Y

 Text for line using alphanumeric format

       TEST LINE PRINTER 80 CHARACTERS LONG                          LINE 000
Col.   1---+----10---+----20---+----30---+----40---+----50---+----60---+----70

       1 12:48:42_____________________________________________________________
Col.  71---+----80---+----90---+----100--+----110--+----120--+----130--+----140

       ________________________________________________________________________
Col. 141---+----150--+----160--+----170--+----180--+----190--+----200--+----210


Modify values, use PF5 to create reports or press a PF-Key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help  Menu  Exit                                                 Canc   ↩
```

To create the report(s), use PF5.

29 NAF - Delete Report by Date - Function 43

When you invoke this function, the following window appears:

```
Time 12:53:40        *** Natural Spool Administration ***      Date 2002-10-24
 User SAG                              M e n u                   File 7/411
 +----------- Spool File 7/411 -----------+
 !                                        !      Information
 !  Delete reports                        !
 !                                        !      20 Cross-Reference
 !  for Destination/Form DARMSTD_ / *     !      21 Statistics
 !  and/or user ID       SAG_____         !      22 Look at Spool File
 !                                        !      23 CALLNAT Handling
 !  Older than 13__ days or               !
 !                                        !
 !  Older than __________                 !
 !            (YYYY-MM-DD)                !      Control Functions
 ! ------------------------------------   !
 !                                        !      40 Check Spool File
 !  x  confirm each deletion              !      41 Logging Data
 !  _  delete without confirmation        !      42 Create Test Reports
 !                                        !      43 Delete Reports by Date
 !  _  destroy report data                !
 +----------------------------------------+
 Enter values.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help  Menu  Exit                                                    Canc
```

In the window, specify the following:

- Whether to select the reports by Destination/Form and/or by the user ID.
- The report age: enter a number of days or a date in the format: *YYYY-MM-DD*

In the example above, the Delete Report function deletes all reports:

- of Destination DARMSTD, regardless of the associated FORM value,
- created by user ID SAG,
- older than 13 days.

VII

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This chapter describes the Natural features supported by Natural Advanced Facilities and how these features can be used.

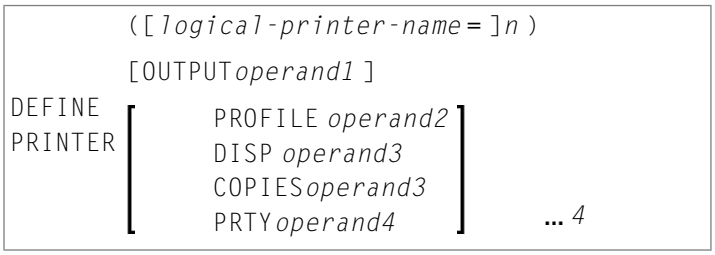
DEFINE PRINTER Statement

The DEFINE PRINTER statement is used to assign a symbolic name to a report number and to control the allocation of a report to a logical destination (printer).

Note: The DEFINE PRINTER statement is fully described in the Natural Statements documentation. This section only describes the clauses that apply for Natural Advanced Facilities.

This section also covers information on ***Mixed Reports by using DEFINE PRINTER***.

The DEFINE PRINTER statement syntax for NAF below is different from the general DEFINE PRINTER statement as not all of the keywords apply:



logical-printer-name is the name which is to be allocated to printer *n*. This is the name which will be used for the *rep* notation in a DISPLAY or WRITE statement. The value for *n* may be in the range of 1-31.

The OUTPUT operand is the destination within the online spooling system and is a logical printer (LPF). This logical printer must be defined on the spool file (see **Function 31.2**), but need not be part of the currently active user profile.

With the PROFILE clause, you specify as *operand2* the name of a printer control characters table as defined in the NTCC macro or on the spool file (see NTCC table, **Function 31.8**).

For the DISP clause, the possible values for *operand2* are DEL, HOLD and KEEP. If the DISP clause is omitted, the Disposition specified for the logical printer is used.

With the COPIES clause you specify the number of copies to be printed. The possible values for *operand3* are 1-255. If the COPIES clause is omitted, the number of copies specified for the logical printer is used.

With the PRTY clause, you specify the priority for spool-out. The possible values for *operand4* are 1-255 (where 1 is the lowest and 255 is the highest priority). If the PRTY clause is omitted, the priority specified for the logical printer is used.

In general, Natural Advanced Facilities uses the logical printer definitions in the physical main storage (not the ones on the spool file). One has to distinguish two different situations:

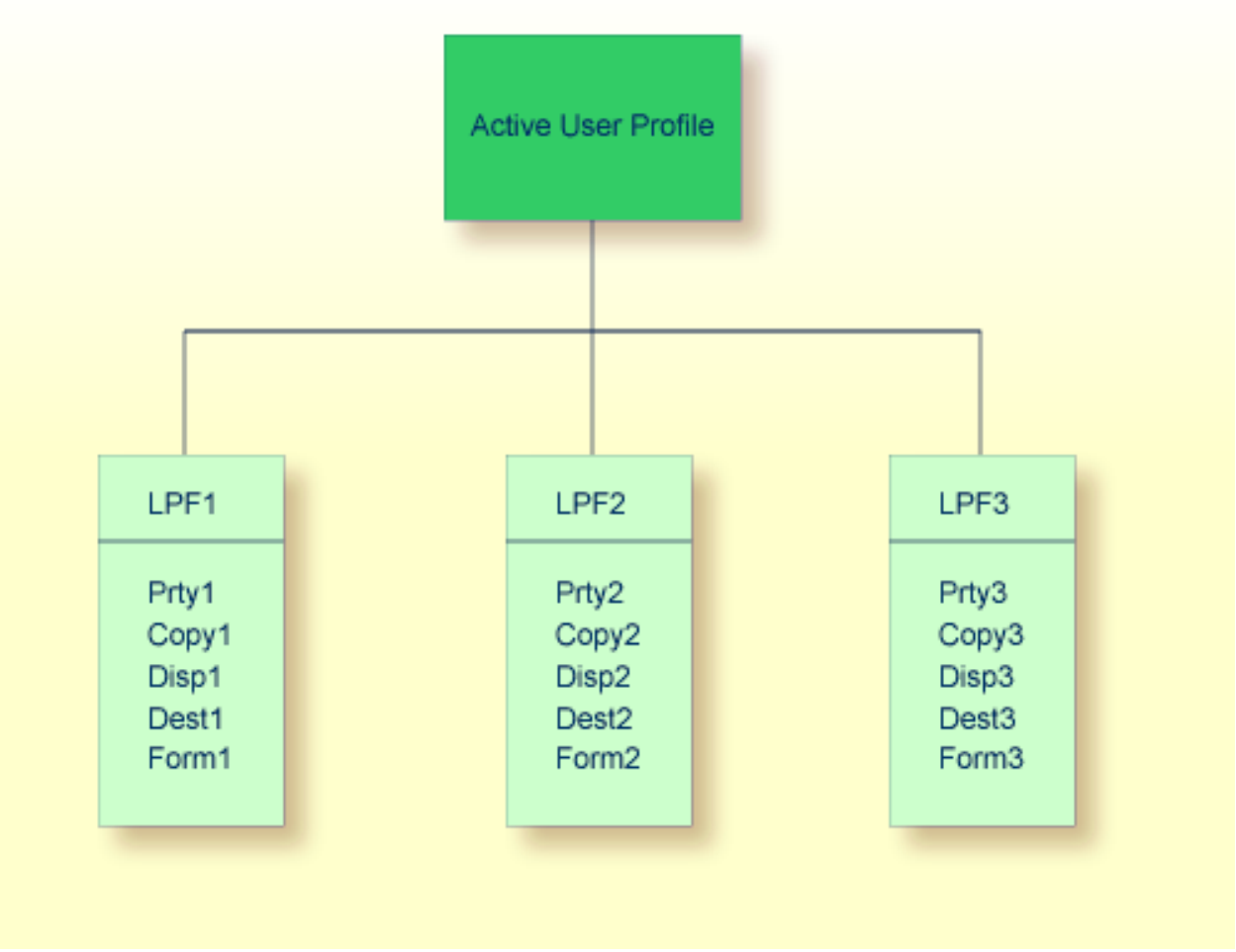
- the requested logical printer is contained in the active user profile,
- the requested logical printer is *not* contained in the active user profile.

If a `DEFINE PRINTER` statement for printer *n* requests a logical printer which is contained in the active user profile (see Example 1 below), logical printer definitions in storage are *not* overwritten. A subsequent Natural program will therefore encounter the same logical printer definitions. The logical printer definitions will be valid until another `DEFINE PRINTER` statement causes them to be overwritten.

If a `DEFINE PRINTER` statement for printer *n* requests a logical printer which is *not* contained in the active user profile (see Example 2 below), the *n* - th logical printer definition in storage will be overwritten by the requested one. A subsequent Natural program will encounter altered logical printer definitions as established by the previous `DEFINE PRINTER` statement (because it is assumed that the altered logical printer definitions are also to be used by subsequent Natural programs.)

The following examples demonstrate how the `DEFINE PRINTER` statement works.

Example 1 - Logical Printer Contained in the Active User Profile:

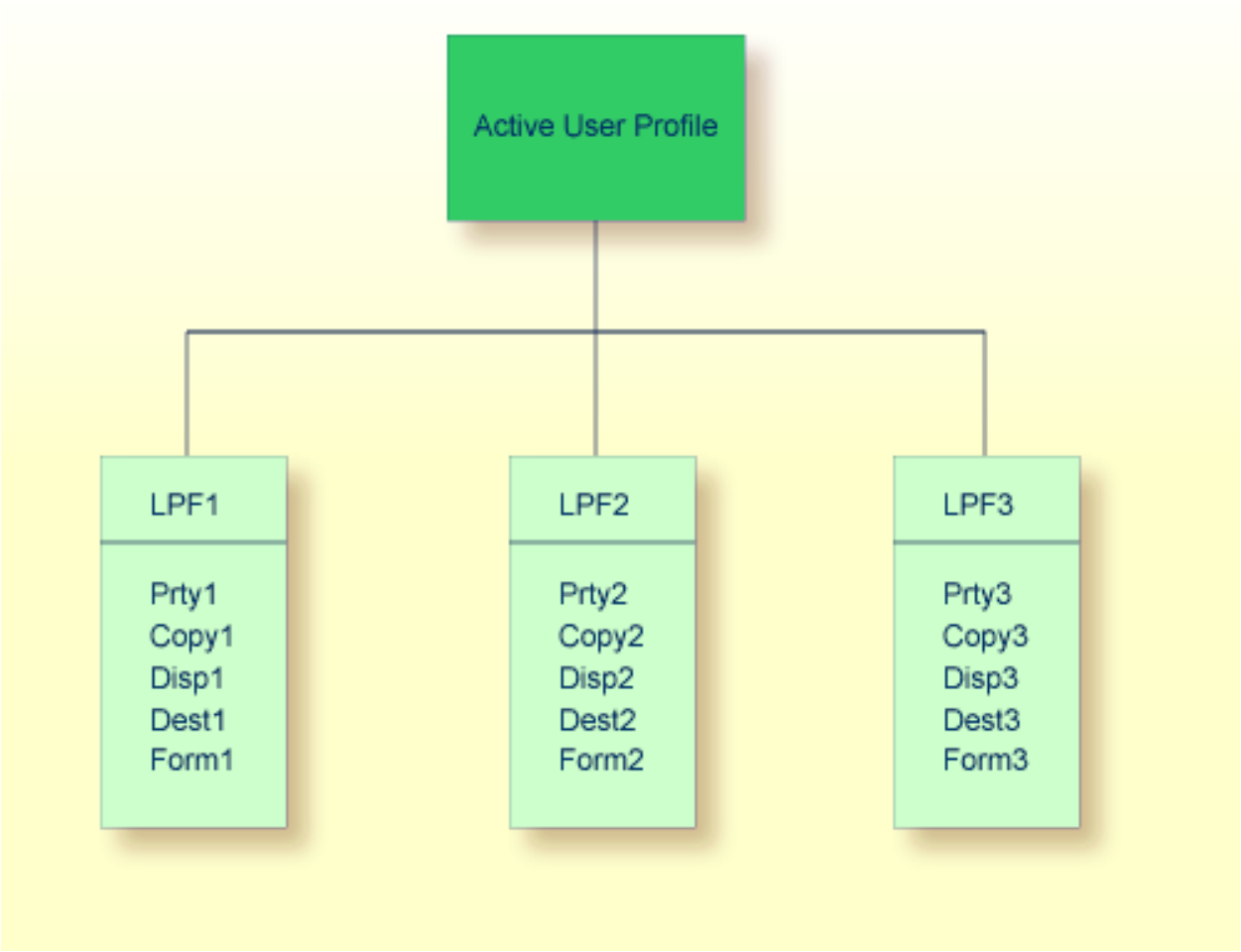



```
DEFINE PRINTER (2) OUTPUT 'LPF1'
...
...
WRITE (2) 'text'
...
WRITE (1) 'different text'
... ↩
```

When the above Natural program is run, the output of the `WRITE (2)` statement is spooled by using the definitions of `LPF1`. The `WRITE (1)` statement uses `LPF1` by default, since there is no `DEFINE PRINTER (1)` statement. Therefore, both `WRITE (1)` and `WRITE (2)` statements use the same logical printer.

If a subsequent Natural program executes a `WRITE (2)` statement, and if the program does *not* contain a `DEFINE PRINTER (2)` statement, the output is spooled by using the definitions of `LPF2`.

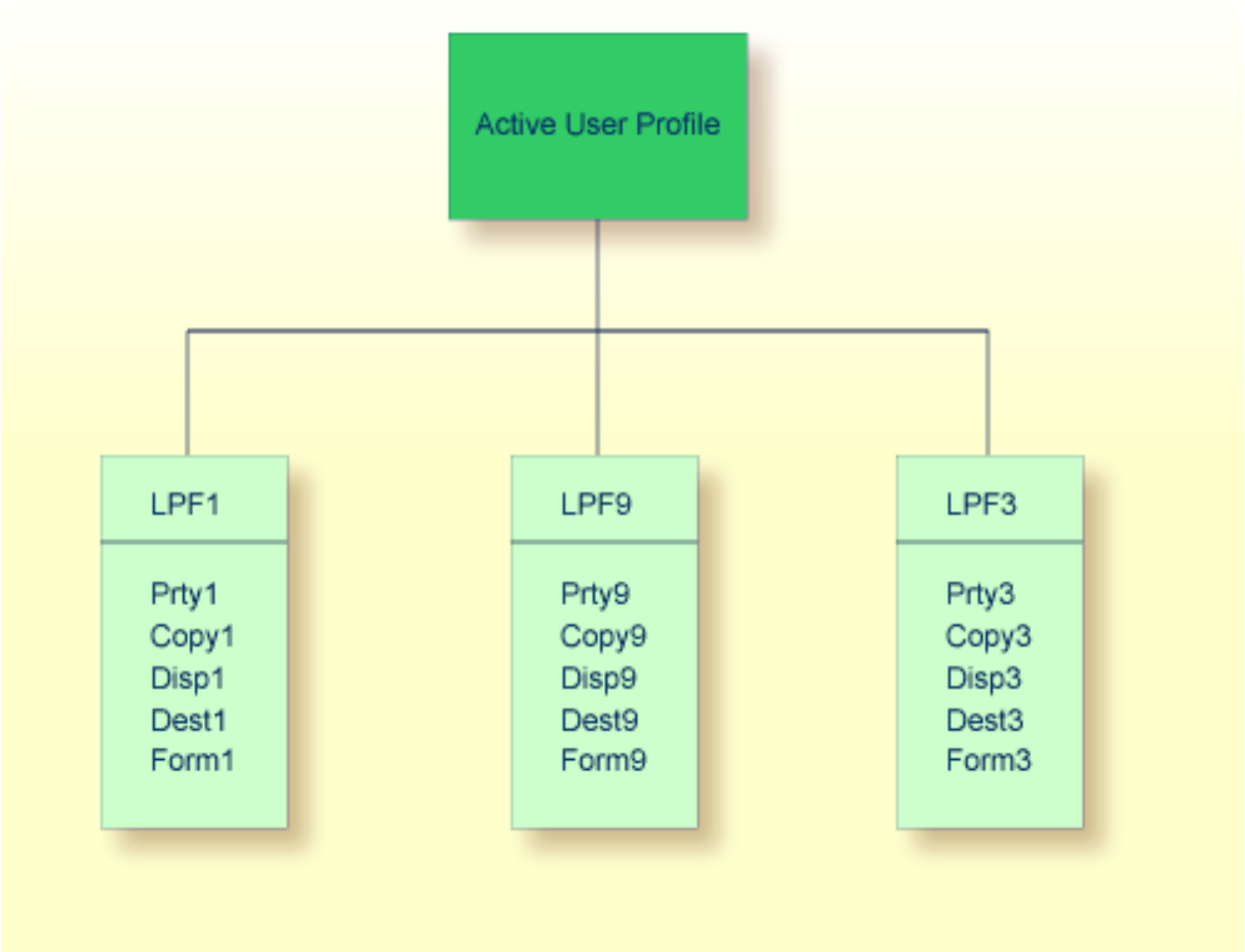
Example 2 - Logical Printer is Not Contained in the Active User Profile:



If the `OUTPUT` operand of the `DEFINE PRINTER` statement is *not* identical to one of the logical printer names in the active user profile, the values for the printer profile are overwritten with the new values specified in the `OUTPUT` operand.

```
...
DEFINE PRINTER (2) OUTPUT 'LPF9'
...
```

The `OUTPUT` operand of the above `DEFINE PRINTER` statement causes the definitions of `LPF2` to be overwritten with the values assigned to `LPF9`, including the logical printer name. The active user profile is changed to the following:



This definition remains in effect for the user profile until another `DEFINE PRINTER (2)` statement is executed. Thus, the output of all subsequent `WRITE (2)` statements within the same Natural session is spooled by using the definitions of `LPF9`, if no other `DEFINE PRINTER (2)` statement is executed.

Mixed Reports by using DEFINE PRINTER

Natural programs sometimes need to create different reports for the same physical printer. In this case, attention has to be paid to the `OUTPUT` operand of the `DEFINE PRINTER` statement.

If you use `DEFINE PRINTER` statements for different logical printers but with the *same* `OUTPUT` operand (that is, the same logical printer name), only *one* report is created. This report contains the output of all `WRITE`, `PRINT` or `DISPLAY` statements in a mixed sequence.

Example:

```
DEFINE PRINTER (1) OUTPUT 'LPF1'     /* LPF same as in (0020)
DEFINE PRINTER (2) OUTPUT 'LPF1'     /* LPF same as in (0010)
WRITE (1) 'This is for report 1'
WRITE (2) 'This is for report 2'
WRITE (1) 'This is for report 1'
END
```

If you use DEFINE PRINTER statements for different logical printers and with *different* OUTPUT operands (that is, different logical printer names), *multiple* reports are created. To route these reports to the same physical printer, the same Destination/Form must be specified for the logical printers.

Example:

```
DEFINE PRINTER (1) OUTPUT 'LPF1'     /* LPF different from (0020)
DEFINE PRINTER (2) OUTPUT 'LPF2'     /* LPF different from (0010)
WRITE (1) 'This is for report 1'
WRITE (2) 'This is for report 2'
WRITE (1) 'This is for report 1'
END
```

Using Con-form to Emphasize Text

You can emphasize all or parts of printed reports by using Con-form instructions, for example, during a Con-nect session.

Support is provided for the following Con-form instructions:

Instruction	Description
`.BF`	The text lines between two `.BF` instructions are printed in boldface.
`.BP`	Text contained on the next input line is printed in boldface.
`.US`	Text contained on the next input line is underscored.
`char` `B`	Backspace to super-impose one character over another.
`char` `U1...` *`char`* `U0`	Text within the symbols `U1` and `U0` is underscored.
`char` `M1...` *`char`* `M0`	Text within the symbols `M1` and `M0` is printed in boldface.

`char` is any special character which has been defined as the escape character by using the following Con-form instruction:

```
.OP ESC=char
```

Note: Text can only be printed in boldface if the Natural profile parameter `INTENS` (see the Natural *Parameter Reference* documentation) has been set to a value greater than `1`.

Hardcopy Facility - %H

The Natural terminal command %H, when issued in response to a prompt, produces output from Natural reports and communication screen layouts on a printer. The output will be routed to the first FREE physical printer allocated for the defined logical printer for hardcopy (see Functions 12, 30.5, 31.1 and 33). The %H command is effective for the current page and is automatically disabled at the end of the program output.

If %H is used for a map created by an INPUT statement, the complete contents of the page buffer is spooled to the output device.

The same applies for the SET CONTROL 'H' statement.

Using FETCH and STACK Statements

The NATSPOOL nucleus closes reports when Natural returns to command mode. If a Natural application program uses a STACK COMMAND statement to load another Natural program, command mode is entered and reports created by the invoking program are closed and printed according to their Disposition (provided that Natural is in ET status, that is, no user END OF TRANSACTION statement is pending). However, if a FETCH statement is used, command mode is not entered internally and reports created by the invoking program are closed and printed only when the invoked program ends. This allows more than one Natural program to be involved in the creation of a single report.

Example 1 - Using a STACK Statement:

```
* PGM-1
WRITE (1) 'output from PGM-1'
STACK COMMAND 'PGM-2'
END
```

```
* PGM-2
INPUT 'something' F1 (A8) (AD=MI)
END
```

When Program PGM-1 is executed, the report created by the WRITE (1) statement is closed and printed immediately.

Example 2 - Using a FETCH Statement:

```
* PGM-1
WRITE (1) 'output from PGM-1'
FETCH 'PGM-2'
END
```

```
* PGM-2
WRITE (1) 'output from PGM-2'
INPUT 'something' F1 (A8) (AD=MI)
END
```

When Program PGM-1 is executed, the report created by the WRITE (1) statement is not printed immediately. When the INPUT statement in Program PGM-2 is executed, the report status is LOAD (the report is not yet closed). The report is closed and printed only after PGM-2 ends. The output created by PGM-2 is written to the same report as the output of PGM-1.

ET/BT Logic

The NATSPOOL nucleus attempts to issue an Adabas ET command for a given report only when the close request is executed. The close request is executed when Natural returns (internally) to command mode or when a CLOSE PRINTER statement is executed. At that time it is checked whether Natural is in ET status, that is, if a user END OF TRANSACTION statement is pending. The NATSPOOL nucleus issues an ET command only if Natural is in ET status (if no user ET is pending). This ensures that reports are stored completely on the spool file and that no interference with user transaction logic occurs.

Special attention has to be paid to the order of the END OF TRANSACTION and CLOSE PRINTER (*rep*) statements, as shown in Examples 6 to 8 below.

When creating long reports on an Adabas spool file, the transaction time limit for ET logic users (ADARUN TT parameter) must be appropriately defined. When the time limit is exceeded, the report is backed out from the spool file.

The hold queue size (ADARUN NH parameter) must be large enough to prevent Response Code 145 (HOLD QUEUE OVERFLOW) during creation of a report.

The data protection area (ADARUN LP parameter) must be large enough to prevent Response Code 9.

Example 1:

```
READ (1) PERSONNEL BY NAME
  UPDATE ...
    WRITE (1) 'string'
  END OF TRANSACTION
END
```

The PERSONNEL file is updated, and the report is printed. An ET is issued by Natural (not by NATSPOOL).

Example 2:

```
READ (1) PERSONNEL BY NAME
  UPDATE ...
    WRITE (1) 'string-1'
  END OF TRANSACTION
    WRITE (1) 'string-2'
END
```

The PERSONNEL file is updated, and the report is printed.

The END OF TRANSACTION statement forces Natural to issue an ET. Once this ET is executed, the PERSONNEL file is updated, the output *string-1* is stored on the spool file, and the report is in status LOAD. Since Natural is now in ET status, NATSPOOL issues another ET to store the output *string-2*. The report status is set to TOBE.

If an interruption occurs between the execution of the END OF TRANSACTION and the subsequent ET of NATSPOOL, the output *string-2* will be backed out from the spool file and the report will remain in status LOAD. If the program above had no END OF TRANSACTION and the CLEAR key were pressed, the entire report would be backed out. This is because Natural issues a BT when the CLEAR key is pressed.

The report can be recovered (that is, status TOBE can be forced) by issuing the function code RC with **Function 10**.

Example 3:

```
READ (1) PERSONNEL BY NAME
  UPDATE ...
  WRITE (1) 'string'
END
```

The PERSONNEL file and the report are in HOLD status. If the user presses the CLEAR key or terminates the Natural session, the report is backed out from the spool file.

No ET is issued, and the report can neither be canceled nor recovered by another user.

Example 4:

```
READ (1) PERSONNEL BY NAME
  UPDATE ...
  WRITE (1) 'string'
BACKOUT TRANSACTION
END
```

The update to the PERSONNEL file *and* the report are backed out. No ET is issued.

Example 5:

```
READ (1) PERSONNEL BY NAME
  WRITE (1) 'string'
END
```

The report is printed, and an ET is issued by NATSPOOL (not by Natural).

Example 6:

```
READ (1) PERSONNEL BY NAME
  UPDATE ...
    WRITE (1) 'string'
  END OF TRANSACTION
  CLOSE PRINTER (1)
END
```

The PERSONNEL file is updated, and the report is printed as soon as the CLOSE PRINTER statement is executed. An ET is issued by Natural (not by NATSPOOL).

Example 7:

```
READ (1) PERSONNEL BY NAME
  UPDATE ...
    WRITE (1) 'string'
  CLOSE PRINTER (1)
  END OF TRANSACTION  /* issued too late
END
```

During close processing (forced by the CLOSE PRINTER statement), the PERSONNEL file is still in hold. Since the start of printing is triggered during close processing, the report is not printed, but remains on the spool file in status TOLA (END OF TRANSACTION issued too late). An ET is issued by Natural (not by NATSPOOL).

Example 8:

```
READ (1) PERSONNEL BY NAME
  UPDATE ...
    WRITE (1) 'string'
  CLOSE PRINTER (1)
END
```

During close processing (forced by the `CLOSE PRINTER` statement), the `PERSONNEL` file is still on hold. Since the start of printing is triggered during close processing, the report is not printed, but remains on the spool file in status `NOCL` (not closed, `END OF TRANSACTION` missing).

No `ET` is issued, and the report can neither be canceled nor recovered by another user.

Recovering after Abnormal Ends

If the TP monitor terminates abnormally while `NATSPOOL` is printing, the report is not lost. The report remains on the spool file, with status `ONPR`.

After the TP monitor has been restarted, the report can be recovered by issuing the function code `RC` with **Function 10**. This forces the report status `TOBE`. Thereafter, the printer can be restarted to print the report.

Batch Utilities NSPOBAT, SPPBATPR and SPPPRINT

These utility modules are provided to read the spool file and print reports in batch mode. The modules are cataloged as `SPPBATPR`, `NSPOBAT`, and `SPPPRINT` in the Natural system library `SYSPOOL`.

Below is information on:

- `NSPOBAT`
- `SPPBATPR`
- `SPPPRINT`
- **Examples - Form A and Destination** `ROOM*`
- **Deleting Reports without Printout**

NSPOBAT

Reports printed with `NSPOBAT` are selected by their Destination/Form identification, similar to **Function 10** (Reports/Queues).

All reports selected with Disposition `D`, `K` or `H` are printed as many times as requested when creating the report. Reports with other Dispositions are not printed.

To delete all reports with Disposition `D` or `H` from the spool file after the print job has terminated, specify `PURGE` as the last parameter. Reports with other Dispositions are not deleted.

SPPBATPR

Reports printed with `SPPBATPR` are selected by their Destination/Form identification, similar to **Function 10** (Reports/Queues).

All reports selected with Disposition `D` or `K` are printed as many times as requested when creating the report.

To delete all reports with Disposition `D` from the spool file after the print job has terminated, specify `PURGE` as the last parameter.

SPPPRINT

Reports printed with `SPPPRINT` are selected by their Destination/Form, Disposition, user ID and by the number of days (age in days) or the creation date.

Number of days determines that all reports are printed that exceed the number of days specified as storage limit for the spool file.

The creation date determines that all reports with a creation date earlier than the date defined are printed.

All selected reports are printed as many times as requested when creating the report.

To delete all reports from the spool file after the print job has terminated, specify `PURGE` as the last parameter.

Examples - Form A and Destination ROOM*

In the following examples, all reports from the spool file with Form A and a destination that begins with `ROOM` are printed.

Example - Batch Execution under z/OS:

```
//SPPBATPR  JOB SPPBATPR,CLASS=G,MSGCLASS=X
//LIST      EXEC PGM=NATBATCH,PARM='IM=F,FSPOOL=(,XXX)'
//STEPLIB   DD   DSN=NATURAL.V41.LOAD,DISP=SHR
//          DD   DSN=ADABAS.V61.LOAD,DISP=SHR
//DDCARD    DD   DSN=NATURAL.V41.SOURCE(ADAPARM),DISP=SHR
//CMPRINT   DD   SYSOUT=X
//CMPRT01   DD   SYSOUT=X
//CMSYNIN   DD   *
LOGON SYSPOOL
SPPBATPR DESTINATION=ROOM*,FORM=A
FIN
/*
```

Example - Batch Execution under z/VSE:

```
// JOB SPPBATPR
// OPTION PARTDUMP
// ASSGN SYS010,SYSLST
// ASSGN SYS000,SYSRDR
// EXEC NATBATCH,PARM='SYSRDR'
IM=F,FSPOOL=(XXX,XXX)
/*
ADARUN SVC=XXX,DA=XXX,DEVICE=XXX,MODE=MULTI
/*
LOGON SYSPOOL
SPPBATPR DESTINATION=ROOM*,FORM=A
FIN
/*
/&
```

Example - Batch Execution under BS2000/OSD:

Note: Forms mode must be `IM=F`.

```
/.SPPBATPR LOGON
/SYSFILE SYSOUT=LST.SPPBATPR
/EXEC NATB41
LOGON SYSPOOL
SPPBATPR DESTINATION=ROOM*,FORM=A
FIN
/LOGOFF
```

Deleting without Printout

If you want to delete reports by using NSPOBAT, SPPBATPR or SPPPRINT without printing them, in z/OS, instead of allocating CMPRINT to SYSOUT, you can allocate CMPRINT to DUMMY. In z/VSE, provide a dummy assignment for SYSLST (//ASSGN SYSLST,IGN) .

Example 1:

```
LOGON SYSPOOL
SPPBATPR DESTINATION=xxxxxxxx,FORM=y,PURGE=PURGE
FIN
```

All reports with destination *xxxxxxxx* and form *yare* deleted from the spool file after they have been printed.

Example 2:

All reports from the spool file are printed, and deleted after printing.

```
LOGON SYSPOOL
SPPBATPR DESTINATION=*,FORM=*,PURGE=PURGE
FIN
```

Special User Exits

- USPINIT
- USPEXIT
- USPSER01

USPINIT

After starting the MENU program in the SYSPOOL library, this subprogram is invoked. You can use this subprogram to define your own settings, authorizations, etc. You must not modify the settings for the message line (%M) and PF-key line (%Y).

USPEXIT

After the SYSPOOL application is terminated, this subprogram is invoked. You can use this subprogram to control your environment.

USPSER01

This subprogram is used by the spool server during a Natural session. It receives control before a block is sent to the printer. The delivered source contains all parameter information. When you modify data in this subprogram, the modified data are sent to the printer unchecked.

If your printer requires a different user exit, with the parameter information supplied with USPSER01 you can write a user exit subprogram that meets your requirements and catalog it in the Natural system library SYSPRINT. To assign the user exit to the printer, use Function 31.4 and enter the name of the user exit subprogram in the field Server Exit. Your user exit will then take over control before a block is sent to the printer.

For further details, see **Function 31.4** (Printer) in the section Objects - Function 31.

Load and Unload Programs SPPULDUS and SPPLODUS

The Natural administrator can use the program SPPULDUS to unload objects (user profiles, logical printers, physical printers, etc.) from a spool file into Work File 3. SPPULDUS is supplied in the library SYSPOOL.

The following functions codes are available for SPPULDUS:

Function Code	Description
1	Unload user profile.
2	Unload logical printer.
3	Unload allocation table.
4	Unload physical printer.
5	Unload header pages.
6	Unload application.
7	Unload cluster.
8	Unload NTTC table.
9	Unload calendar.
A	Unload message headers (BS2000/OSD only).
*	Unload all items.

To load objects from Work File 3 into a spool file, the administrator can use the program SPPLODUS. SPPLODUS is supplied in the library SYSPOOL.

In batch mode, SPPLODUS can also be used to load objects into a spool file from a user-created work file assigned to CMWKF03. To modify multiple objects in batch, first unload objects into this work file by using SPPULDUS, then modify objects by using any edit/change tool, and finally reload the objects by using SPPLODUS. See the Natural Advanced Facilities online help for information on the layout of the unloaded objects (on the help menu, select Function 99 and then Function 1).

Note: When executing SPPLODUS, none of the above listed function codes need to be specified.

Example - SPPULDUS with Function Code * under z/OS:

```
//SPPULDUS  JOB  CLASS=K,MSGCLASS=X
//SPPULDUS  EXEC PGM=NAT41OBT,REGION=2000K,PARM='FSPOOL=(XXX,XXX),IM=D'
//STEPLIB   DD   DSN=NATURAL.V41.LOAD,DISP=SHR
//          DD   DSN=ADABAS.V61.LOAD,DISP=SHR
//DDCARD    DD   DSN=NATURAL.V41.SOURCE(ADAPARM),DISP=SHR
//CMPRINT   DD   SYSOUT=X
//CMWKF03   DD   DSN=NAF41.UNLOAD,DISP=SHR
//CMSYNIN   DD   *
LOGON SYSPOOL
SPPULDUS
*
.
FIN
```

Example - SPPULDUS with Function Code * under z/VSE:

```
// JOB SPPULDUS
// OPTION LOG
// ASSGN SYSLST,00E
// EXEC PROG=ADAV61LB
// EXEC PROG=ALL41LB
// ASSGN SYS000,READER
// EXEC NATBATCH,SIZE=NATBATCH,PARM='SYSRDR'
FSPOOL=(XXX,XXX),IM=D
/*
ADARUN DA=XXX,SVC=XXX,TNAE=XXX,TT=XXX
/*
LOGON SYSPOOL
SPPULDUS
*
.
FIN
/*
/&
```

The sample SPPULDUS execution job leads to the following output:

```
NEXT LOGON SYSPOOL
LOGON ACCEPTED TO LIBRARY SYSPOOL
NEXT SPPULDUS

DATA *
UNLOADED USER PROFILES           :               17
UNLOADED LOGICAL PRINTERS        :               33
UNLOADED ALLOCATIONS             :              101
UNLOADED PHYSICAL PRINTERS       :               48
UNLOADED EJECT CONTROLS          :               51
UNLOADED MESSAGE HEADERS         :                2

DATA .
NEXT FIN
NAT9995 NATURAL SESSION TERMINATED NORMALLY
```

Example - SPPULDUS with Function Code * under BS2000/OSD:

```
/.ULDUS LOGON
/REMARK *******************************
/REMARK *** Unload Spool File       ***
/REMARK *******************************
/SYSFILE SYSLST=LI.LST.ULDUS
/SYSFILE SYSOUT=LI.OUT.ULDUS
/FILE DA,UNLOAD,LINK=W03
/SETSW ON=2
/SYSFILE SYSIPT=(SYSCMD)
/SYSFILE SYSDTA=(SYSCMD)
/EXEC NAT41B
AUTO=ON,ETID=' '
/EOF
LOGON SYSPOOL
SPPULDUS
*
.
FIN
/SYSFILE SYSLST=(PRIMARY)
/SYSFILE SYSOUT=(PRIMARY)
/LOGOFF NOSPOOL
```

Example - SPPLODUS under z/OS, z/VSE and BS2000/OSD:

```
.
.
.
LOGON SYSPOOL
SPPLODUS
FIN
.
.
.
```

31 NAF - NATSPOOL and Natural Security

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- SPOOL Parameter in Library Security Profile 256
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This chapter describes the Natural Security features supported by Natural Advanced Facilities and how these features can be used.

User Types

Under Natural Security, there are three types of Natural Advanced Facilities users:

- **System Administrators**
- **Group Administrators**
- **End-Users**

System Administrators

A NATSPOOL system administrator is either an owner of the library SYSPOOL, as defined in Natural Security, or, if no owner has been defined for SYSPOOL, a user defined as administrator (user type A) in Natural Security.

System administrators can access all NATSPOOL functions, unless certain restrictions have been imposed within NATSPOOL itself.

Group Administrators

If any owners are defined in Natural Security for library SYSPOOL, users defined as administrators (user type A) but not defined as owners are group administrators.

Group administrators can perform administrative functions, too, but only within the group(s) they belong to. The Natural Security administrator must define valid group IDs and define which users are members of which groups by using the User Maintenance functions of Natural Security (see the Natural Security documentation). The group administrator must be a member of the corresponding group(s).

End-Users

End-users are users who are neither defined as system administrators nor as group administrators.

User-Type-Dependent Menus

Depending on which user type invokes NATSPOOL with startup program MENU, different menus are displayed.

- **Menu for System Administrators**
- **Menu for Group Administrators or End-Users**

Menu for System Administrators

```
Time 12:31:03        *** Natural Spool Administration ***      Date 2002-10-17
User SAG                           M e n u                     File 7/411

      Administration                               Information

      10 Reports/Queues                            20 Cross-Reference
      11 Devices                                   21 Statistics
      12 Abstracts                                 22 Look at Spool File
      13 Applications                              23 CALLNAT Handling
      14 Change Spool File


      Maintenance                                  Control Functions

      30 Spool File Properties                     40 Check Spool File
      31 Objects                                   41 Logging Data
      32 Mass Update                               42 Create Test Reports
      33 Hardcopy Allocations                      43 Delete Reports by Date
      34 Transfer Objects

Enter function, mark with cursor, or press a PF-key.
Command ===>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help        Exit  Repor Devic Flip  Abstr Appli Cross Stati Look  Canc
```

The NATSPOOL menu for system administrators under Natural Security corresponds to the NATSPOOL menu without Natural Security.

If Natural Security has not been installed, all users of Natural Advanced Facilities are system administrators.

Menu for Group Administrators or End-Users

For users defined as group administrators or end-users, the NATSPOOL menu provides only a subset of the functions available for the system administrator.

```
Time 12:34:25        *** Natural Spool Administration ***      Date 2002-10-17
User SAG                          M e n u                      File 7/411




                          10  Reports/Queues
                          11  Devices
                          12  Abstracts
                          13  Applications









 Enter function, mark with cursor, or press a PF-key.
 Command ===>
 Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
       Help        Exit  Repor Devic       Abstr Appli                          ↩
```

When accessing objects, such, as printers or reports, the corresponding subfunctions are restricted. The restrictions imposed by Natural Security can be further restricted by NATSPOOL itself.

SPOOL Parameter in Library Security Profile

If Natural Security is installed, it is possible to use different NATSPOOL user profiles for different libraries without leaving the Natural session. This is accomplished by entering a SPOOL parameter (a user profile name) in the SPOOL profile field in the library security profile in Natural Security.

The user profile specified in the SPOOL parameter of the library security profile should contain the same number of printers as used for the NTPRINT macro or PRINT parameter. At the beginning of a Natural session, Natural executes a GETMAIN (REQM) for the number of printers specified. If the default is 3 (for example, NTPRINT (1-3),AM=NAF) and a library which has a user profile with 4 printers specified is accessed, only 3 can be used. This is because GETMAIN (REQM) is only executed at the beginning of the Natural session.

At logon time it is checked whether a SPOOL parameter has been specified for the library. A blank value for the SPOOL parameter causes the usage of the user profile which was activated at the start of the Natural session. If the SPOOL parameter is different from the previous one, the corresponding logical printers are re-initialized.

The maximum number of logical printers contained in the NTPRINT macro or PRINT parameter at Natural startup time is taken into account. Therefore, during the initialization by using the user profile specified with Natural Security, there are three possibilities as to how many printer profiles will be changed:

- If the new number of logical printers is equal to the old number of logical printers, all logical printers will be re-initialized.
- If the new number of logical printers is less than the old number of logical printers, only the new number of logical printers will be re-initialized. All the other logical printers will be deleted.
- If the new number of logical printers is greater than the old number of logical printers, all numbers of logical printers will be initialized.

Any attempt to write to a printer which has a number greater than those initialized results in error message NAT0361 (printer number not allocated).

Restriction of NATSPOOL Functions

Usage of the functions provided on the NATSPOOL menu can be restricted by disallowing the appropriate Natural modules in the library security profile of library SYSPOOL.

The modules can be restricted on a global basis by modifying the library security profile of SYSPOOL. Further control can be exercised on an individual basis by defining individual *special links* to SYSPOOL for individual users.

The NATSPOOL functions are contained in the following Natural modules:

NATSPOOL Function	Function Code	Natural Module
Reports/Queues	10	SPPREP*
Devices	11	SPPPSE*
Abstracts	12	SPPSES*
Applications	13	SPPAPC*
Change Spool File	14	SPPCSF*
Entire Output Management	15	SPPEOM01
Cross-Reference	20	SPPCR*
Statistics	21	SPPSTA*
Look at Spool File	22	SPPL00*

NATSPOOL Function	Function Code	Natural Module
CALLNAT Handling	23	SPPUSP*
Layout of Spool File	30	SPPFIL* SPPFOR*
Objects	31	SPPUSE* SPPSEL01 SPPHC001
Mass Update	32	SPPMA*
Hardcopy Allocations	33	SPPHC*
Transfer Objects	34	SPPTRF*
Check Spool File	40	SPPCHE*
Logging Data	41	SPPLGG*
Create Test Report(s)	42	SPPTREP*
Delete Reports by Date	43	SPPRBT*

NATSPOOL-Internal Security

Regardless of whether Natural Security is installed, the following NATSPOOL internal security features apply:

Report Protection

Reports can be protected both when being displayed in online mode and when being printed. See *Function 31.2*.

Object Protection

Objects can be protected both when being modified or used. See *Function 31.7*.

32 NAF - Features in a CICS Environment

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- CICS/MRO Environments 262
- Dynamic Parameters for the Spool Server 262
- Dynamic System File Specification 263
- Automatic Session Creation 263
- Spool File Scan at Natural Initialization 263
- Automatic Restart 264
- SCS Printer Support 264
- Operation Mode of the Spool Server 264
- Thread Utilization 265

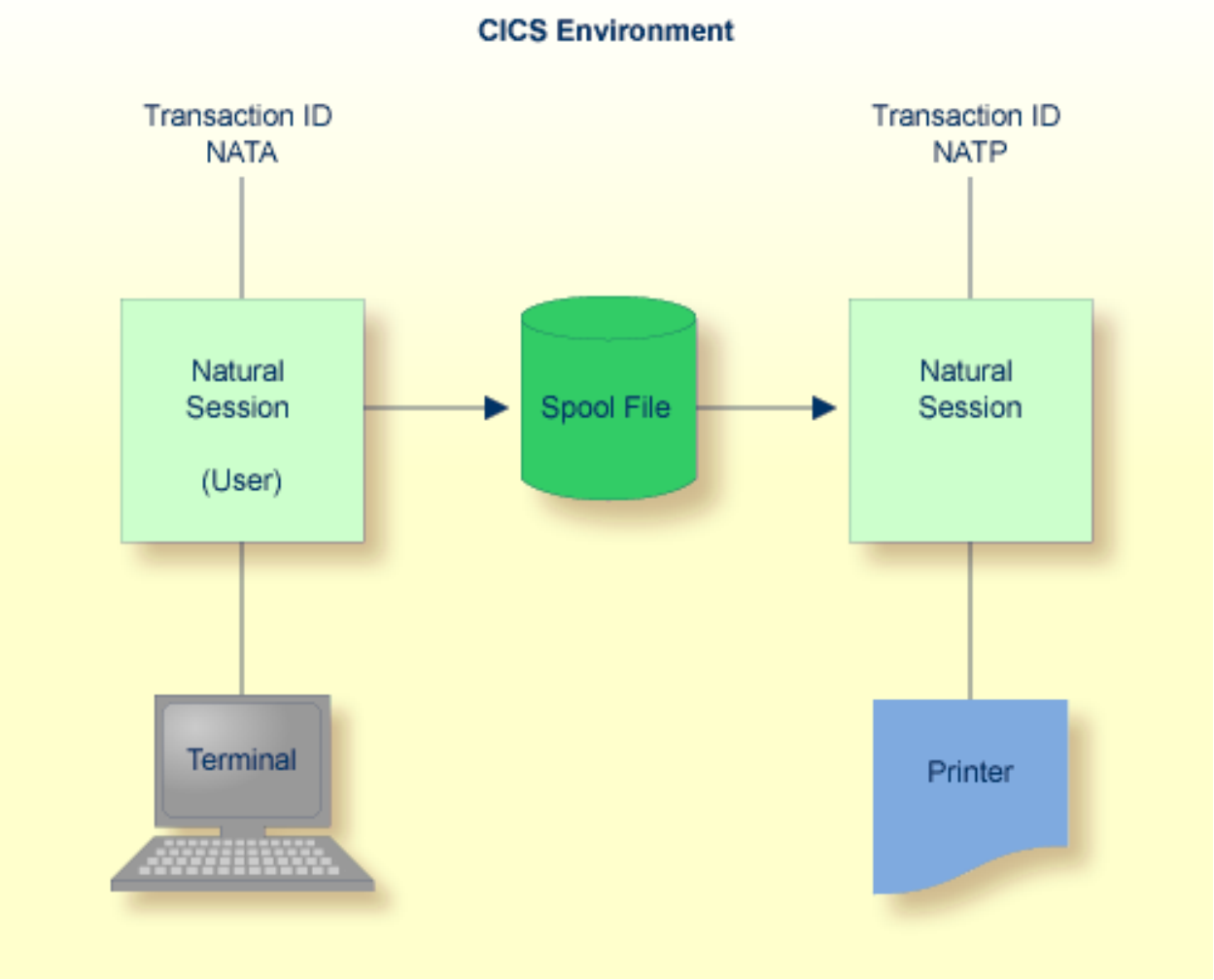
This chapter explains the features of Natural Advanced Facilities specific to a CICS environment.

Overview

NATSPOOL accumulates all reports generated during a Natural user session in the spool file. To physically print a report, NATSPOOL schedules a Natural session at the physical printer by issuing an EXEC CICS START command.

This new Natural session, the NATSPOOL spool server, retrieves various dynamic parameters from the task which has issued the START request.

The logical connection between the two Natural sessions used by NATSPOOL is shown below.



CICS Options

To install NAF in a CICS environment, set the NATSPOOL parameters listed below.

You can also specify these parameters with **Function 30.5** (Set Spool Option) as described in Layout of Spool File. After Natural Advanced Facilities has been installed, use Function 30.5 to set the CICS options.

Parameter	Explanation
INITEXI=OFF/ON	Specifies whether the NAF initialization exit is executed. This exit requires exclusive control (ADABAS EXU USER) by the spool file.
INITMCO=OFF/ON	Specifies whether the initialization exit sends messages to the console.
INITMLO=OFF/ON	Specifies whether the initialization exit sends messages to the CICS log file.
INITSID= *name*	Specifies the CICS SYSID that performs the initialization exit.
PRINSID= *name*	Specifies the default CICS SYSID for the spool server used if no SYSID has been specified for the printer on the spool file (see also ***Function 31.4*** in the section *Objects - Function 31*).
TRANP= *name*	Specifies the CICS transaction ID of the spool server. The name specified must be identical to the corresponding name specified as transaction ID in the CICS PCT. This PCT entry must point to the Natural load module, that is, NATP starts Natural. For performance reasons, we highly recommend that you select different names for the spool server transaction ID and the terminal transaction ID.
TRMTASK=OFF/ON	Specifies that the spool server terminates and another task starts each time a single report has been printed. Specifiying TERMTASK=OFF, the same spool server prints all reports with the same Destination/Form. This can cause CICS resource problems if many printers are active at the same time.

You can omit a parameter or set the value (OFF/ON or *name*) assigned to blank.

The following rule of precedence applies to the use of parameters:

- For all parameters that have not been defined in NAFPRMC or have been set to blank, the corresponding values defined in the spool file applies.
- Parameters that have been defined in the NAFPRMC parameter module by setting the value not equal to blank rank before the values defined on the spool file. As a result, you can use the NAFPRMC parameter module to set certain options for certain tasks only. This can be useful for several CICS environments sharing the same spool file.

CICS/MRO Environments

CICS contains a facility called Intercommunication Support, which allows different CICS regions to share resources and communicate with each other. Multiple Region Operation (MRO) is a CICS facility which provides such support for regions within the same processor.

The MRO function-shipping option allows programs in the "application-owning" (local) region to access resources in the "resource-owning" (remote) region, by shipping appropriate requests to the remote region.

These requests are carried out in the remote region by a mirror transaction provided by CICS. The resources accessed can also be transactions, in which case the process is known as Remote Transaction Initiation.

Using the MRO approach, it is possible to ship the `START` request of the asynchronous `NATSPOOL` spool server to a remote region (that is, to print in such a region).

The MRO option is useful if growth of tasks is anticipated, because there are constraints on the number of tasks a CICS region can manage.

Dynamic Parameters for the Spool Server

When a spool server is started, three different types of dynamic parameters apply:

Parameters set up by the spool server itself
To allow for dedicated Natural Advanced Facilities threads of minimum size, the spool server always allocates buffers of minimum size. Most sizes are set to 0.

Parameters passed from the user session to the spool server
The spool server and the user session which started the spool server always use the same system files (`FNAT`, `FUSER`, `FDIC` and `FSPOOL`), the same buffer pool (`BPID`), and the same setting of the `RCA` parameter.

Parameters defined in the Natural parameter module
All further parameters not mentioned above are taken from the Natural parameter module.

Dynamic System File Specification

The definition of the system file(s) in the Natural parameter module can be overwritten by the user. This is accomplished by specifying any of the corresponding file parameters (DBID, FNR, FDIC, FNAT, FSEC or FSPOOL) dynamically when starting a Natural session. The actual values will then be transferred by the originating terminal task to the spool server. This holds both for spool servers started automatically and for spool servers started by using NATSPOOL functions.

When DBID or FNR are processed, the supplied value is also applied to the spool file specification.

Once the spool server has been started, it will observe these file definitions for as long as the task is active. Reports will be printed only from the file defined by the currently active FSPOOL, even if there are reports with the same Destination/Form on another FSPOOL file.

In this way a unique CICS spool server is able to manage reports created on different spool files under the same CICS (for example, for production or test processing).

Automatic Session Creation

Before starting a spool server, NATSPOOL checks if the terminal status of the printer allows internally generated session requests to create a session (TRMSTAT=INTLOG or CREATESESS=YES). If this is not the case, for example after VTAM LOSTERM errors, NATSPOOL forces this status and then tries to start the spool server.

Spool File Scan at Natural Initialization

After startup of CICS, when the first Natural session is invoked, the spool file is scanned for printers or reports interrupted during the previous CICS session. Interrupted printers which are not in status DEAC are reset to status FREE, interrupted reports to status TOBE. 20 seconds after this first stage of initialization, all interrupted printers are restarted with the interrupted Destination/Form. The interval of 20 seconds allows this first stage of initialization to finish as an exclusive user of the spool file.

The Natural initialization ensures that the spool file is to be updated under exclusive control of this first session. Other starting sessions will be delayed until this part of the initialization has finished.

If an error is encountered during scanning the spool file, the system operator is notified, the scan is terminated normally, and Natural initialization continues.

This scan is performed for the defined spool file, that is, dynamic setting of FSPOOL is also taken into account.

If the spool file is shared among CICS sessions, the spool file scan must be disabled (see ***Function 30.5*** and the NAFPARMC parameter module in *Installing Natural Advanced Facilities under CICS on z/OS* or *Installing Natural Advanced Facilities under CICS on z/VSE*) because it requires exclusive control of the spool file.

Automatic Restart

If a spool server terminates normally, each printer is checked for status INOP. If a printer is found to be in status INOP and no alternate printer is available, the printer is set to status PEND, and the spool server tries to start again on that printer. If the printer becomes INOP again, the same procedure is repeated twice. Afterwards, a restart is no longer attempted on that printer.

SCS Printer Support

Support for SNA character string (SCS) printers is provided.

The data stream to SCS printers may only contain user data and SCS control codes. It must not contain a write control character (start printer bit) or orders (such as the end-of-message character). The SCS control codes perform functions similar to orders, in that they allow the output to be formatted, however, the range of control is greater.

The only SCS control codes used by NATSPOOL are FF (form feed) and NL (new line).

Operation Mode of the Spool Server

It is only possible to have one spool transaction ID per Natural transaction ID.

The operation mode of the spool server can be defined with **Function 30.5** or the NAFPARMC parameter module as described in *Installing Natural Advanced Facilities under CICS on z/OS* or *Installing Natural Advanced Facilities under CICS on z/VSE*.

By default, the NATSPOOL spool server operates as a pseudo-conversational CICS task (that is, in Terminate Task=Y mode). The spool server will then be terminated (and another task will be started) each time a single report has been printed. Pseudo-conversational mode of operation is recommended if there are several physical printers active at the same time.

Specify Terminate Task=N to run in conversational mode. The same CICS task prints all reports with the same Destination/Form. Conversational mode is recommended if not many physical

printers are active at any one time, and fast printing is required. Otherwise, the maximum number of active CICS tasks (AMXT keyword in CICS SIT) may be reached.

Thread Utilization

Before sending output to a printer, the spool server rolls out the session to release the thread. This allows the thread to be released if the printer is interrupted while printing, for example, when running out of paper or switched off. After the output has been sent successfully, the session is rolled in again. Since relocation is turned off during this roll request, the same thread is selected.

33 NAF - Features in an IMS TM Environment

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- Wait for Input WFI 270

This chapter explains the features of Natural Advanced Facilities specific to an IMS TM environment.

Overview

NATSPOOL accumulates all reports generated during a Natural user session in the spool file.

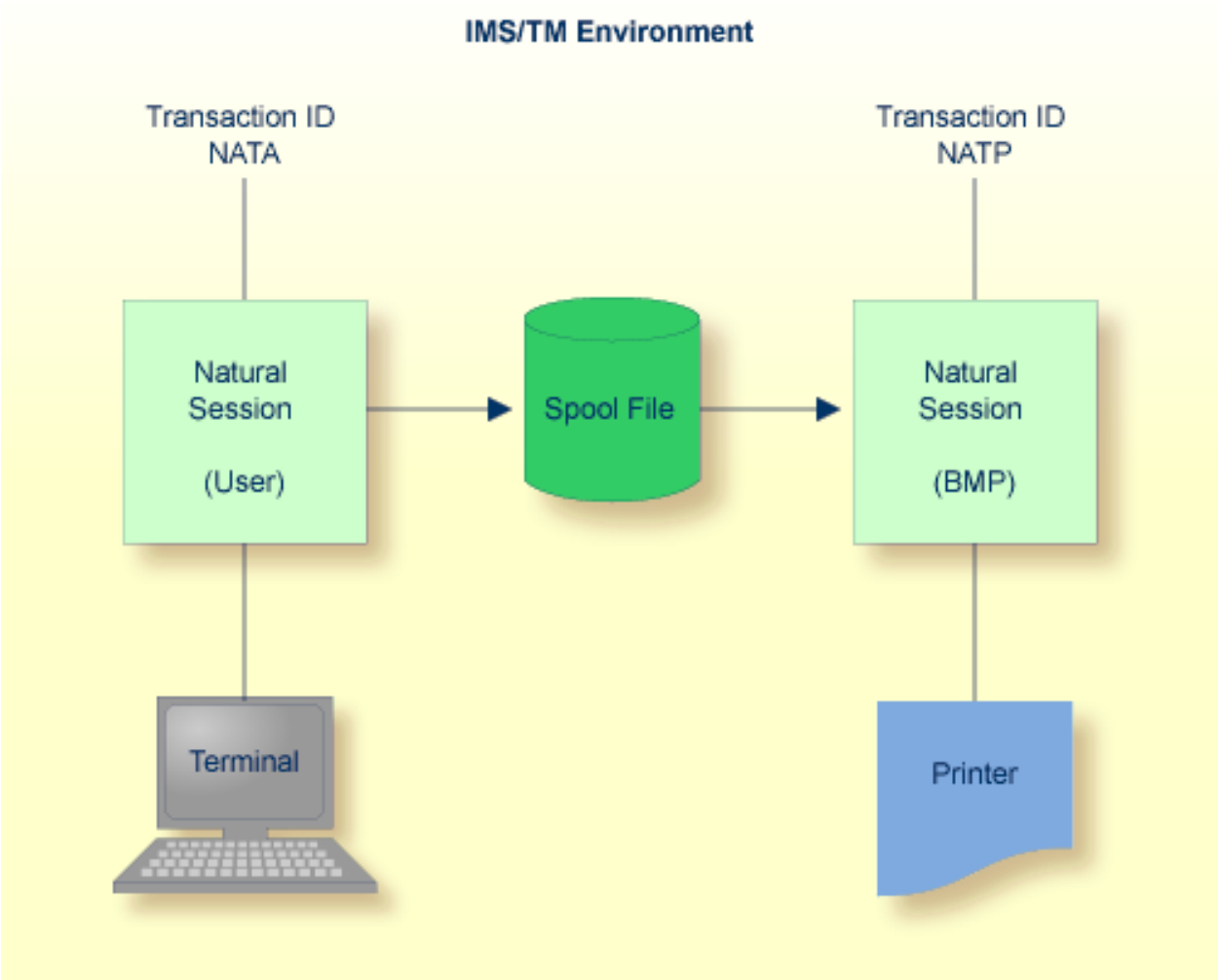
To physically print a report (that is, to send output to an IMS LTERM assigned to a printer), NATSPOOL performs the following steps:

1. The MPP Natural inserts a message into the IMS message queue for a transaction code that is used as (non-conversational) input transaction code for a BMP region. This transaction code can be a **Wait for Input (WFI)** transaction code or not.
2. If the BMP is generated as WFI and has been started by the IMS TM operator, all reports which are created during the IMS TM session are printed by this BMP. If the BMP is not generated as WFI, Natural issues the /STA REG*xxxxxxxx* command to start the BMP region, where *xxxxxxxx* represents the BMP JCL member name specified in the spool file options (see **Function 30.5**).
3. The BMP region executes Natural under the control of the Natural BMP interface for IMS TM. The input to Natural must be as follows:

```
//CMSYNIN DD *
  LOGON SYSPRINT
  SVPIMS01
  FIN
/*
```

4. The Natural program SVPIMS01 in library SYSPRINT retrieves the message from the IMS message queue to find out what has to be printed and sends the selected output to the IMS printer. Depending on whether the transaction code is WFI or not, the BMP region either “waits” for the next input message or terminates. The message contains the BMP transaction code specified in the spool file options (see **Function 30.5**) and the LTERM name of the IMS printer. Since SVPIMS01 dynamically calls CMGETMSG, the load library containing this module must be concatenated in the BMP JCL.

The logical connection between the two Natural sessions used by NATSPOOL is shown below.



IMS TM Options

To install NAF in an IMS TM environment, set the `NATSPOOL` parameters listed below.

You can also specify these parameters with **Function 30.5** (Set Spool Option) as described in Layout of Spool File.

Parameter	Explanation
`BMPCODE=` *name*	Specifies the BMP transaction code.
`BMPNAME=` *name*	Specifies the BMP JCL member name.
`BMPWFI=ON/OFF`	Specifies the BMP WFI option.

You can omit a parameter or set the value (*name* or `OFF`/`ON`) assigned to blank.

The following rule of precedence applies to the use of parameters:

- For all parameters that have not been defined in `NAFPRMI` or have been set to blank, the corresponding values defined in the spool file applies.
- Parameters that have been defined in the `NAFPRMI` parameter module by setting the value not equal to blank rank before the values defined on the spool file. As a result, you can use the `NAFPRMI` parameter module to set certain options for certain BMPs only. This can be useful for several IMS TM environments sharing the same spool file.

Wait for Input WFI

Under IMS TM, an option is provided to use only one BMP to print all reports which are created during an IMS TM session. To make this possible, the BMP program `SVPIMS01` in library `SYSPRINT` can be made to "Wait for Input" after it has been started by the IMS operator. No `/STA REG` command will be issued from the MPP region after the message for the BMP input transaction code has been inserted in the IMS message queue.

To stop the BMP, issue the command `/PSTO REG`. The BMP is stopped automatically when the database in which the spool file is located is no longer active, or if any error occurs during execution.

To use this feature, the BMP transaction must be generated as WFI in the IMS TM `TRANSACT` macro, and "Wait for input" must be set in the spool file options or in the `NAFPARMI` parameter module.

Since the Natural Advanced Facilities transaction can be run as BMP-WFI, it is also possible to have this printer transaction as an online transaction running under the message-oriented online Natural.

This can be achieved by specifying the spool file options with a BMP ID equal to a non-conversational transaction code received by the message-oriented online Natural. Also "Wait for input" equal to Y is required to suppress the `/STA REG` command, because this transaction is scheduled like the normal conversational dialog-oriented Natural transactions.

To tell the message-oriented Natural to run the `SVPIMS01` Natural print program, a bootstrap module with the following Natural dynamic parameters must be generated as the transaction start program:

```
STACK=(LOGON SYSPRINT;SVPIMS01),PRINTER=LTERMP01
```

Other requirements, such as WRKPCBS are equivalent to the BMP version. You will find instructions for generating the bootstrap in the section *Installing the Natural IMS TM Interface on z/OS* in the *Installation for z/OS* documentation.

When deciding how to run Natural Advanced Facilities under IMS, you need to take into account site specifics. For example, extremely long printouts may hinder other online transactions running

in the same region. Permanently having print transactions in the queue may also lead to a region lock by printing. You can avoid this by using IMS transaction parameters, such as `PROCLIM`.

34 NAF - Features in a BS2000/OSD Environment

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- Printing on System Printers 275
- Printing on RSO Printers 276
- Implementation of Spooling 276
- User Exits for the Spool Server 277
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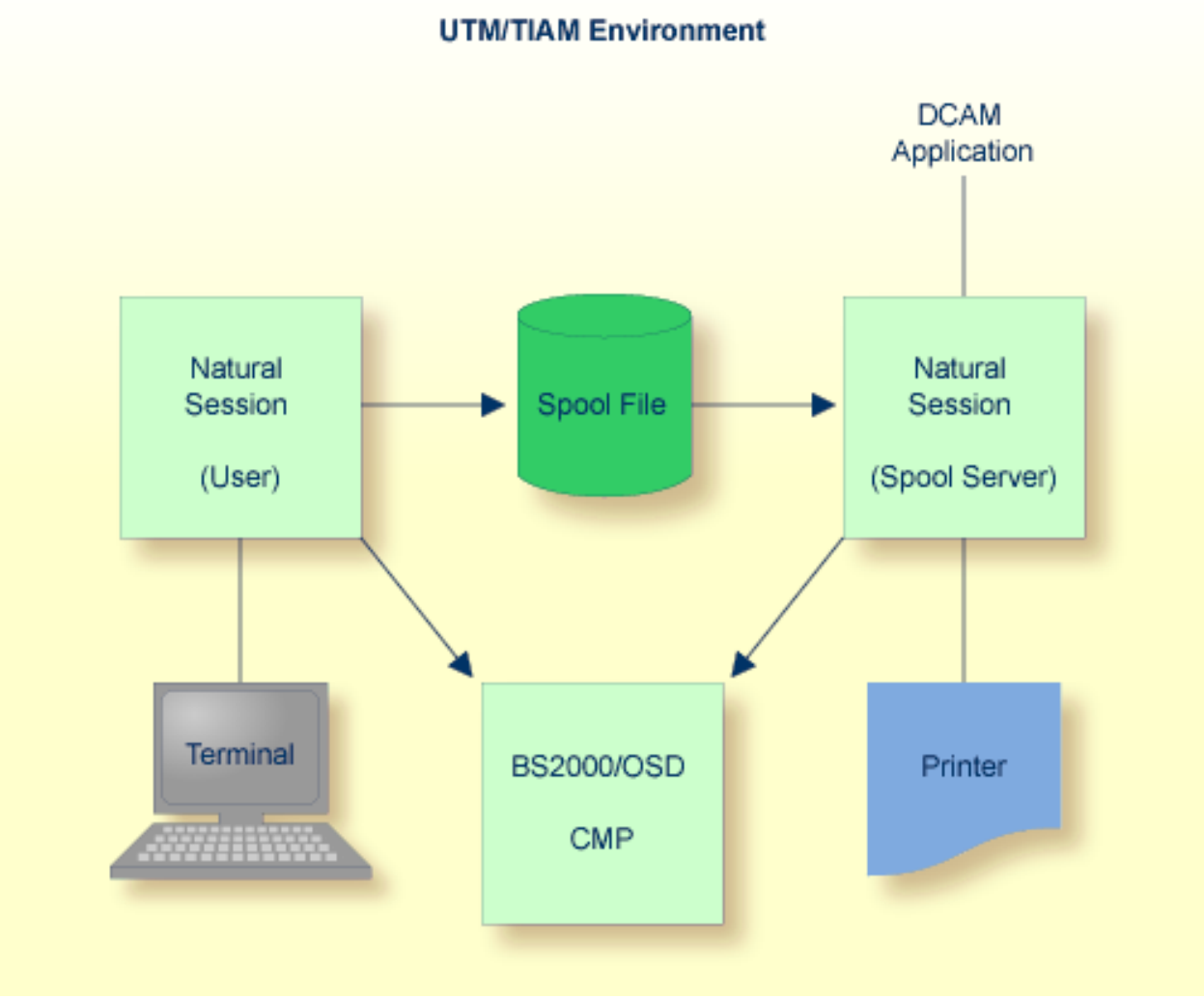
This chapter explains the features of Natural Advanced Facilities specific to a BS2000/OSD environment:

Overview

NATSPOOL accumulates all reports generated during a Natural user session in the spool file. To physically print a report, NATSPOOL performs an event to pass control to a Natural batch session.

This new Natural session, the NATSPOOL spool server, retrieves various dynamic parameters from the task which has issued the event by using a BS2000/OSD common memory pool (CMP).

The logical connection between the two Natural sessions used by NATSPOOL is shown below.



BS2000/OSD Options

After Natural Advanced Facilities has been installed, you must set the BS2000/OSD options by using **Function 30.5**.

Automatic Start of Spool Server - openUTM only

It is possible to start the spool server automatically when *open*UTM is started by specifying the SPOOL parameter in the NATUM macro. The spool server will then be active any time Natural Advanced Facilities is used in a *open*UTM environment.

The SPOOL parameter has the following syntax:

```
SPOOL=(NATSPOOL,'name',nn)
```

Parameter	Description
NATSPOOL	Refers to the remote spool system of Natural Advanced Facilities.
' name'	The name of the enter-job which starts the spool server.
nn	The number of spool servers to be started. As many as 30 spool servers may be started at the same time.

Example of the SPOOL Parameter:

```
SPOOL=(NATSPOOL,'E.PTTASK',2)
```

If a spool server cannot be started (for example, if the batch limit has been reached) the *open*UTM driver will issue the message:

```
SYSTEM ERROR: PLEASE GIVE KDCOFF
```

Printing on System Printers

If a report is to be sent to a system printer, the user profile must contain the following:

- a physical printer with the name SYSTEM must be defined; and
- a logical printer which must be assigned to the physical printer SYSTEM.

The spool server then recognizes that any reports generated for this printer are to be sent to the system printer. The report is written to the BS2000/OSD EAM-space via the WRLST macro, and then

the report is printed on the appropriate system printer (via the BS2000/OSD command `PRINT *SYSLST`). No remote printer is activated.

The various print preprocessing activities, affecting, for example, the print control characters, are performed in the spool server. As long as the report remains in the spool file, it can be sent to any remote printer.

For printing of reports on a system printer, the macro `PRNT` is used with the following specifications:

```
PRNT *SYSLST,ERASE,SPACE=E,
             COPIES=number of duplicates as specified in the LPF,
             PNAME=user ID of report,
             FORM=destination of report or value of BS2FORM from
                  NAF parameter module,
```

Note: If Natural Security is installed, the Natural Security user ID is taken as Sending User ID. If Natural Security is not installed, the terminal ID is taken as Sending User ID.

Printing on RSO Printers

For printing of reports on an RSO printer, the macro `PRNT` is used with the following specifications:

```
PRNT *SYSLST,ERASE,SPACE=E,
             COPIES=number of duplicates as specified in the LPF,
             PNAME=user ID of report,
             FORM=destination of report, or value of RSOFORM from NAF parameter
                  module, or value defined for physical printer (31.4),
             DEV=physical printer
```

Note: If Natural Security is installed, the Natural Security user ID is taken as Sending User ID. If Natural Security is not installed, the terminal ID is taken as Sending User ID.

Implementation of Spooling

One or more spool servers (maximum 30) must be active for `NATSPOOL` to function under BS2000/OSD. These tasks are started as batch tasks and are always present. If no reports are allocated to a printer, the spool server is in WAIT status and minimal CPU time is used. When a report is generated from a Natural session, the `NATSPOOL` nucleus searches for the specified printer and activates the spool server with the `P1-EVENTING` mechanism.

The communication for `P1-EVENTING` is defined by the parameters `NAFERK1` and `NAFERK2` in the BS2000/OSD parameter module `NAFB2P` for Natural Advanced Facilities; for more information, see *Installing Natural Advanced Facilities on BS2000/OSD*. The values for `NAFERK1` and `NAFERK2` must

be unique for a given CPU. Thus, it is possible to run two different Natural environments in parallel on the same CPU and to work with different NATSPOOL environments. For each Natural installation and for each Natural Advanced Facilities installation, the parameters for P1-EVENTING and DCAM communication (DC0 - DC30) must be different. When installing two or more Natural or Natural Advanced Facilities environments using the same BS2000/OSD user ID, it is possible to create different modules for NAFB2P by the setting the BS2000/OSD procedure parameter PRGSUFF in the respective installation jobs. This parameter must be unique for each installation.

The spool server, which is a DCAM application, performs the following:

- Activates the specified printer (DCAM macro YOPNCON). If the printer cannot be activated the spool server sets the printer to INOP status.
- Reads the report from the spool file.
- Sets the printer control characters to correspond with those for that printer as specified in the printer definition.
- Submits the report (DCAM macro YSEND) to the printer in segments equal in size to the printer buffer size.

After each segment of the report has been submitted, the transfer acknowledgment (DCAM macro YRECEIVE) will be checked to determine whether the report was printed. Otherwise, following a specific waiting period, another attempt will be made. If submitting is still not successful, the printer will be set to INOP status.

After the report has been printed, the spool server checks whether an additional report for this printer has been written to the spool file. If so, this report will be printed immediately. If no additional reports are waiting, the printer will be deactivated (DCAM macro YCLSCON) and become available for other spool systems. The spool server will return to WAIT status until a new PRINT command for this or another printer is issued.

User Exits for the Spool Server

Under BS2000/OSD, Natural Advanced Facilities provides the user exits described below. The user exits are written in Assembler. All information passed to these user exits uses Software AG-defined DSECTS named NAFDINFO, NAFDTECH and NATDINFO.

NAFEXIT1

This user exit must be linked to the front part of the spool server by using the CSECT name `NAFEXIT1`. The exit is activated for all physical printers defined with the field User Exit defined as `EXIT1`. The exit gets control line by line for each report. The spool server will not rework any report data.

This exit executes the following functions:

Code	Function
1	Open report
2	Write report
3	Send report

Correct execution of the exit has to be communicated via register 15 (value=`0`). Otherwise, the content of the exit is recognized as a negative return code.

Register 1 adresses the following parameter area:

Offset	Address of
0	Function code
4	Unused, must not be modified
8	Data area
12	Length
16	`NAFDINFO`
20	`NAFDTECH`
24	`NATDINFO`

Unused addresses are set to a high value by the spool server.

Register 13 adresses the save area for registers. Register 15 must contain the return code.

NAFEXIT2

This user exit must be linked to the front part of the spool server by using the CSECT name `NAFEXIT2`.

Before the DCAM macro `YSEND` is executed, the message block is passed to the exit to enable the user to modify the data area. The modified message block will then be sent to the respective printer by using the DCAM macro `YSEND`. If a modification to the message block results in a new message length, the corresponding parameter must be updated.

Correct execution of the exit has to be communicated via register 15 (value=`0`). Otherwise, the content of the exit is recognized as a negative return code.

Register 1 adresses the following parameter area:

Offset	Address of
0	Unused
4	Unused
8	Data area
12	Length
16	NAFDINFO
20	NAFDTECH
24	NATDINFO

Unused addresses are set to a high value by the spool server.

Register 13 adresses the save area for registers. Register 15 must contain the return code.

NAFEXIT3

This user exit must be linked to the spool server by using the CSECT name NAFEXIT3.

This exit controls all functions to be executed for a start request. The spool server ignores all activities, it only calls the exit and checks the return code.

This exit executes the following functions:

Code	Function
1	Open connection to the spool device
2	Open report
3	Send report data
4	Close report
5	Close connection to the spool device

Correct execution of the exit has to be communicated via register 15 (value=0). Otherwise, the content of the exit is recognized as a negative return code. When a function terminates with an error, a function name can be returned by using offset 4 of Register 1.

Register 1 adresses the following parameter area:

Offset	Address of
0	Function code
4	abnormally terminated function
8	Data area
12	Length
16	NAFDINFO
20	NAFDTECH
24	NATDINFO

Unused addresses are set to a high value by the spool server.

Register 13 adresses the save area for registers. Register 15 must contain the return code.

NAFEXIT4

This user exit must be linked to the front part of the Natural *open*UTM or TIAM Interface by using the CSECT name NAFEXIT4.

This exit controls all functions executed when creating a report. The spool data is not stored on the spool file and ET/BT logic is not supported.

This exit executes the following functions:

Code	Function
1	Open report
2	Write report
3	Close report and write no more data
4	Close report and write last data

Correct execution of the exit has to be communicated via register 15 (value=0). Otherwise, the content of the exit is recognized as a negative return code.

Register 1 adresses the following parameter area:

Offset	Address of
0	Function code
4	Number of logical printer
8	Data area
12	Length
16	NAFDINFO
20	Unused

Offset	Address of
24	NATDINFO
28	User-specific field

Unused addresses are set to a high value by the spool server.

Register 13 adresses the save area for registers. Register 15 must contain the return code.

Communication with Natural

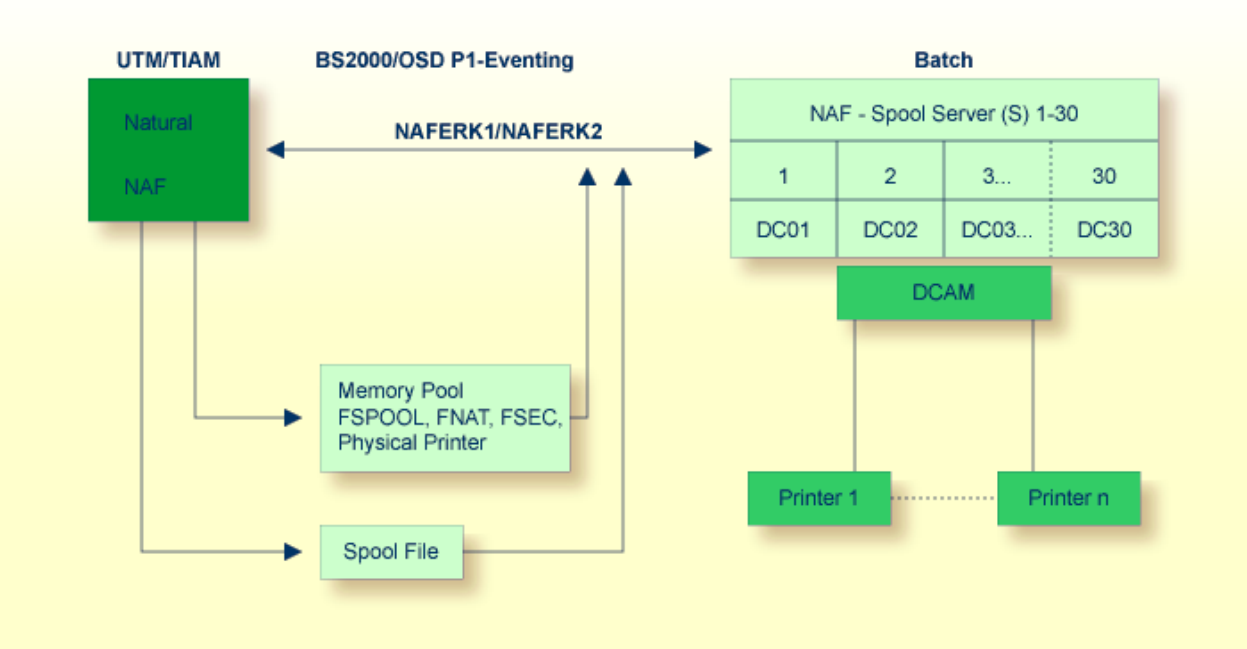
Online Natural communication with the spool server is done via the P1-EVENTING mechanism and a common memory pool.

Besides the parameter FSPOOL for the Natural spool file, the values for the parameters FNAT and FSEC are also transmitted.

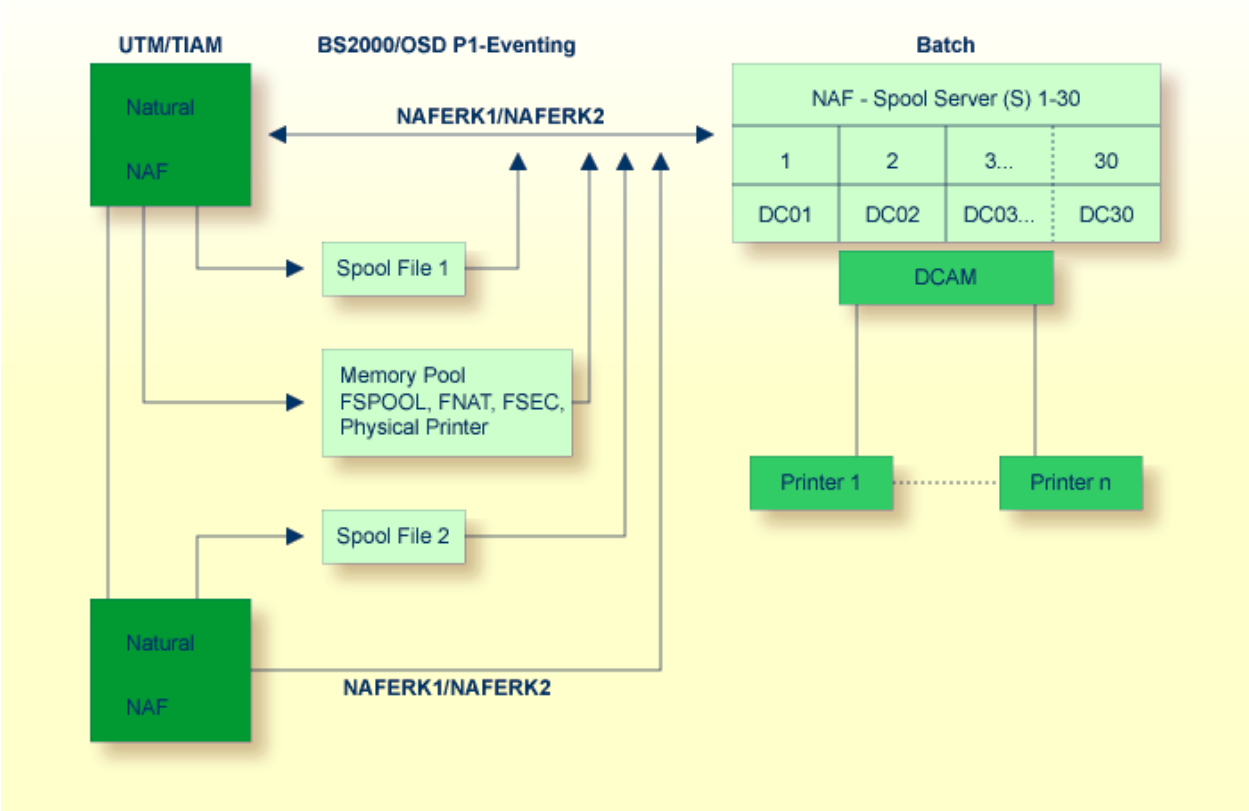
Under BS2000/OSD, three ways of communication between Natural and the spool server are possible, see the illustrations below.

If an error occurs while Natural communicates with the spool server, the system administrator is able to reset the common memory pool. See **Function 40.6**.

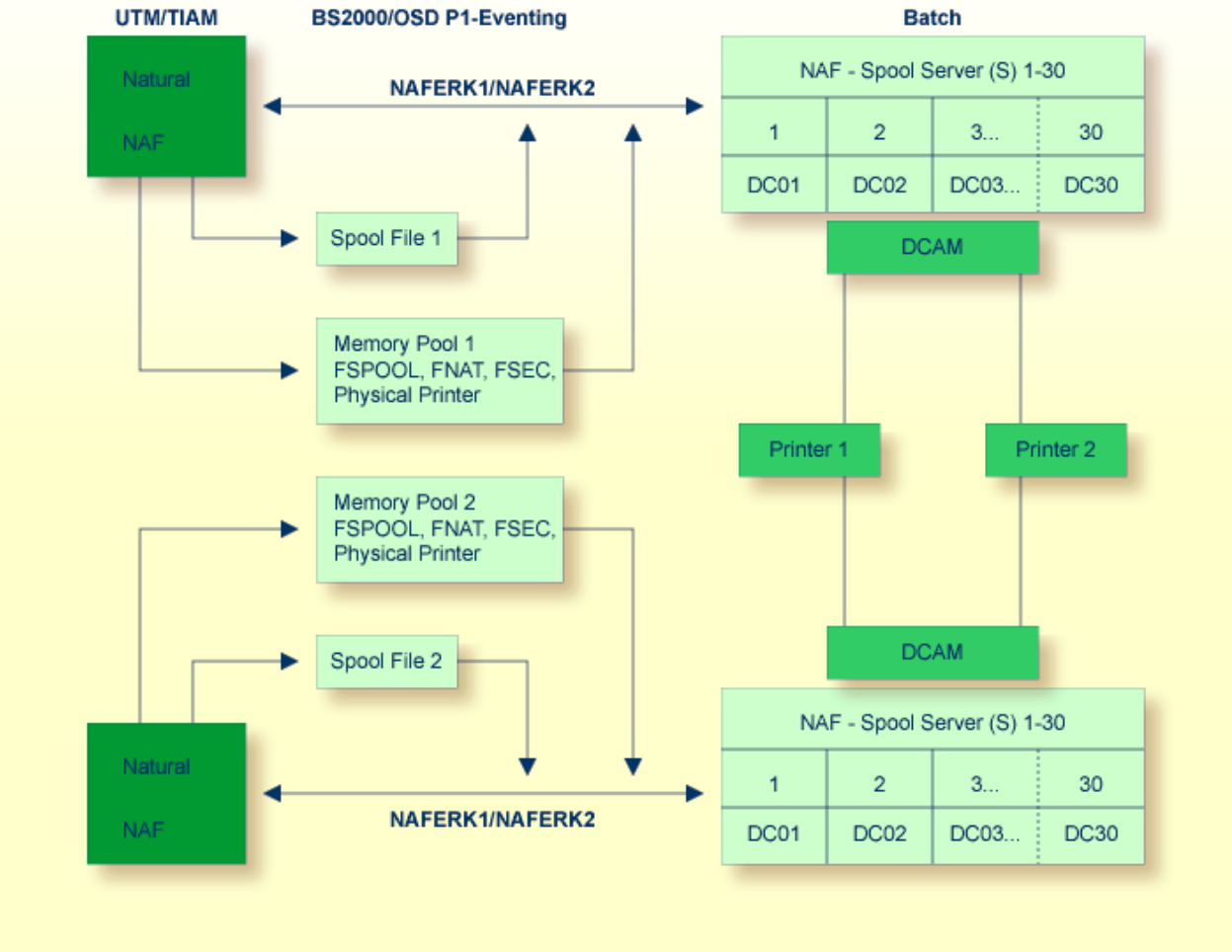
One Natural Environment with One Spool Server



Two Natural Environments with One Common Spool Server



Two Natural Environments with Own Spool Server Each



BS2000/OSD Monitor

With the help of the BS2000/OSD monitor you can start a report from the computer where it has been created, even if the configuration cannot communicate with a spool server.

When using a monitor task, the following must be defined in the NAF parameter module:

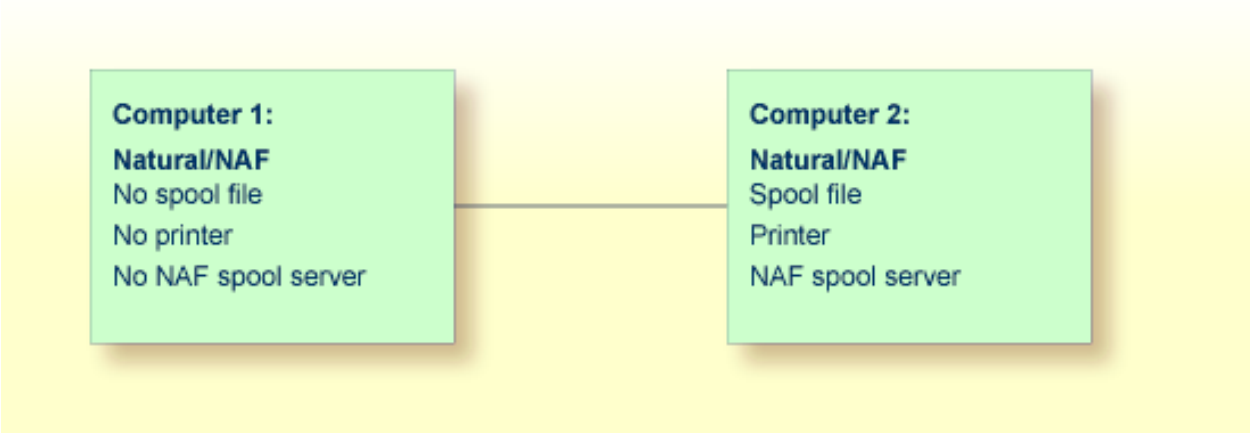
- The parameter `MONEVT` must be defined for the `P1-EVENTING` of the monitor. For `P1-EVENTING`, you can only start one monitor task.
- The parameter `PAMO` must be defined with a valid `LOGON` command for the monitor.

The Natural program SVPMON01 which is activated when the monitor is started, expects the following input:

- The time interval in minutes for checking the spool file. Valid values are 1 to 300.
- How the messages concerning the executed actions (for example, check or start) are to be treated.
- Database ID and file number of the spool file to be checked. You can define up to 50 different spool files. After the last required spool file, specify 99999 as the database ID to indicate the end of the list.

Example:

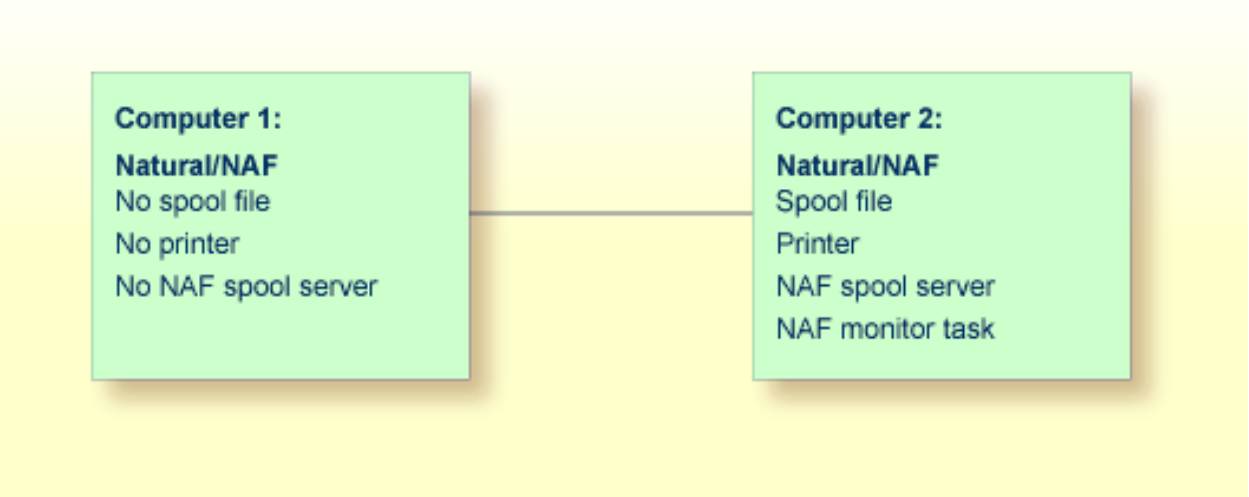
Computer 1 has no printers, no spool file and no spool server. Only Computer 2 has printers connected to it as well as a spool file and spool server.



Reports created on Computer 1 can only be printed by using Computer 2. They are stored on the spool file of Computer 2. Since the start of output is controlled by P1-EVENTING, it is not possible to start reports from Computer 1.

To start reports from Computer 1, you can proceed as follows:

- On the spool file of Computer 2, define logical printers which refer to allocations whose queue status is set to MONITOR.
- All reports created on Computer 1 use the above logical printers
- On Computer 2, define and start a monitor task (in addition to the spool servers).



In defined intervals, the monitor task will now check the spool file for reports that belong to a monitor queue. When reports are found and a spool server for this queue is not active, output for this queue is automatically started.

35 Natural Profile Parameters for NATSPOOL

- NTPRINT Macro or PRINT Parameter 288
- FSPOOL Parameter 288
- NAFUPF Parameter 289
- NAFSIZE Parameter 289

This chapterdescribes the profile parameters which must be defined in the Natural parameter module.

For further information on Natural profile parameters and parameter macros, see the Natural *Parameter Reference* and the Natural *Operations* documentation.

NTPRINT Macro or PRINT Parameter

To define the logical printers for which reports can be generated, the `NTPRINT` macro in the Natural parameter module has to be used.

Example:

```
NTPRINT (1,3,6-11,15),AM=NAF
```

The corresponding profile parameter `PRINT` can also be used to specify the same options dynamically when starting a session.

FSPOOL Parameter

The `FSPOOL` parameter setting determines the database identification (DBID), file number (FNR), password, and cipher key of the spool file for the Natural session.

The `FSPOOL` parameter has the following syntax:

```
FSPOOL=(nnnnn,fffff,password,cipher-key)
```

Operand	Description
nnnnn	The database ID of the spool file.
fffff	The file number of the spool file.
password	The password required if the spool file has been password-protected using the Adabas security feature.
cipher-key	The cipher key required if the spool file has been ciphered using the Adabas security feature.

NAFUPF Parameter

The `NAFUPF` parameter is used to specify the name of the user profile (1 to 8 characters) to be used when creating reports. The user profile can only be defined by using **Function 31.1**.

Example:

```
NAFUPF=SAG00001
```

NAFSIZE Parameter

The `NAFSIZE` parameter setting determines the size of work buffer used by Natural Advanced Facilities.

`NAFSIZE=0` is the default and prevents the initialization of Natural Advanced Facilities.

`NAFSIZE=1` is sufficient for operation. Greater values do not improve operation.

Set `NAFSIZE` to `1` in all environments in which Natural Advanced Facilities can be used.

36 NAF - NATSPOOL Initialization

To create the NATSPOOL environment, the following steps are required:

1. Format the data area of the spool file (**Function 30.1**).
2. Set the options of the spool file (**Function 30.5**).
3. Set the general options for the spool server (**Function 30.5**).
4. Set the system-dependent options for the spool server:
   - BS2000/OSD options (**Function 30.5**),
   - CICS options not defined in NAFPAMC parameter module (**Function 30.5**), or
   - IMS TM options not defined in NAFPARMI parameter module (**Function 30.5**).
5. Define the main objects:
   - user profile (**Function 31.1**),
   - logical printer (**Function 31.2**),
   - allocation (**Function 31.3**),
   - physical printers (**Function 31.4**).
6. For additional functionality, you can define objects for:
   - header pages (**Function 31.5**),
   - applications (**Function 31.6**),
   - clusters (**Function 31.7**),
   - NTCC tables (**Function 31.8**),
   - calendars (**Function 31.9**).
7. You can also define specific options, such as:

- logging function (**Function 30.5**),
- defaults (**Function 30.5**),
- statistics (**Function 30.5**),
- access authorization (**Function 30.7**).

Your Natural environment must include the following:

- a parameter module with settings for:
  - `NAFUPF = user-profile-name`
  - `NTPRINT (1- n), AM = NAF`
  - `FSPOOL = (DBID,FNR)`
  - `NAFSIZE = 1`
- the corresponding NAF modules.

When starting a Natural session, the defined user profile (parameter `NAFUPF`) is read from the specified spool file (parameter `FSPOOL`) and an internal cache is initialized for usage of `WRITE (rep)` statements. The maximum number that can be used for *rep* corresponds to the value *n* defined in the `NTPRINT` macro.

Example:

```
NTPRINT (1,3,6-11,15), AM = NAF
```

This allows the usage of the following statements to be executed for Natural Advanced Facilities reports: `WRITE (1)`, `WRITE (3)`, `WRITE (6)` to `WRITE (11)` and `WRITE (15)`.

If the user profile is not found on the spool file, the access method is not initialized and a corresponding warning is issued.

After reading the user profile, the values of the referenced logical printer(s) and allocation(s) are transferred to memory. This saves I/O time during the Natural session. If you modify any of these objects, you must therefore restart your session.

Initialization is now complete and your `WRITE (rep)` statements will route the data to the defined reports.

Example:

```
NAFUPF = SAG00001
  NTPRINT (1-3), AM = NAF
  FSPOOL = (6,47)
  NAFSIZE = 1
```

User profile SAG00001 is defined on the spool file and uses LPF1, LPF2, LPF3 and LPF4. After initialization, you can use the WRITE (1) to WRITE (3) statements. A WRITE (4) statement cannot be executed due to the maximum number 3 specified for the NTPRINT macro.

The data are routed to the spool file by using the logical printers LPF1 for WRITE (1), LPF2 for WRITE (2) and LPF3 for WRITE (3).

To get the information the physical printer uses for printout, the allocation (Destination/Form) assigned to the logical printer is read. After closing the report, the specified physical printer from this allocation is used for starting the printout.

Note: If Natural Security is installed, a user profile can be assigned by using a library or user ID definition. This assignment is used when executing a LOGON to a library and overwrites the information used by the Natural initialization.

The Natural programs NTEST and SPPTEST in library SYSPOOL are sample programs which produce test reports. The resulting reports can be listed and their contents can be displayed by using **Function 10**.

You can also create test reports with **Function 42**.

37 NAF - NATSPOOL in Batch Mode

- General Information 296
- NATSPOOL in Batch Mode with CICS or IMS TM 298
- NATSPOOL in Batch Mode with BS2000/OSD 299

General Information

Natural batch jobs can store reports on the spool file.

To do so, specify `FSPOOL=(nnnnn,fffff)` and the printers to be used by Natural Advanced Facilities with either the `NTPRINT` macro or the `PRINT` parameter (see the Natural *Parameter Reference* documentation).

The reports can subsequently be routed by the operator to remote terminal printers in the same way as those produced by online Natural applications.

In order to use `NATSPOOL` in batch mode, the `NATSPOOL` nucleus `NAFNUC` must be link-edited to the Natural batch module.

The value of `*USER` is taken as the Sending User ID.

Batch jobs creating reports on the spool file can be submitted offline or online by using the Natural Remote Job Entry function `NATRJE` described in the Natural *Utilities* documentation. In this way it is possible to build online Natural applications which transfer time-consuming operations to batch jobs, which in turn spool the output back to the online Natural environment.

Example - z/OS Systems

You can use the following z/OS sample JCL to store reports on the spool file in batch mode:

```
//TEST     JOB  NATSPOOL,CLASS=G,MSGCLASS=X
//BATCH    EXEC PGM=NATBATCH,PARM='PRINT=((1),AM=STD),PRINT=((2),AM=NAF)'
//STEPLIB  DD   DSN=NATURAL.NAF.LOAD,DISP=SHR
//         DD   DSN=ADABAS.LOAD,DISP=SHR
//DDCARD   DD   DSN=NATURAL.SOURCE(ADAPARM),DISP=SHR
//CMPRINT  DD   SYSOUT=X
//CMPRT01  DD   SYSOUT=X
//CMSYNIN  DD   *
LOGON TEST
CREATE
WRITE (1) 'This report is for CMPRT01'
WRITE (2) 'This report is for NATSPOOL'
END
RUN
FIN
/*
```

Example - z/VSE Systems

You can use the following z/VSE sample JCL to store reports on the spool file in batch mode:

```
// JOB TEST
// OPTION LOG
// EXEC PROC=NAFLIB
// EXEC PROC=ADALIB
// LIBDEF PHASE,SEARCH=(SAGLIB.NAFvrs),TEMP
// ASSGN SYS010,00E
// ASSGN SYS000,READER
// EXEC NATBATCH,SIZE=NATBATCH,PARM='SYSRDR'
PRINT=((1),AM=STD,SYSNR=10,LRECL=133)
PRINT=((2),AM=NAF)
/*
ADARUN
/*
LOGON TEST
CREATE
WRITE (1) 'This report is for CMPRT01'
WRITE (2) 'This report is for NATSPOOL'
END
RUN
FIN
/*
```

Example - BS2000/OSD Systems

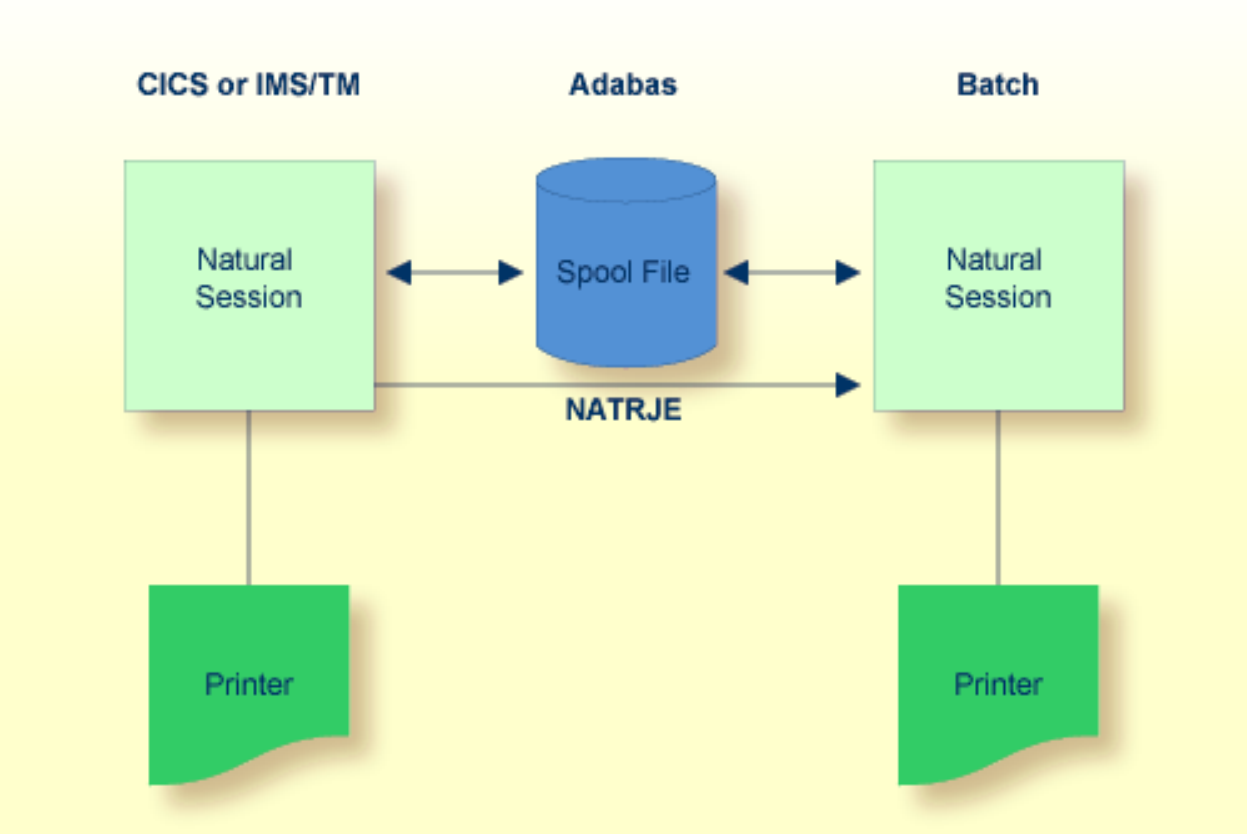
You can use the following BS2000/OSD sample JCL to store reports on the spool file in batch mode:

```
/LOGON
/FILE LI.PRINTFILE.1,LINK=P01
/EXEC NATBATCH
LOGON TEST
CREATE
WRITE (1) 'THIS REPORT IS FOR PRINTFILE 1'
WRITE (2) 'THIS REPORT IS FOR NATSPOOL'
END
RUN
FIN
/LOGOFF
```

NATSPOOL in Batch Mode with CICS or IMS TM

The NATSPOOL spool server under CICS or IMS TM is not started by batch jobs. This means that in general, reports created in batch mode are not printed automatically on CICS or IMS TM terminal printers. However, if the spool server is already active, reports that are created in batch mode are also printed if they have the same Destination/Form as the report which has ONPR status.

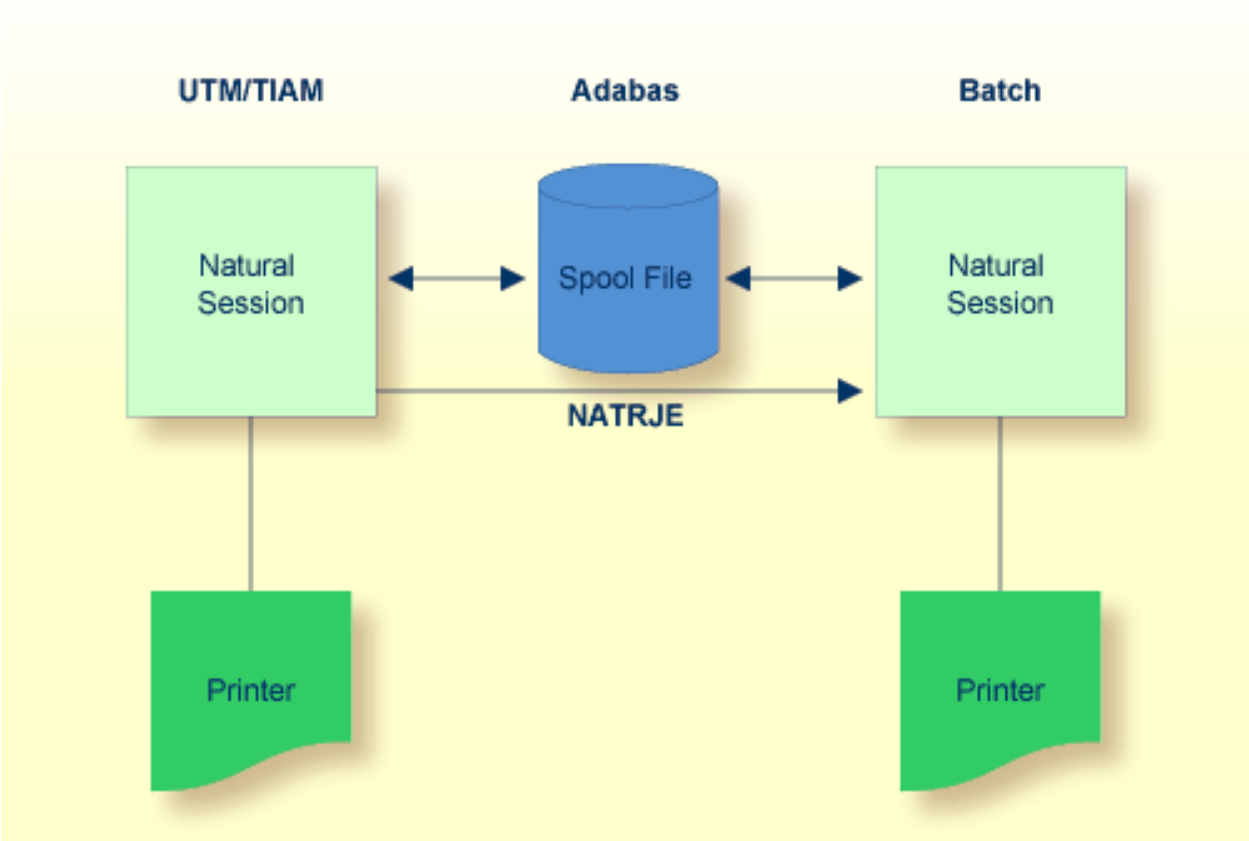
If the spool file is an Adabas file, NATSPOOL can be invoked under CICS or IMS TM and in batch mode concurrently.



Note: For CICS usage: If the spool file is a VSAM dataset, creation of reports in batch mode is only possible if control has not been given to CICS that is, CICS has not opened the spool file for update. This restriction is due to VSAM provisions for controlling data sharing in a single-system environment (SHARE OPTION).

NATSPOOL in Batch Mode with BS2000/OSD

The spool server must be active during a batch run. When a Natural program which creates a report is started, the report is written to the spool file, the spool server is activated, and the report is printed. `NATSPOOL` operates in batch mode the same way as it operates online.



38 NAF - NATSPOOL under TSO

Natural sessions under TSO can store reports on the spool file.

To do so, specify `FSPOOL=(nnnnn,fffff)` and the printers to be used by Natural Advanced Facilities with either the `NTPRINT` macro or the `PRINT` parameter (see the Natural *Parameter Reference* documentation).

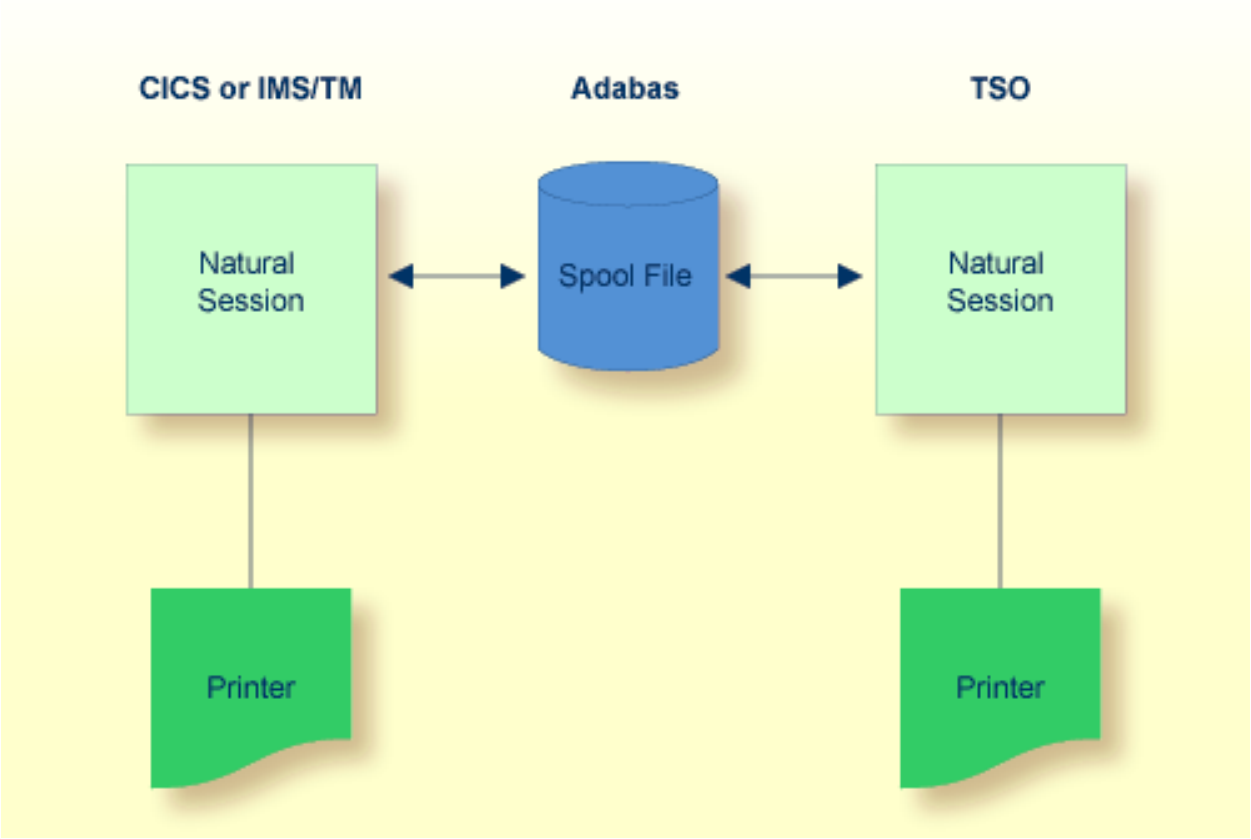
The reports can subsequently be routed by the operator to remote terminal printers.

Since the `NATSPOOL` spool server under CICS or IMS TM is not started by TSO, one of the `SYSPOOL` start functions (see **Function 10** and **Function 11**) must be executed from within a Natural session under CICS or IMS TM. This means that in general, reports created under TSO are not printed automatically on CICS or IMS TM terminal printers. However, if the spool server is already active, reports that are created under TSO are also printed if they have the same Destination/Form as the report which has `ONPR` status.

In order to use `NATSPOOL` under TSO, the `NATSPOOL` nucleus `NAFNUC` must be link-edited to the Natural/TSO module.

The TSO user ID is taken as the Sending User ID.

If the spool file is an Adabas file, `NATSPOOL` can be invoked under CICS or IMS TM and under TSO concurrently.


CICS or IMS/TM
Adabas
TSO
Natural Session
Spool File
Natural Session
Printer
Printer