

PrintEx

IBM Mainframe Print Services Extender

Version 2.1

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PrintEx – IBM Mainframe Print Services Extender

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Introduction

PrintEx from XPS is a program system that enhances the printing capabilities of the IBM mainframe, which, simply stated, plays the role of a “general host-based printer driver”.

PrintEx is based on XPSDaemon, a mainframe server application by XPS used in other XPS products. PrintEx relies on XPSDaemon functionality for the host-internal communication and for the communication with components over attached networks using TCP/IP and SNA.

Beyond that, XPSDaemon makes it possible for authorized administrators to easily configure PrintEx options online. As an alternative to the online configuration, PrintEx can be configured using the delivered batch processor. From the viewpoint of the administrator, both XPSDaemon and PrintEx appear as one single program package.

The Concept

The following figure shows the concept of PrintEx:

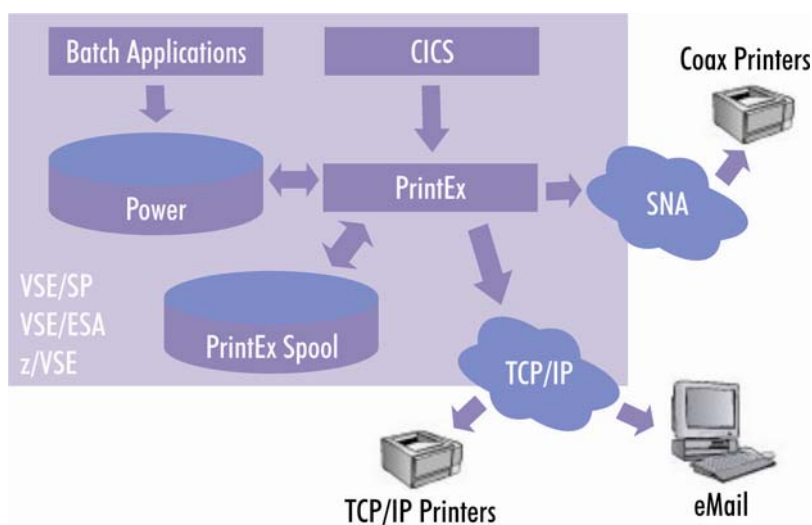


Fig. 1: PrintEx Concept

As may be seen, PrintEx has both input and output channels at its disposal. This feature makes PrintEx similar to a middleware connector, capable of coordinating and distributing various print jobs on the mainframe.

Part of the delivery package of PrintEx is a hierarchical spool system, which is used both as temporary intermediate storage and, if required, as a backup medium for the long-term storage of print data.

In- and Output Channels

PrintEx processes either the print data generated from either VTAM applications, such as CICS, or the data stored in a POWER or PrintEx spool. The output destinations, which can be specified, are POWER LST-Queue, a PrintEx spool, native SNA printers, and TCP/IP printers. Print output can also be sent as PDF attachments to e-mails.

Printer-Specific Enhancements

PrintEx allows the administrator to make printer-specific enhancements to the print data. This includes specifying the prefix and suffix data in a model definition of the printer, which will cause PrintEx to insert the specified data into the print data stream.

Furthermore, it is also possible to define character sequences, which are to be replaced in the print data stream. Thus, PCL or PostScript commands can be inserted to prepare the print data for special printer hardware without the need to program. Applications of this feature include selecting the output bin, the page orientation, or duplex printing.

Optional Components

Integrating optional components extends the functionality of the PrintEx base system.

PrintEx/AFP

Activating the component PrintEx/AFP adds the capability of creating and processing print data in AFP format.

ThinPrint Server Engine Host

Resulting from the cooperation with ThinPrint GmbH, Berlin, is the “ThinPrint Server Engine Host”. This component, which is based on ThinPrint’s patented process for bandwidth optimization and print data compression, makes the new technology available for use on the mainframe systems of IBM.

Overview

In this chapter, the administrator will find a brief overview of the PrintEx functionality and learn about the relationship between various resource definitions.

The following table lists the basic terms used in the PrintEx maintenance:

Term	Definition
VTAM-Printer	Resource definition in VTAM. Host applications, such as CICS, can establish a connection to and deliver print data to a VTAM printer.
POWER-Printer	A logical PrintEx printer, for which various POWER spool options can be specified, such as output class, or writer name.
Destination	Description of the output medium which receives print data. Possible values for destination are TCP/IP printer, a POWER spool, SNA printer, e-mail, PrintEx spool.
Model	A collection of definitions, which describe how to process print data. A model specifies, for example, a code page for character replacements, the maximum number of lines per page, or the maximum number of characters per line.
PrintEx spool	Hierarchical file system based on VSAM-RRDS. PrintEx uses the spool to temporarily store print data, resp. conversion results. Beyond that, the PrintEx spool can be used to archive print data, if this is required.
SAPI	POWER spool API. PrintEx uses SAPI to read POWER spool files, for which POWER printers are defined.
Converter	PrintEx subprograms, which process print data for the specific output destination. Converters are necessary to transfer print data to various destinations. If, for example, output is to be directed to an e-mail destination, PrintEx will invoke the appropriate PDF converter to convert the format of a print document to PDF, the format in which it will be sent as e-mail attachment.

PrintEx can process print data coming from two different sources: Print data coming from a VTAM printer, and print data located in a POWER spool file.

The output destinations, which are possible, are TCP/IP printer, SNA printer, a POWER LST-Queue, delivery of print data as an e-mail attachment in PDF format, and a PrintEx spool used as archival medium.

PrintEx allows up to 10 output destinations for one source. This gives you the opportunity to deliver the same print data in a single processing step to multiple physical printers, as e-mail attachment, and also to a PrintEx spool used as archival storage.

The primary task for the administrator is to use PrintEx maintenance functions to define and maintain various output destinations.

Each output destination requires definitions of two different types. The first type of definition specifies general parameters of the destination itself. For example, a TCP/IP printer requires the TCP/IP address for the communication link. The second type of definition specifies at least one model per output destination. In PrintEx, up to six models can be assigned to one destination. This gives you the opportunity to flexibly choose the model capable of handling, for example, the particular line length of the print data. This flexibility makes it possible to automate the use of various font sizes according to the maximum line length.

The following chart shows how the various PrintEx resource definitions relate to each other.

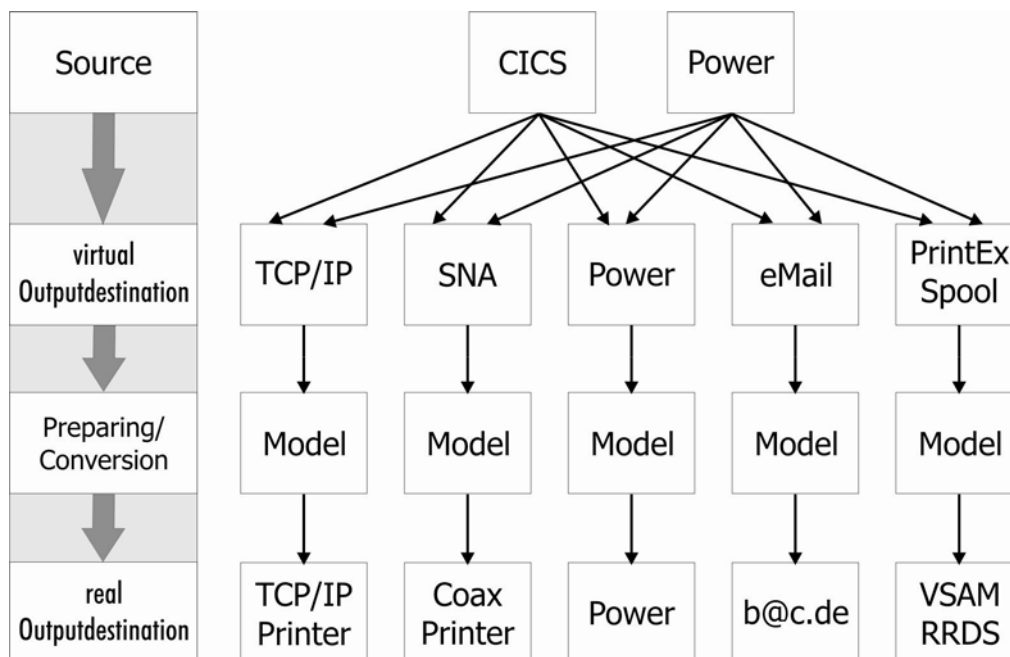


Fig. 2: Functional Overview

Installation

System Prerequisites

Operating System Prerequisites

PrintEx operates under VSE/ESA version 2.5 or higher.

Hardware Prerequisites

The installation requires an IBM System/390 or a compatible processor capable of running the software components listed as operating system prerequisites. For the installation of the libraries, a hard disk space of about 400 MB is required. The installation media can be read either using a tape cartridge reader or using a client PC with a CD-ROM drive and FTP connection to the host.

The Installation Procedure

Reading the Installation Media

Setting the Installation Parameters

Starting the PrintEx Installation

Installation under VSE/ESA

Unloading the XPSDaemon installation tape

Example unload job :

```
// JOB XPSDAEM    INSTALL XPS-DAEM210
// ASSGN SYS006,tape
// EXEC LIBR
RESTORE SUB=XPS.DAEMV400:lib.sublib -
  TAPE=SYS006 LIST=YES REPLACE=YES
/*
/ &
```

Figure 3: Installation job - VSE

The library XPS.DAEMV400 contains executable program code, the install jobs and examples of customizing these for a given system environment.

Customizing installation variables

PrintEx is configured using the following job stream. A template for the configuration job can be found in the member INSTALL.PROC in the XPS.DAEMV400 library.

Extract from the configuration job (INSTALL):

```

* $$ JOB JNM=XPSINST,DISP=D,PRI=3,CLASS=0
* $$ LST DISP=D,CLASS=X
* $$ PUN DISP=I,PRI=9,CLASS=A
// JOB INSTALL
// SETPARM LANG=E                # PrintEx - LANGUAGE
// SETPARM LIB='XPS.DAEMV400'    # PrintEx - LIBRARY
// SETPARM CAT='XPS.USER.CATALOG' # VSAM CATALOG
// SETPARM UCAT='XPSUCAT'        # VSAM USER CATALOG
// SETPARM VDSN='XPS.VTAM.FILE'  # PrintEx - FILENAME
// SETPARM VVOL='(SYSWK1,500)'   # " " - VOLUME/RECORDS
// SETPARM SDSN='XPS.SPOOL.FILE' # " " - SPOOLFILE
// SETPARM SVOL='(SYSWK1,1000)'  # " " - VOLUME/RECORDS
// SETPARM DDSN='XPS.DUMP.FILE'  # " " - DUMP FILENAME
// SETPARM DVOL='(SYSWK1,500)'   # " " - VOLUME/RECORDS
// SETPARM TDSN='XPS.TRACE.FILE' # " " - TRACE FILENAME
// SETPARM TVOL='(SYSWK1,500)'   # " " - VOLUME/RECORDS
// SETPARM HDSN='XPS.HELP.FILE'  # " " - HELP FILENAME
// SETPARM HVOL='(SYSWK1,1000)'  # " " - VOLUME/RECORDS
// SETPARM CUU='380'            # TAPE-UNIT-NUMBER
*

```

Fig. 4: VSE Configuration Job

Parameter	Description
LANG	Language of the the online and batch messages, and the language of the online dialogs of the PrintEx maintenance programs. Today, the languages German (D) und English (E) are supported.
LIB	VSE library name where the XPSDaemon programs and source books should be installed
CAT	ID of the VSAM user catalog to define the VSAM datasets.
CATNAM	Name of the VSAM user catalog
MACLIB	Name of the dataset with the macro library, where the installation members and examples are installed.
VDSN	Name of the dataset with the PrintEx system file.
VVOL	Name of the volume, where the file VDSN is to be located, and the number of datasets for the file VDSN. The default is: (SYSWK1,500)
SDSN	Name of the dataset for the PrintEx spool file.
SVOL	Name of the volume, where the file SDSN is to be located, and the number of datasets for the file SDSN. Default: (SYSWK1,2000)
DDSN	Name of the dataset for the PrintEx dumpfile
DVOL	Name of the volume, where the file DDSN is to be located, and the number of datasets for the file DDSN. Default: (SYSWK1,500)
TDSN	Name of the dataset for the PrintEx trace file

Starting PrintEx

The following job control statements start XPSDaemon, the carrier system of PrintEx. An example of the startup job can be found in XPSSTART.PROC in the XPS.DAEMV400 library.

JCL example:

```
* $$ JOB JNM=PRINTEX,DISP=K,PRI=3,CLASS=4
* $$ PRT CLASS=G
// JOB PRINTEX
// LIBDEF PHASE,SEARCH=(XPS.DAEMV400,PRD1.BASE)
// ASSGN SYS005,PRINTER
// DLBL XPSVFIL,'XPS.VTAM.FILE',,VSAM,CAT=XPSUCAT
// DLBL XPSPOOL,'XPS.SPOOL.FILE',,VSAM,CAT=XPSUCAT
// DLBL XPSFILE,'XPS.HELP.FILE',,VSAM,CAT=XPSUCAT
// DLBL XPSVTRA,'XPS.TRACE.FILE',,VSAM,CAT=XPSUCAT
// DLBL XPSVDMP,'XPS.DUMP.FILE',,VSAM,CAT=XPSUCAT
// EXEC XPSDAEM,SIZE=AUTO,PARM='APPL=XPSD400,SLIB=XPS.DAEMV400,*
      PREX=YES',DSPACE=16M
/*
/&
$$ EOJ
```

Fig. 6: Startup Job VSE

Parameter	Description
APPL	Specifies the application name, which is defined for the PrintEx carrier system XPSDaemon in the VTAM environment.
RDON	RDON=YES specifies read-access for the XPSDaemon system file XPSVFIL. This restriction makes it possible to use the same file in many XPSDaemon regions.
SLIB	Specifies the XPSDaemon library (Sublibrary).
PREX	Specifies the activation of PrintEx.

Logging on to PrintEx

The following VTAM LOGON command is used to enter PrintEx:

```
LOGON APPLID(XPSD400)
```

The application name XPSD400 should be replaced by the actual name used in your VTAM definitions.

Shutting down PrintEx

Because PrintEx runs as an application within the carrier system XPSDaemon, the carrier system must be stopped. There are 2 ways to shut down XPSDaemon. Stopping the XPSDaemon server obviously means that the functions will no longer be available and the system will be unavailable to PrintEx users.

You can shut down the XPSDaemon server using the function “Shutdown XPSDaemon” from the PrintEx administration menu. This function can only be used by those authorized to enter the administration menu. The shutdown will be logged on the system console. The log will contain the SAF-Id of the user causing the shutdown along with the terminal name where the shutdown was initiated.

The second way to shut down the XPSDaemon server is by using the operator commands of the system on which XPSDaemon is running :

Enter one of the following commands on the system console :

Enter the following commands on the system console :

```
MSG Fx
x SHUT
```

Online Maintenance

Administration

The transaction running the PrintEx Administration is called using the transaction code '**PREX**'. The maintenance tasks, which can be performed, are offered in the following menu:

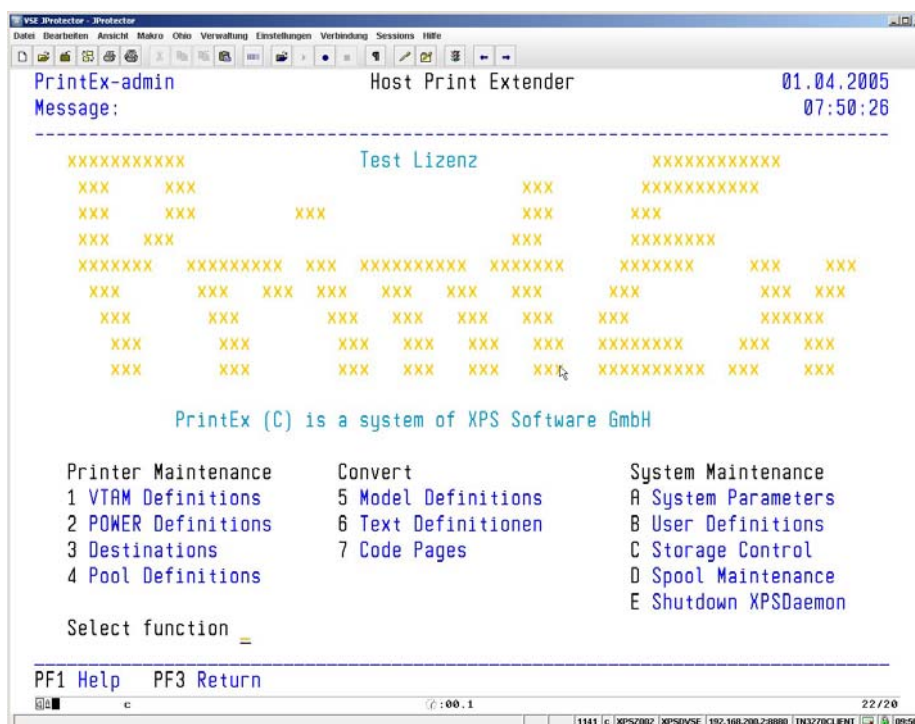


Fig. 7 PrintEx Administration Menu

The administration menu offers functions in three groups: **'Printer Maintenance'**, **'Convert'**, and **'System Maintenance'**.

The functions under '**Printer Maintenance**' are:

Create and change VTAM-Printer Definitions.

Create and change **POWER-Printer Definitions**.

Create and change **Destinations**.

Create and change **Pool Definitions**.

The functions under **Convert** are used to define printer models, conversion tables, and prefix and suffix data to be inserted into the print data stream.

The functions under '**System Maintenance**' are:

Maintenance of PrintEx **System Parameters**.

Create and change **User Definitions**.

Storage Control to maintain PrintEx-internal storage slots.

Spool Maintenance to monitor, print, and delete PrintEx spool files.

The **Shutdown XPSDaemon** function will initiate a controlled shutdown of the PrintEx carrier system XPSDaemon.

Function Keys

PF1 Online Help

PF3 Exit the PrintEx transaction.

Data Entry Fields

Select function Enter a function's number or character code in this field to perform this function.

VTAM Definitions

Using PrintEx, output from VTAM applications (such as CICS) can be routed directly to a TCP/IP network printer. PrintEx supports the printing protocols "direct socket" and LPR/LPD. The print data stream itself can be one of the popular printer control languages PCL or PostScript. In PrintEx, there is also the option to send spooled output as PDF attachments to e-mails. In addition, PrintEx can produce virtual print output by re-directing print output from VTAM applications to the POWER LST-Queue. This allows applications such as CICS to print directly to the POWER LST-Queue without any further programming.

PrintEx supports all 3270 printer types, such as LU-1 (SNA/SCS), LU-3 (SNA/DSC), and LU-0 (Non-SNA).

All **SNA** printers to be used by PrintEx must be defined using the PrintEx menu function '1'. Each VTAM-Printer defined must have a corresponding APPL definition in the the VTAM network. On startup, PrintEx will attempt to bind each active printer using the VTAM-OPEN command. After successfully binding a printer, subsystems such as CICS can acquire this printer. The effect is, that all print output coming from these subsystems will be handled by PrintEx and re-directed to the specified output destination.

All changes made in this menu function will automatically take effect.

When selected, this menu function displays a list of the defined VTAM printers.

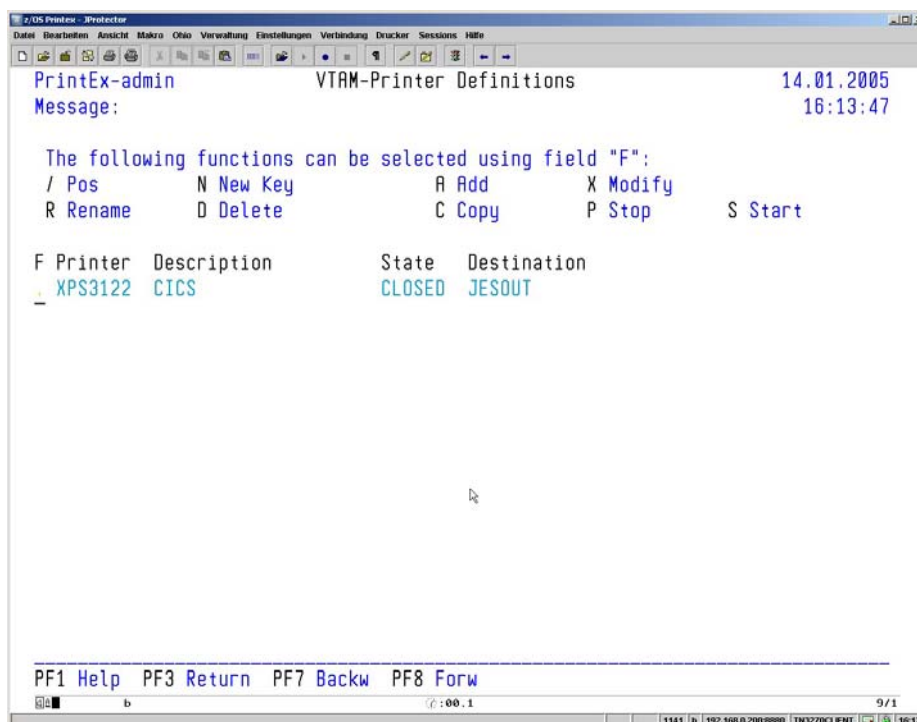


Fig. 8: VTAM Definitions

Function Keys

PF1	Online Help
PF3	Return to the PrintEx menu.
PF7	Page backwards in the list. Paging stops at the beginning of the list.
PF8	Page forwards in the list. Paging stops at the end of the list.

Panel Fields

F	Function field to enter one of the function codes offered in the panel header.
Printer	Name of a SNA printer (the VTAM-APPL name) with a maximum of 8 characters.
Description	Description of the SNA printer, up to 20-characters
State	The current state of the printer:

CLOSE	Printer is not active.
OPEN	Printer is opened, but not assigned to an application.
APPLNAME	Printer is opened and assigned to this application

Destination The first three output destinations assigned to this printer.

Function Codes

'F' is the function field used to enter one of the function codes listed in the panel header.

/ Pos

Re-display all entries, starting with the entry marked with the slash.

N New Key

Entering 'N' in any function field will let you select a new start position for the list.

A popup panel appears, in which you can enter a new printer name to be displayed as the first list entry. This name will be used for a generic search – the list begins with the printer name that is either equal or greater than the name entered.

R Rename

By entering 'R' in a function field, the selected printer can be re-named.

As additional information, the name that is currently valid is also displayed in the data entry panel. In this panel, a new name for the VTAM-Printer can be entered. If the name is unique, the selected printer will be re-named.

Eight characters is the maximum length of a VTAM-Printer name.

D Delete

Entering a function code 'D' deletes the entry for a VTAM-Printer.

A selected entry is deleted from the list of VTAM-Printers after pressing the ENTER key. As additional information, the name of the selected printer is displayed in the delete panel.

The following data entry panel is displayed for the other maintenance function codes:

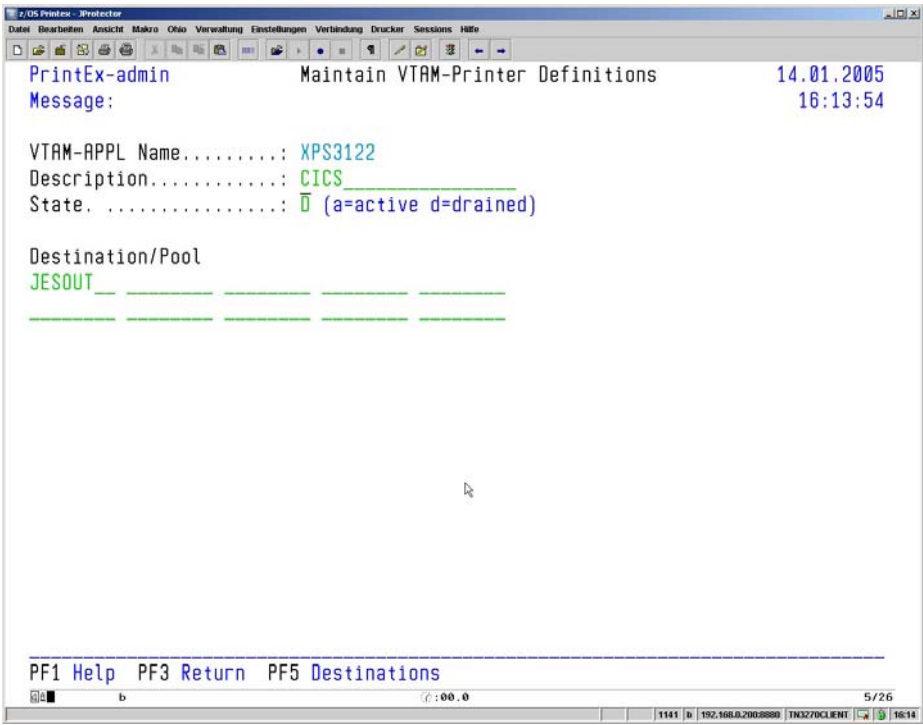


Fig. 9: Add / Modify / Copy Panel for a VTAM-Printer

Function Keys

- PF1** Online Help
- PF3** Return to the list of VTAM-Printers.
- PF5** Display a list of destinations.

A Add

New entries for VTAM-Printers are made using the function code 'A'. The data describing the printer can be entered using the panel above.

Data Entry Fields

- Name** This field is the key value for the new printer definition. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed.

The printer name must be defined as APPL-Definition in the ACF/VTAM network.

An **entry** in this field **is mandatory**.
- Description** This field is used to enter up to 20 characters as description of the VTAM-Printer.

State This field sets the state of the VTAM-Printer. The value **"A"** (default) specifies that the printer shall be activated in the ACF/VTAM network - immediately and upon each re-start of PrintEx. Upon activation, the printer will be available to subsystems such as CICS. The state **"D"** will set the printer state to "drained", that is, a printer currently active will be de-activated. After re-starting PrintEx, no further operation will be performed on this printer.

Destination/Pool Up to 10 destinations or pool names can be specified for this printer.

Destinations must be defined in the PrintEx maintenance using the menu function "3 - Destinations", pool names must be defined using the menu function "4 - Pool Definitions".

Data arriving for this printer will be sent to **each** destination, resp. to the first available destination within a pool.

X Modify

Using the function code 'X', an existing entry for a VTAM-Printer can be changed. This function displays the data entry panel shown in Figure 9. The fields in this VTAM panel show the values currently defined for the printer. Just overtype to change the value in any field.

C Copy

Entering the function code 'C' will copy an existing VTAM-Printer definition to create a new entry.

P Stop

Active VTAM-Printers can be de-activated using the function code 'P', that is, the printer will be closed in the ACF/VTAM network. The VTAM state "ACTIVE" is changed to "CONCT".

This change is temporary, when PrintEx is re-started the printer is set to its previously defined state.

S Start

An inactive VTAM-Printer can be started using the function code 'S', the printer is opened in the ACF/VTAM network if this is possible. The VTAM state is changed from "CONCT" to "ACTIVE".

Subsystems such as CICS can immediately acquire this printer.

This change is temporary, when PrintEx is re-started the printer is set to its previously defined state.

POWER Definitions

Using PrintEx, output from the POWER LST-Queue can be directly routed to a printer in the TCP/IP network. PrintEx supports the print protocols "direct socket" and LPR/LPD. The print data stream can be encoded in one of the popular printer languages PCL or PostScript. PrintEx also offers the possibility to send print output as PDF attachments to e-mails. It is also possible to either print POWER spool files on SCS printers or to store them in an PrintEx spool file.

PrintEx supports the SYSOUT record formats variable, fixed, undefined, and also the control characters of the type "ASA", "machine", and "none".

PrintEx has very convenient routines for separator pages. Five standards are offered as separator start and end pages. Easy-to-use instructions make it possible to create custom separator pages. (Refer to Chapter 7 Separator Pages)

All **POWER** printers used by PrintEx must be defined using the PrintEx maintenance menu function '2'.

POWER-Printers are described by the parameters **Destination, Class, Writer and Form**, which are used as printer selection criteria. Whenever the POWER LST-Queue notifies PrintEx about output to a spool, PrintEx compares these parameters with the POWER printer definitions. To process the print data, PrintEx selects the printer that best matches the selection criteria and delivers the print data to the output destinations defined for this printer.

It is not possible to add a new printer, if another printer with the same selection criteria is already active.

All changes in this panel are immediately effective.

When selected, this menu function displays a list of all defined POWER-Printers.

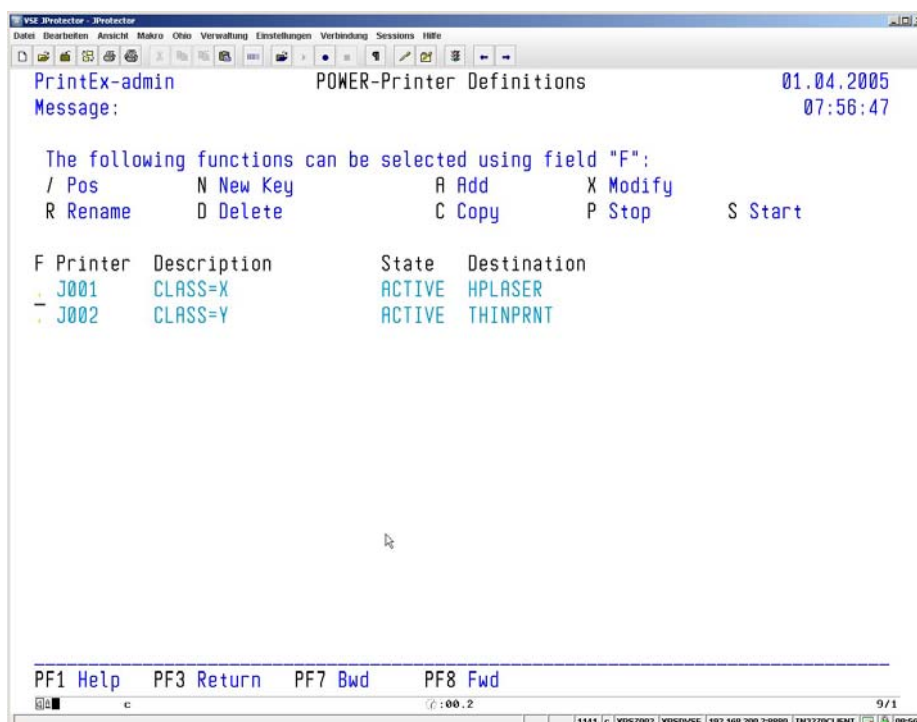


Fig. 10: POWER Definitions

Function Keys

PF1 Online Help

PF3	Return to the PrintEx menu.
PF7	Page backwards in the list. Paging stops at the begin of the list.
PF8	Page forwards in the list. Paging stops at the end of the list.

Panel Fields

F	Function field to enter one of the function codes offered in the panel header.				
Printer	Name of a POWER printer, up to 8 characters.				
Description	Description of the POWER printer, up to 20-characters				
State	The current state of the printer, <table> <tr> <td>DRAINED</td><td>The printer is not active. The parameters of this printer are not considered when selecting a POWER printer.</td></tr> <tr> <td>ACTIVE</td><td>The printer is active. The parameters of this printer are considered when selecting a POWER printer.</td></tr> </table>	DRAINED	The printer is not active. The parameters of this printer are not considered when selecting a POWER printer.	ACTIVE	The printer is active. The parameters of this printer are considered when selecting a POWER printer.
DRAINED	The printer is not active. The parameters of this printer are not considered when selecting a POWER printer.				
ACTIVE	The printer is active. The parameters of this printer are considered when selecting a POWER printer.				
Destination	The first three output destinations assigned to this printer.				

Function Codes

'F' is the function field used to enter one of the function codes listed in the panel header.

/ Pos

Re-display all entries, starting with the entry marked with the slash.

N New Key

Entering 'N' in any function field will let you select a new start position for the list.

A popup panel appears, in which you can enter a new printer name to be displayed as the first list entry. This name will be used for a generic search – the list begins with the printer name that is either equal or greater than the name entered.

R Rename

By entering 'R' in a function field, the selected printer can be re-named.

As additional information, the name that is currently valid is also displayed in the data entry panel. In this panel, a new name for the POWER-Printer can be entered. If the name is unique, the selected printer will be re-named.

Eight characters is the maximum length of a POWER-Printer name.

D Delete

Entering the function code 'D' deletes the entry for a POWER-Printer.

A selected entry is deleted from the list of POWER-Printers after pressing the ENTER key. As additional information, the name of the selected printer is displayed in the delete panel

The following data entry panel is displayed for the other maintenance function codes:

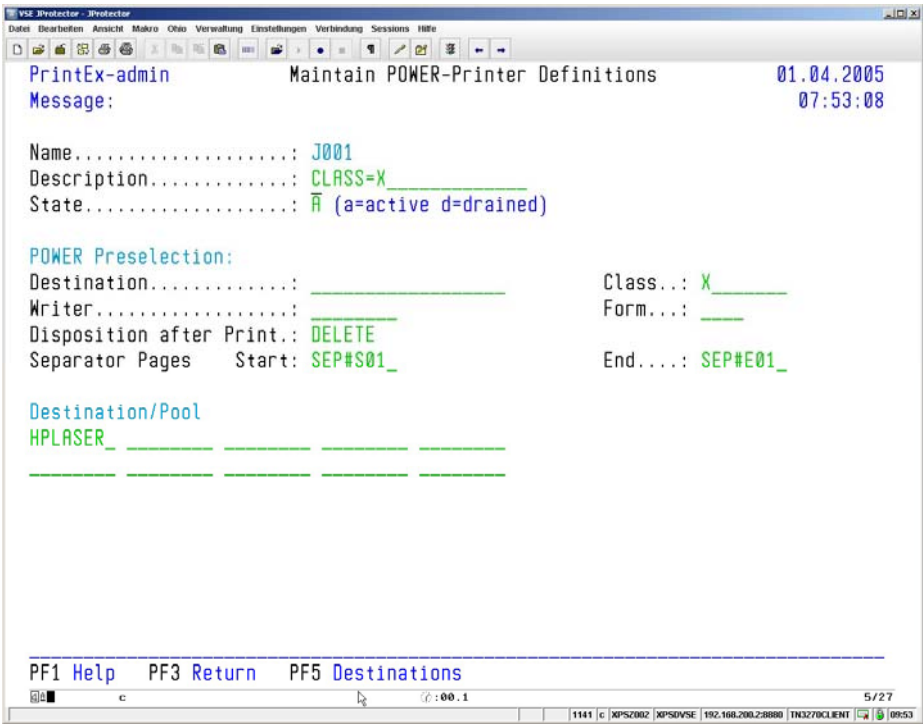


Fig. 11: Add / Modify / Copy Panel for a POWER-Printer

Function Keys

- PF1** Online Help
- PF3** Return to the list of POWER-Printers.
- PF5** Display a list of destinations.

A Add

New entries for POWER-Printers are made using the function code 'A'. The data describing the printer can be entered using the panel above.

Data Entry Fields	
Name	This field is the key value for the new printer definition. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed. An entry in this field is mandatory .
Description	This field takes a description of the POWER-Printer with up to 20 characters.
State	<p>This field sets the state of the POWER-Printer. The value "A" (default) specifies that the printer shall be available for POWER output immediately and upon each re-start of PrintEx.</p> <p>The code "D" sets the printer state to "drained", the printer is not used for POWER output.</p>
POWER selection criteria	<p>A POWER-Printer is described in terms of the selection criteria Destination, Class, Writer, and Form. Whenever the POWER LST-Queue notifies PrintEx about a output into a spool, PrintEx compares these parameters with the POWER printer definitions. To process the print data, PrintEx selects the printer that best matches the selection criteria and delivers the print data to the output destinations defined for this printer.</p> <p>It is not possible to add a new printer, if another printer with the same selection criteria is already active.</p> <p>All changes in this panel are immediately effective..</p>
Destination	Enter the SYSOUT destination in this field.
Class	Enter up to eight SYSOUT classes.
Writer	Enter the SYSOUT External-Writer.
Form	Enter the SYSOUT form.
Disposition after Print	This field specifies the disposition to set for the POWER spool file after delivering to PrintEx. Possible is one of the values: "DELETE" , "HOLD" , or "KEEP" .
Separator Pages	<p>This field can be used to add separator start or end pages to the POWER spool file. Default pages, which are available, are the start pages SEP#S01 thru SEP#S05, and the end pages SEP#E01 thru SEP#E05. It is also possible to enter simple commands to create custom seperator pages (Refer to Chapter 7 Separator Pages)</p>
Destination/Pool	<p>Up to 10 destinations or pool names can be specified for this printer.</p> <p>Destinations must be defined in the PrintEx maintenance using the menu function "3 - Destinations", pool names must be defined using the menu function "4 - Pool Definitions".</p> <p>Data arriving for this printer will be sent to each destination, resp. to the first available destination in the pool.</p>

X Modify

Using the function code 'X', an existing entry for a POWER-Printer can be changed. This function displays the data entry panel shown in Figure 11. The fields in this panel show the values currently defined for the printer. Just overwrite to change the value in any field.

C Copy

Entering the function code 'C' will copy an existing POWER-Printer definition to create a new entry.

P Stop

Active POWER-Printers can be de-activated using the function code 'P', that is, the parameters of this printer are **not** considered when selecting a POWER-Printer.

This change is temporary, when PrintEx is re-started the printer is set to its previously defined state.

S Start

An inactive POWER-Printer can be started using the function code 'S', the parameters of this printer are considered when selecting a POWER-Printer.

This change is temporary, when PrintEx is re-started the printer is set to its previously defined state.

Destinations

Destinations to be assigned to VTAM- and POWER-Printers must be defined using the maintenance menu function '3'.

PrintEx supports the following destinations: **TCP/IP, POWER LST-Queue, SNA, e-mail, file and AFP**. Thus, print output from subsystems, such as CICS or from POWER LST-Queue can be delivered to TCP/IP-connected printers, to the POWER LST-Queue, to SCS printers, as PDF attachments per e-mail, and can also be stored in a PrintEx spool file.

PrintEx supports up to 10 different output destinations. Output destinations sharing common characteristics can be bundled into pools, which are defined using the PrintEx maintenance menu function '4'. When delivering output to a pool, the output is sent to the first available destination in that pool.

When selected, this menu function displays a list of defined destinations.

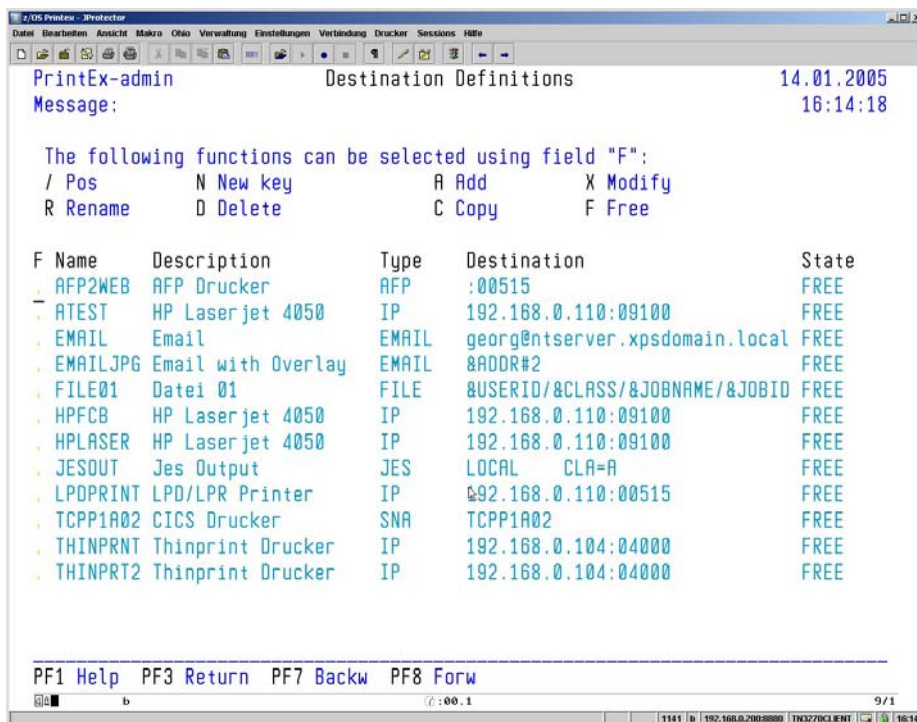


Fig. 12: Destinations

Function Keys

- PF1** Online Help
- PF3** Return to the PrintEx menu.
- PF7** Page backwards in the list. Paging stops at the beginning of the list.
- PF8** Page forwards in the list. Paging stops at the end of the list.

Panel Fields

- F** Function field to enter one of the function codes offered in the panel header.
- Name** Name of the destination, up to 8 characters
- Description** Description of the destination, up to 20-characters
- Type** Possible as type of the destination for print output:
- TCP/IP = TCP/IP-connected printer
 - POWER = POWER LST-Queue
 - SNA = SCS printer
 - EMAIL = e-mail with PDF attachment
 - FILE = PrintEx spool file
 - AFP = AFP2WEB
- Destination** Display field showing the first 30 characters of the destination's definition.

State	Current state of the destination:	
	FREE	Destination is awaiting input
	BUSY	Destination is busy. If output is to be delivered to this destination, PrintEx will attempt to deliver after the time interval defined as "Print Restart Interval" in the PrintEx "System Parameters".

Function Codes

'F' is the function field used to enter one of the function codes listed in the panel header.

/ Pos

Re-display all entries, starting with the entry marked with the slash.

N New Key

Entering 'N' in any function field will let you select a new start position for the list.

A popup panel appears, in which you can enter a new destination name to be displayed as the first list entry. This name will be used for a generic search – the list begins with the name that is either equal or greater than the name entered.

R Rename

By entering 'R' in a function field, the selected entry can be re-named.

As additional information, the name that is currently valid is also displayed in the data entry panel. In this panel, a new name for the destination can be entered. If the name is unique, the selected destination will be re-named.

Eight characters is the maximum length of a destination's name.

D Delete

Entering the function code 'D' deletes the entry for a destination.

A selected entry is deleted from the list of destinations after pressing the ENTER key. As additional information, the name of the selected destination is displayed in the delete panel.

The following data entry panel is displayed for the other maintenance function codes:

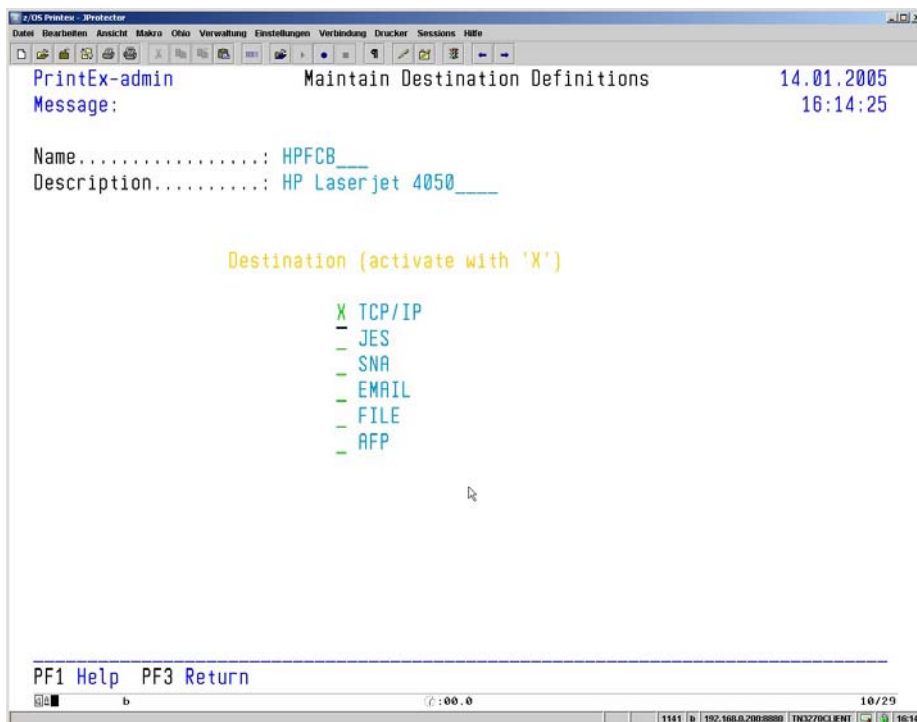


Fig. 13: Destination Maintenance Panel

Function Keys

PF1	Online Help
PF3	Return to the list of destinations
PF5	Display a list of model definitions

Selection of the Destination Type

To perform either function 'A – Add, 'C - Copy' or 'X - Modify', the destination type must be specified. One of the following can be selected as destination type:

TCP/IP	-	TCP/IP-connected printer
POWER	-	POWER LST-Queue
SNA	-	VTAM- SCS printer
EMAIL	-	e-mail with PDF attachment
FILE	-	PrintEx spool file
AFP	-	AFP2WEB

A Add TCP/IP Destination

```

PrintEx-admin          Maintain TCP/IP Destination          14.01.2005
Message:               16:14:42

Name.....: HPLASER
Description.....: HP Laserjet 4050

IP-Address.....: 192.168.0.110
Port.....: 09100          LPD-Protocol.: _ (yes=x)
Recovertime.....: 010      (sec)      Printername.: 

Models.....: 
              Width/Name      Width/Name      Width/Name
              080 PCLP0800      100 PCLP1000      120 PCLP1200
              132 PCLP1320      000 
ThinPrint Protocol.....: N      (yes=x)
ThinPrint Paketsize.....: 000000 (Bytes)
ThinPrint Bandwidth.....: 000000 (Bit/sec)

ThinPrint Statistic:
Data before compress....: 0 KByte
Data after  compress....: 0 KByte
Profit.....: 0 %

PF1 Help PF3 Return PF5 Models

```

Fig. 14: Adding a TCP/IP Destination

PrintEx supports output from the POWER LST-Queue and output from VTAM applications to printers connected to a TCP/IP network. Output is delivered using the protocol LPR/LPD or "direct socket". The printer language can be PCL or PostScript. Another option is to use PrintEx as "**ThinPrint Server Engine Host**", which applies compression and bandwidth optimization when delivering mainframe data to any print client.

New entries for TCP/IP destinations are added using the function code 'A'. The panel shown above is used to enter the definition of a destination.

Data Entry Fields

Name	This field is the key value for the new definition. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed. An entry in this field is mandatory .
Description	This field takes a description of with up to 20 characters.
IP-Address	This field specifies the TCP/IP Address or the DNS name of the network printer.
Port	The TCP/IP port of the network printer. If the protocol "direct socket" is used, then this must be the port 9100 . If the protocol LPR/LPD is used, then this must be the port 515 .
LPD-Protocol	If "X" is entered in this field, then the print data is sent to the specified IP-Address using the LPD/LPR protocols.

Printername	If the protocol LPD/LPR is to be used to transfer print data, then the name of the LPD/LPR printer can be entered in this field. If no printer is specified, then the name of the POWER or the VTAM printer will be used as the LPD/LPR printer name.
Recoverytime	If the connection cannot be established, then PrintEx will wait the number of seconds specified in this field and then, again, try to connect. If the connection cannot be established after the second attempt, then the "Print Restart Interval" defined in the system parameters will determine when PrintEx tries to connect.
Models	<p>PrintEx converts output data according to predefined models. Each output destination must have at least one model specified. A model defines, for example, which EBCDIC-to-ASCII translation table to use, which prefix or suffix data shall be inserted into the print output, how to handle control characters (page eject, line feed, carriage return, backspace, channels). PrintEx offers facilities that modify print output for PCL printer language, PostScript, and Adobe PDF.</p> <p>A model definition has two fields, which define the maximum width of a listing and name of the model.</p> <p>One output destination can have up to six models assigned. This makes it possible to apply the model, which uses, for example, the font size that fits best for the width of a listing.</p> <p>When entering &FCB as model name, the FCB name of the POWER spool list is used as the name of the model. If specified in the PrintEx system parameters, the prefix FCB-Prefix will be added to the model name.</p> <p>When entering &FCBFORM as model name, the FCB name of the POWER spool list is used as the name of the model. If specified in the PrintEx system parameters, the prefix FCB-Prefix will be added to the model name. In addition, the FNO parameter of the POWER spool will be used as additional prefix data to the print data stream. If specified in the PrintEx system parameters, the prefix Forms-Prefix will be added.</p>
ThinPrint Protocol	<p>If "X" is entered in this field, print data is sent to the IP address specified above using the ThinPrint protocol.</p> <p>In cooperation with ThinPrint GmbH, Berlin, PrintEx offers the capability of sending mainframe print output to printers via TCP/IP networks using the ThinPrint protocol for compression and bandwidth-optimization.</p> <p>PrintEx operates in this context as "ThinPrint Server Engine Host". Output can be delivered to any ThinPrint ".print" client. (Refer to Chapter 8 ThinPrint)</p>
ThinPrint Paketsize	If ThinPrint is used as protocol for transmission, then this field can be used to specify the number of bytes per transmitted packet. If the ThinPrint client dictates a packet size, then the client's packet size is used and the value in this field is ignored. If "0" is entered, the value "64000" is used.

ThinPrint Bandwidth If ThinPrint is used as protocol for transmission, then this field can be used to specify the number of bits per second for the transmission to the ThinPrint client. If the ThinPrint client dictates the bandwidth, then the client's bandwidth is used and the value in this field will be ignored. If "0" is entered, then the complete packet will be sent.

ThinPrint Statistics If ThinPrint is used as protocol for transmission, then this panel displays the amount of data sent before and after the compression and the resulting savings in percent.

A Add POWER Destination

PrintEx-admin Maintain JES Destination 14.01.2005
 Message: 16:33:18

Name.....: JESOUT
 Description.....: Jes Output
 Destination.....: LOCAL
 Writer.....: XPSDAEM
 Class.....: A
 Form.....: FRM1
 FCB.....:
 Disposition.....: WRITE

Models.....	Width/Name	Width/Name	Width/Name
	000 JES132	000	000
	000	000	000

PF1 Help PF3 Return PF5 Models

Fig. 15: Add POWER Destination

PrintEx offers the capability of storing output from VTAM applications, such as CICS, in the POWER LST-Queue.

New entries for POWER destinations are added using the function code 'A'. The panel shown above is used to enter the definition of a destination.

Data Entry Fields

Name This field is the key value for the new definition. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed.

An **entry** in this field is **mandatory**.

Description	This field takes a description with up to 20 characters.
Destination	This field can be used to specify the destination in POWER. If specified, this value is taken for the parameter DEST= when writing to SYSOUT.
Writer	This field can specify the external writer for the output. If specified, this value is used for the parameter WRITER= when writing to SYSOUT.
Class	This field can be used to specify the POWER output class for the output. If specified, the value is used for the parameter CLASS= when writing to SYSOUT.
Form	This field can be used to specify the name of the form to be used for the output. If specified, the value is used for the parameter FNO= when writing to SYSOUT.
FCB	This field can be used to specify the forms control buffer (FCB) to be used for the output. If specified, the value is used for the parameter FCB= when writing to SYSOUT.
Disp	This field can be used to specify the POWER disposition to be used for the output. If specified, the value is used for the parameter DISP= when writing to SYSOUT.
Models	<p>PrintEx converts output data according to predefined models. Each output destination must have at least one model specified. A model defines, for example, which EBCDIC-to-ASCII translation table to use, which prefix or suffix data shall be inserted into the print output, how to handle control characters (page eject, line feed, carriage return, backspace, channels). PrintEx offers facilities that modify print output for PCL printer language, PostScript, and Adobe PDF.</p> <p>A model definition has two fields, which define the maximum width of a listing and name of the model.</p> <p>One output destination can have up to six models assigned. This makes it possible to apply the model, which uses, for example, the font size that fits best for the width of a listing.</p> <p>When entering &FCB as model name, the FCB name of the POWER spool list is used as the name of the model. If specified in the PrintEx system parameters, the prefix FCB-Prefix is added to the model name.</p> <p>When entering &FCBFORM as model name, the FCB name of the POWER spool list is used as the name of the model. If specified in the PrintEx system parameters, the prefix FCB-Prefix is added to the model name. In addition, the FNO parameter of the POWER spool is used as additional prefix data to the print data stream. If specified in the PrintEx system parameters, the prefix Forms-Prefix is added.</p>

A Add SNA Destination

PrintEx-admin Maintain SNA Destination 14.01.2005 16:15:25

Message:

Name.....: TCPP1A02

Description.....: CICS Drucker

VTAM APPL Name.....: TCPP1A02

Models.....	Width/Name	Width/Name	Width/Name
	000 SNA132	000	000
	000	000	000

PF1 Help PF3 Return PF5 Models

5/25

16:15

Fig. 16: Add SNA Destination

PrintEx offers the capability of delivering output from the POWER LST-Queue to SCS printers.

New entries for SNA destinations are added using the function code 'A'. The panel shown above is used to enter the definition of a destination.

Data Entry Fields

Name This field is the key value for the new definition. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed.

An **entry** in this field is **mandatory**.

Description This field takes a description with up to 20 characters.

VTAM APPL Name This field can be used to enter the name of a VTAM application. The output will be transformed to a SCS data stream (LUType 1) and delivered to the specified VTAM application. If the VTAM printer is momentarily used by another application (CICS, for example), then the system attempts to automatically acquire the printer. At the end of the print job, the printer will be available to other applications.

Models PrintEx converts output data according to predefined models. Each output destination must have at least one model specified. A model defines, for example, which EBCDIC-to-ASCII translation table to use, which prefix or suffix data shall be inserted into the print output, how to handle control characters (page eject, line feed, carriage return, backspace, channels). PrintEx offers facilities that modify print output for PCL printer language, PostScript, and Adobe PDF.

A model definition has two fields, which define the maximum width of a listing and name of the model.

One output destination can have up to six models assigned. This makes it possible to apply the model, which uses, for example, the font size that fits best for the width of a listing.

When entering **&FCB** as model name, the FCB name of the POWER spool list is used as the name of the model. If specified in the PrintEx system parameters, the prefix **FCB-Prefix** is added to the model name.

When entering **&FCBFORM** as model name, the FCB name of the POWER spool list is used as the name of the model. If specified in the PrintEx system parameters, the prefix **FCB-Prefix** is added to the model name. In addition, the FNO parameter of the POWER spool is used as additional prefix data to the print data stream. If specified in the PrintEx system parameters, the prefix **Forms-Prefix** is added.

A Add E-Mail Destination

z/OS PrintEx -> Maintain EMAIL Destination 14.01.2005 16:15:48

PrintEx-admin Message:

Name.....: EMAIL Description.: Email

SMTP Server.....: 192.168.0.104

Username.....: xpsdaemon

Password.....: Confirm.....:

mailfrom.....: hercules@eching.de

mailto.....: georg@ntserver.xpsdomain.local

cc.....:

Subject.....: titel

Body.....: testdata

Models (Width/Name)...: 080 PDF080_ 100 PDF100_ 120 PDF120_ 132 PDF132_ 000

PF1 Help PF3 Return PF5 Models

4/60

Fig. 17: Add E-Mail Destination

PrintEx can send data coming from the POWER LST-Queue or data from VTAM applications, such as CICS, via TCP/IP network to an e-mail address using the Simple Mail Transfer Protocol (SMTP). The spool output is delivered as PDF attachment using the Multipurpose Internet Mail Extensions (MIME) format – the PDF is BASE64-encoded.

PrintEx generates the SMTP protocol itself therefore there is no need to install SMTP on the system (VSE).

New destinations of type e-mail kann be added using the function code 'A'. The panel shown above is used to enter the definition of a destination.

Data Entry Fields

Name	<p>This field is the key value for the new definition. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed.</p> <p>An entry in this field is mandatory.</p>
Description	<p>This field takes a description with up to 20 characters.</p>
SMTP Server	<p>This field can be used to enter the TCP/IP address or the DNS name of the e-mail server, to which to send the ouput via SMTP protocol.</p>
Username	<p>A valid user name must be entered in this field if the SMTP server requires authorization.</p>
Password	<p>A valid password must be entered in this field if the SMTP server requires authorization.</p>
Confirm	<p>The password must be re-typed in this field as confirmation if the SMTP Server requires authorization.</p>
mailfrom	<p>Enter the sender's e-mail address.</p> <p>In the fields "mailfrom", "mailto" and "cc", it is possible to enter the variables &ADDR#1 - &ADDR#4, in the field "Subject" the variable &TITLE, and in the field "Body" the variable &UDATA. The variables are replaced at runtime with the values from the parameters ADDRESS/TITLE/USERDATA defined in the JCL OUTPUT statement. Thus, e-mail data can be passed via job control.</p>
mailto	<p>The recipient's valid e-mail address must be entered in this field.</p>
cc	<p>To send the message to more than one recipient, enter a list of e-mail addresses, each separated with a semi-colon. (cc=carbon copy).</p>
Subject	<p>This field can be used to enter the subject of the e-mail.</p>
Body	<p>This field can be used to enter a message text to be passed as body of the e-mail. The print output itself is passed as Adobe PDF attachment.</p>
Models	<p>PrintEx converts output data according to predefined models. Each output destination must have at least one model specified. A model defines, for example, which EBCDIC-to-ASCII translation table to use, which prefix or suffix data shall be inserted into the print output, how to handle control characters (page eject, line feed, carriage return, backspace, channels). PrintEx offers facilities that modify print output for PCL printer language, PostScript, and Adobe PDF.</p> <p>A model definition has two fields, which define the maximum width of a listing and name of the model.</p> <p>One output destination can have up to six models assigned. This makes it possible to apply the model, which uses, for example, the font size that fits best for the width of a listing.</p>

When entering **&FCB** as model name, the FCB name of the POWER spool list is used as the name of the model. If specified in the PrintEx system parameters, the prefix **FCB-Prefix** is added to the model name.

When entering **&FCBFORM** as model name, the FCB name of the POWER spool list is used as the name of the model. If specified in the PrintEx system parameters, the prefix **FCB-Prefix** is added to the model name. In addition, the FNO parameter of the POWER spool is used as additional prefix data to the print data stream. If specified in the PrintEx system parameters, the prefix **Forms-Prefix** is added.

PrintEx enables control of the e-mail options via JCL. To achieve this "mailfrom" can be set to the string **&ADDR1**, "mailto" to **&ADDR2**, "cc" to **&ADDR3**, "Subject" to **&TITLE** and "Text" to **&UDATA**. If present, PrintEx will replace these variables at runtime using the input for the *\$\$ LST JCL statements "MAILFROM=", "MAILTO=", "MAILCC=", "TITLE=" and "UDATA=" respectively.

If the VSE system character set doesn't support the character „@“, this can be replaced with „#“. Upon runtime PrintEx will substitute the placeholder to generate the correct e-mail address format. Furthermore the blank character must not be used in the "TITLE=" and in the "UDATA=" statement, because POWER interprets the blank character as terminator of the *\$\$ LST statement.

If the variables just described shall be used, they need to be created upon generation of POWER (see installation).

Sample JCL:

```
* $$ JOB JNM=TEST,DISP=D,PRI=3,CLASS=0
* $$ LST CLASS=X,FNO=33AE, X
* $$ MAILFROM=SENDER#XYZ.COM, X
* $$ MAILTO=USER1#XYZ.COM, X
* $$ MAILCC=USER2#XYZ.COM, X
* $$ TITLE=TEST-EMAIL.FROM.VSE, X
* $$ UDATA=THIS.IS.A.TEST
// JOB TEST
```

A Add File Destination

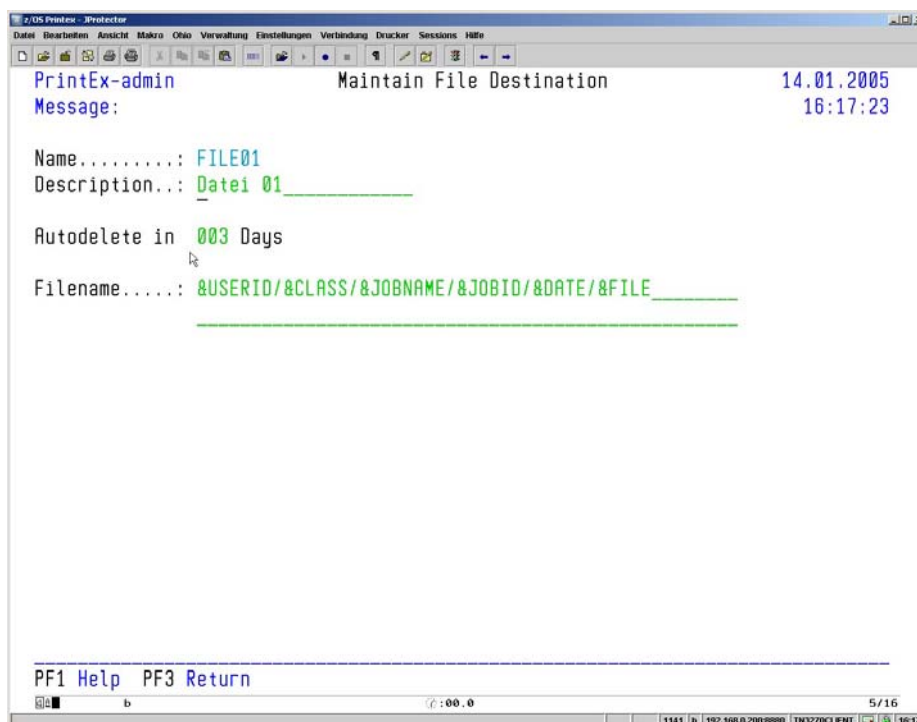


Fig. 18: Add File Destination

PrintEx offers the capability of storing POWER spool files and print output from VTAM applications, such as CICS, in a dedicated spool file. The data is compressed using the GZIP method. The data can be delivered to any destination.

New destinations of type file can be added using the function code 'A'. The panel shown above is used to enter the definition of a destination.

Data Entry Fields

Name	This field is the key value for the new definition. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed. An entry in this field is mandatory .
Description	This field takes a description of the destination with up to 20 characters.
`Autodelete in Days`	In this field it can be specified after how much days this output is to be deleted automatically by PrintEx.
Filename	This field accepts up to 128 characters for the file name, under which the output shall be stored as XPS spool file. It is possible to enter the character "/" (Slash) as delimiter for directories. Portions of the file name can also be dynamic by entering the following variables:

&USERID	Username of the output (POWER)
&JOBNAME	SYSOUT job name of the output (POWER)
&JOBID	SYSOUT job ID of the output (POWER)
&CLASS	SYSOUT class of the output (POWER)
&FILE	File name of the spool file (POWER)
&DEST	SYSOUT destination of the output (POWER)
&WRITER	External writer specified for the output (POWER)
&FORM	FORMS name of the spool file (POWER)
&FCB	FCB name of the spool file (POWER)
&DATE	Date of the output (POWER/VTAM)
&TIME	Time of the output (POWER/VTAM)
&VAPPL	VTAM application of the output (VTAM)
&ADDR#1	First field of OUTPUT instruction "MAILFROM="
&ADDR#2	Second field of OUTPUT instruction "MAILTO="
&ADDR#3	Third field of OUTPUT instruction "MAILCC="
&TITLE	Value of the OUTPUT statement "TITLE="
&UDATA	Value of the OUTPUT statement "UDATA="

The following example shows how PrintEx builds a file name:

A file name specified as:

&USERID/&CLASS/&JOBNAME/&JOBID/&FILE

will lead to a real file name:

XPSSYST/A/JOB0010/005998/17.03.2005-09:48:44

A Add AFP Destination

Delivering output to a destination of type AFP makes it possible to convert IPDS resp. AFP data to the Adobe-PDF format, a standard format used for storage and for delivering to printers in the network.

The AFP processor is based on **AFP2web** of Maas High Tech Software GmbH.

The following chart gives a high-level overview of how components interact.

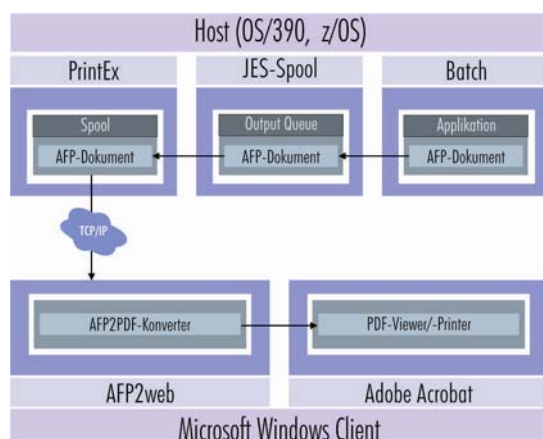


Fig. 19: The PrintEx/AFP Concept

The AFP document to be processed can be generated from a batch application on the host, for example, and output to the POWER spool with POWER-specific parameters destination, fno resp class, which are relevant as selection criteria in PrintEx.

PrintEx uses its SAPI components to monitor incoming POWER spool files, it filters the spool files according to predefined selection criteria, and sends the spooled data via TCP/IP to AFP2web, which operates as a component under Windows.

AFP2web converts AFP data to PDF and delivers the resulting document to the Adobe Acrobat Reader for viewing or printing.

AFP2web Installation under Microsoft Windows

The self-extracting installation archive for AFP2web is located in the PrintEx installation subdirectory 'Windows'.

When executed, the file 'a2wlpd_V1.0.exe' displays the following dialog:

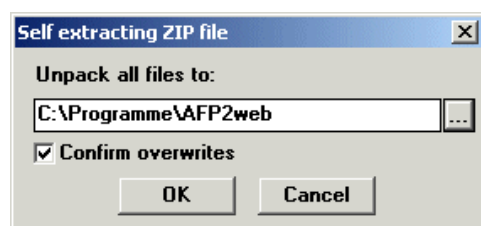


Fig. 20: AFP2web – Selecting the Target Installation Directory

In this dialog, the target directory for installing AFP2web must be entered. After selecting 'OK', the AFP2web program files are unpacked and copied to the target directory.

After installing, the target directory will have the following directory structure:

Name	Größe
afpcp	
log	
pdf	
samples	
a2wlpd.bat	1 KB
a2wlpd.jar	54 KB
a2wlpd.win	5 KB
acroread.bat	1 KB
afp2web.ini	15 KB
afp2webWrapper.dll	1.044 KB
log4j.jar	536 KB
quickstart.txt	2 KB
snbd10dm.dll	544 KB

Fig. 21: AFP2web – Installation Directory Structure

Before starting the AFP2web application, additional steps might be required to prepare the system.

In the file 'a2wlpd.win', the entry 'LPDPort' must be modified to specify the TCP/IP port, at which to receive AFP data. The port is set to 515 by default.

If Adobe Acrobat Reader is not available on the target computer, then the file 'acroread.bat' must be modified to specify the command that starts the appropriate PDF viewer.

A free-of-charge copy of the Acrobat Reader can be obtained at the Adobe website <http://www.adobe.com>.

When the installation is complete, AFP2web is started using the batch file 'a2wlpd.bat'.

PrintEx AFP Destination

New destinations of type AFP can be added using the function code 'A'. The panel shown above is used to enter the definition of a destination.

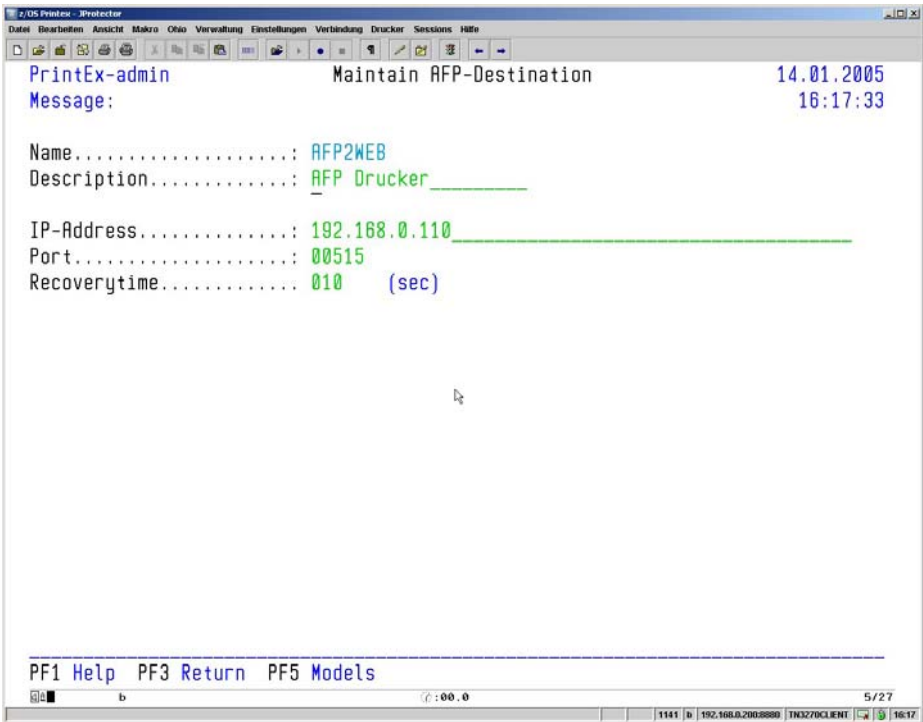


Fig. 22: Add AFP Destination

Data Entry Fields	
Name	This field is the key value for the new destination. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed. An entry in this field is mandatory .
Description	This field takes a description of the destination with up to 20 characters.
IP-Address	This field specifies the TCP/IP address or the DNS name of the AFP2web server application.
Port	This field specifies the TCP/IP port of the AFP2web server application. The default value of AFP2web is port 515 .
Recoverytime	If the connection cannot be established, then PrintEx will wait the number of seconds specified in this field and then, again, try to connect. If the connection cannot be established after the second attempt, then the "Print Restart Interval" defined in the system parameters will determine when PrintEx tries to connect.

X Modify

Using the function code 'X', an existing entry for a destination can be changed. This function displays the data entry panel shown in Figure 13. The fields in this VTAM panel show the values currently defined for the destination. Just overtype to change the value in any field.

C Copy

Entering the function code 'C' will copy an existing destination to create a new entry.

F Free

Entering the function code 'F' will release a blocked destination.

Pool Definitions

PrintEx can specify not only individual destinations, but also destination pools. When sent to a pool, the print output will be delivered to the first free destination within that pool. Up to 120 destinations sharing common characteristics can be defined in one pool. When selected, this function displays a list of the pools defined in PrintEx.

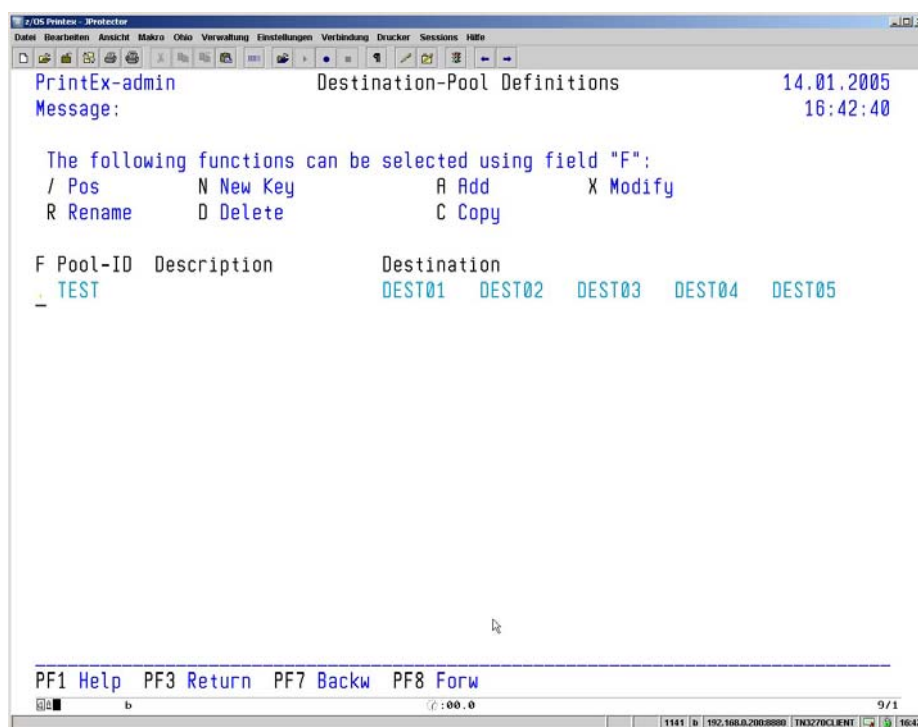


Fig. 22: Pool Definitions

Funktionstastenbelegung

PF1	Online Help
PF3	Return to the PrintEx menu.
PF7	Page backwards in the list. Paging stops at the beginning of the list.
PF8	Page forwards in the list. Paging stops at the end of the list.

Panel Fields

F	Function field to enter one of the function codes offered in the panel header.
Pool-ID	Name of the pool, up to 8-characters.
Description	Description of the pool, up to 20-characters
Destination	The first five output destinations assigned to this pool.

Function Codes

'F' is the function field used to enter one of the function codes listed in the panel header.

/ Pos

Re-display all entries, starting with the entry marked with the slash.

N New Key

Entering 'N' in any function field will let you select a new start position for the list.

A popup panel appears, in which you can enter a new name to be displayed as the first list entry. This name will be used for a generic search – the list begins with the name that is either equal or greater than the name entered.

R Rename

By entering 'R' in a function field, the selected entry can be re-named.

As additional information, the name that is currently valid is also displayed in the data entry panel. In this panel, a new name for the pool can be entered. If the name is unique, the selected printer will be re-named.

Eight characters is the maximum length of a pool name.

D Delete

Entering a function code 'D' deletes the entry for a pool.

A selected entry is deleted from the list of pools after pressing the ENTER key. As additional information, the name of the selected pool is displayed in the delete panel.

The following data entry panel is displayed for the other maintenance function codes:

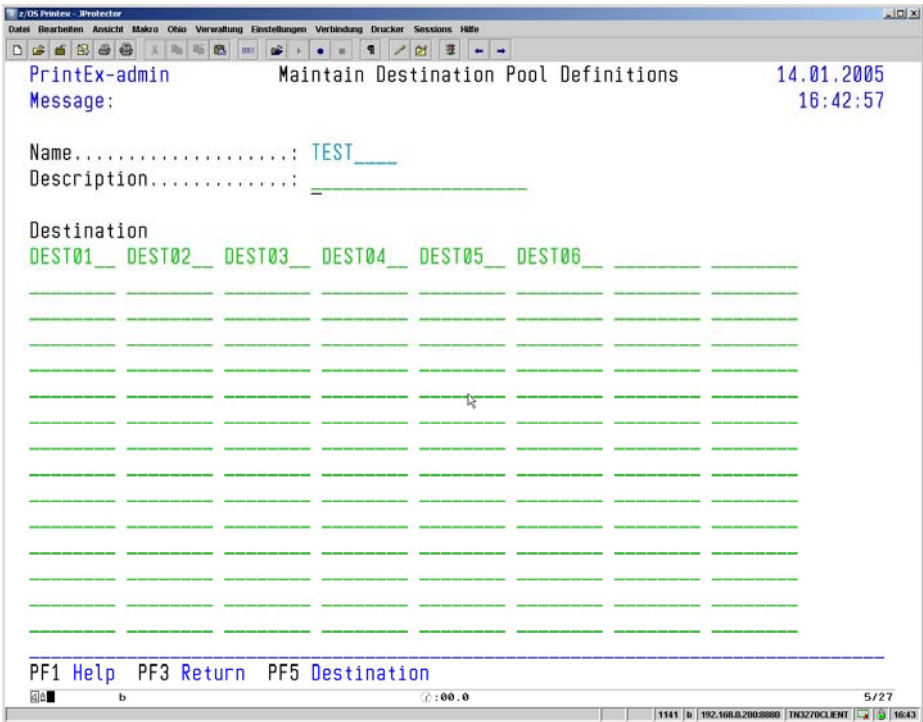


Fig. 23: Add / Modify / Copy Panel for a Pool Definition

Function Keys

- PF1** Online Help
- PF3** Return to the list of pools.
- PF5** Display a list of destinations.

Name This field is the key value for the new pool definition. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed.
An **entry** in this field **is mandatory**.

Description This field is used to enter up to 20 characters as description of the pool.

Destination Up to 120 similar destinations can be entered. When routing output to a pool, PrintEx sends the output to the first free printer within that pool.

X **Modify**

Using the function code 'X', an existing entry for a pool can be changed. This function displays the data entry panel shown in Figure . The fields in this panel show the values currently defined for the pool. Just overwrite to change the value in any field.

C **Copy**

Entering the function code 'C' will copy an existing pool definition to create a new entry.

Model Definitions

PrintEx converts output data according to predefined models. Each output destination must have at least one model specified. A model defines, for example, which EBCDIC-to-ASCII translation table to use, which prefix or suffix data shall be inserted into the print output, how to handle control characters (page eject, line feed, carriage return, backspace, channels).

PrintEx offers facilities that modify print output for PCL printer language, PostScript, and Adobe PDF.

When selected, this menu function displays a list of the defined models.

The following panel is used for the maintenance of models in PrintEx:

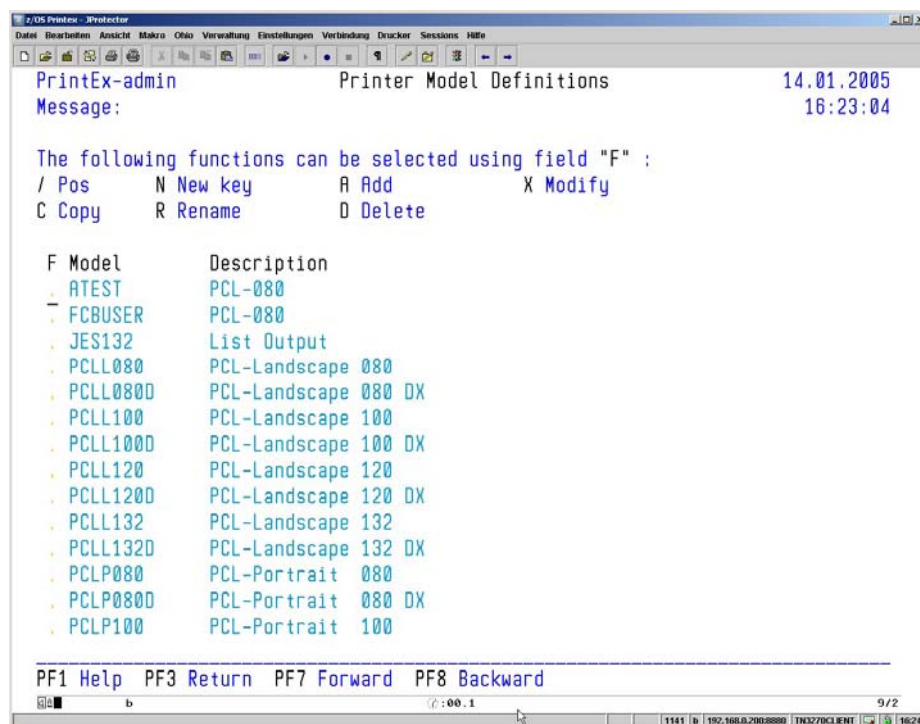


Fig. 24: Maintenance of Model Definitions

Function Keys

- | | |
|------------|--|
| PF1 | Online Help |
| PF3 | Return to the PrintEx menu. |
| PF7 | Page backwards in the list. Paging stops at the beginning of the list. |
| PF8 | Page forwards in the list. Paging stops at the end of the list. |

Panel Fields

F	Function field to enter one of the function codes offered in the panel header.
Name	Name of the model, up to 8 characters
Description	Description of the model, up to 20-characters

Function Codes

'F' is the function field used to enter one of the function codes listed in the panel header.

/ Pos

Re-display all entries, starting with the entry marked with the slash.

N New Key

Entering 'N' in any function field will let you select a new start position for the list.

A popup panel appears, in which you can enter a new model name to be displayed as the first list entry. This name will be used for a generic search – the list begins with the model name that is either equal or greater than the name entered.

R Rename

By entering 'R' in a function field, the selected entry can be re-named.

As additional information, the name that is currently valid is also displayed in the data entry panel. In this panel, a new name for the model can be entered. If the name is unique, the selected destination will be re-named.

Eight characters is the maximum length of a destination's name.

D Delete

Entering the function code 'D' deletes the entry for a model.

A selected entry is deleted from the list of models after pressing the ENTER key. As additional information, the name of the selected model is displayed in the delete panel.

The following data entry panel is displayed for the other maintenance function codes:

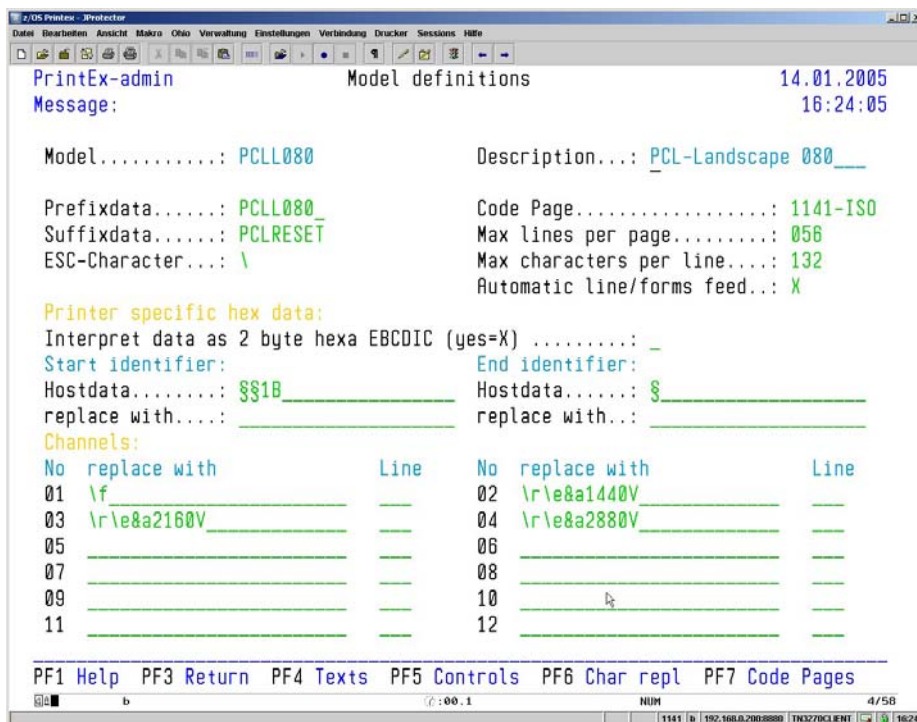


Fig. 25: Add / Modify / Copy Model Definition

Function Keys

- PF1** Online Help
- PF3** Return to the list of models.
- PF4** Display a list of the prefix- and suffixdata.
- PF5** Maintain printer controls.
- PF6** Maintain character replacements.
- PF7** Display a list of code pages.

Name This field is the key value for the new model definition. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed.

An **entry** in this field **is mandatory**.

Description This field takes a description of the model with up to 20 characters.

Prefixdata This field can be used to specify a named set of prefix data to add to the print stream. Prefix data contains the sequence of data to be sent to the printer directly before the print data. Thus, printer adjustments can be made, for example, activating a specific font before printing.

The PrintEx installation offers prefix data for PCL, PostScript, and Adobe PDF.

- Suffixdata** This field can be used to specify a named set of suffix data to add to the print stream. Suffix data contains the sequence of data to be sent to the printer directly after the print data. For example, the printer can be thus be.reset to its standard. For a model definition of type Adobe PDF, this text contains specifications for rendering, such as font selection, line spacing, and character spacing.
- The PrintEx installation offers prefix data for PCL, PostScript, and Adobe PDF.
- ESC-Character** This field specifies the escape character. The escape character followed by identification code is used to insert printer controls in the prefix data, suffix data, and in the definitions of control characters. The default character is "\" (Backslash). The following printer controls can be entered: \n – New Line, \r – Carriage Return, \b – Back Space, \e – Escape, \f – Forms feed.
- Code Page** This field can be used to specify the code page to use for translating print data from EBCDIC to ASCII/OEM/ANSI. Using the function key PF7, a list of the defined code pages can be displayed.
- Max lines per page** The entry in this field specifies the maximum number of lines to print per page. If ,X' is specified in the field ,Automatic line/forms feed', then a page eject occurs after reaching the maximum lines per page.
- Max characters per line** The entry in this field specifies the maximum number of characters to print per line. If 'X' is specified in the field ,Automatic line/forms feed', then a new line is inserted after reaching the column specified in this field.
- Automatic line/forms feed** If 'X' is specified in this field, PrintEx automatically inserts a new page after reaching the line number specified in "Max lines per page", and PrintEx inserts a new line after reaching column specified in "Max characters per line".
- Printer specific hex data** This field can be used to add hexadecimal printer controls in the print data stream generated by the host program. Special identifiers are used to mark the begin and end of these control sequences. In earlier days, the print data stream was led through special hardware boxes, which detected control sequences and converted them to the appropriate hexadecimal characters.
- Using this dialog, such data streams can be identified in PrintEx. The definition of these data streams includes the start and end identifiers, the character sequence that should replace the start and end identifiers, and an indication, whether the defined sequences are to be transformed to a specific hexadecimal format or not.
- When printing, PrintEx analyses the print data stream and replaces start and end identifiers with the sequences, if defined.
- Interpret data as 2 byte hexa EBCDIC (yes=X)** If this field is marked (with "X"), then the data between start and end identifier is taken to be ASCII-encoded hexadecimal values, which are passed on without any change to the printer.

If this field is not marked, then PrintEx assumes that the printer-specific hex values are EBCDIC-encoded and represented as 2 bytes per character. PrintEx will transform this data to ASCII and finally represent the data as a sequence of terse hex values.

Start identifier

This field specifies the start identifier for the data to replace.

End identifier

This field specifies the end identifier for the data to replace.

replace with

If the start or end identifiers are to be replaced, the replacement is specified in these fields. If no entry is made in one of these fields, then the start resp. end identifier is removed from the print data stream.

Channels

The POWER spool resp. the SCS printer protocol allows a page eject printer control be passed through a specific channel. To emulate this feature, PrintEx can be used to define which printer command is to be executed if a printer control (eject) occurs on a particular channel.

In addition, a line number can be entered. If the line number and no other printer command is specified, PrintEx will position the print output to this line after the eject. The internal line count will be initialized to the specified line number. If no line number is specified, then the internal line count is initialized to 0.

The second panel for the model definition specifies the control characters. This dialog can be used to define replacement strings for printer-specific controls. The replacements are inserted in the data stream by PrintEx when printing.

This panel offers the following entry fields:

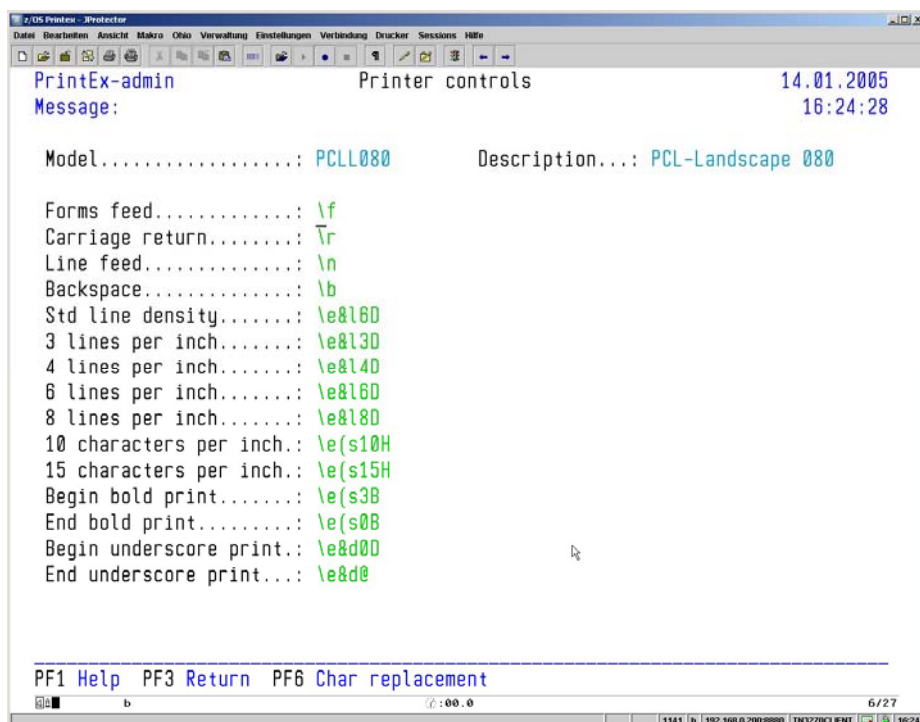


Fig. 26: Printer Controls Within a Model Definition

Function Keys

PF1	Online Help
PF3	Return to the list of model definitions.
PF6	Maintain character replacements.
Forms feed	This field specifies the printer-specific control sequence (PCL, PostScript) to be used for forms feed. If the print output is converted to Adobe PDF, then these controls are placed at the beginning of each page with the print data. In this case, it is possible to insert forms data.
Carriage return	This field specifies the printer-specific control sequence (PCL, PostScript) to be used for carriage return. For Adobe PDF, this field is ignored.
Line feed	This field specifies the printer-specific control sequence (PCL, PostScript) to be used for line feed. For Adobe PDF, this field is ignored.
Backspace	This field specifies the printer-specific control sequence (PCL, PostScript) to be used for backspace in the SCS data stream. For Adobe PDF, this field is ignored.
Std line density	This field specifies the printer-specific control sequence to be used for the SCS command “SLD – Set Line Distance”.
3 lines per inch	This field specifies the printer-specific control sequence to be used for the SCS command “SLD – Set Line Distance” to 3 lines per inch.
4 lines per inch	This field specifies the printer-specific control sequence to be used for the SCS command “SLD – Set Line Distance” to 4 lines per inch.
6 lines per inch	This field specifies the printer-specific control sequence to be used for the SCS command “SLD – Set Line Distance” to 6 lines per inch.
8 lines per inch	This field specifies the printer-specific control sequence to be used for the SCS command “SLD – Set Line Distance” to 8 lines per inch.
10 characters per inch	This field specifies the printer-specific control sequence to be used for the SCS command “SLD – Set Character Distance” to 10 characters per inch.
15 characters per inch	This field specifies the printer-specific control sequence to be used for the SCS command “SLD – Set Character Distance” to 15 characters per inch.
Begin bold print	This field specifies the printer-specific control sequence to be used for ‘begin bold print’.
End bold print	This field specifies the printer-specific control sequence to be used for ‘end bold print’.
Begin underscore print	This field specifies the printer-specific control sequence to be used for ‘begin underscore’.
End underscore print	This field specifies the printer-specific control sequence to be used for ‘end underscore’.

The third panel for the model definition specifies the character replacements. This dialog can be used to define replacement strings for specific sequences in the data stream. The replacements are inserted in the data stream by PrintEx when printing.

This panel offers the following entry fields:

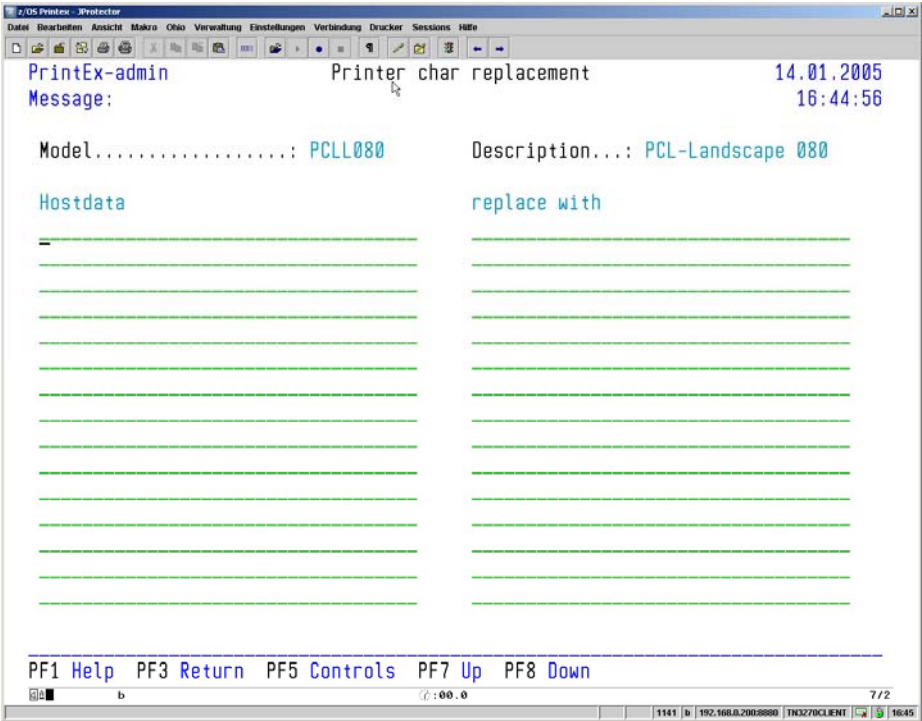


Fig. 27: Character Replacements Within a Model Definition

Function Keys

- | | |
|---------------------|--|
| PF1 | Online Help |
| PF3 | Return to the list of model definitions. |
| PF5 | Maintain printer controls. |
| PF7 | Page backwards in the list. Paging stops at the beginning of the list. |
| PF8 | Page forwards in the list. Paging stops at the end of the list. |
| Hostdata | Entries specifying the host data to be replaced in the print data stream. |
| replace with | The character sequence that replaces the corresponding entry under "Hostdata". |

X Modify

Using the function code 'X', an existing entry for a model can be changed. This function displays the data entry panel shown in Figure 25. The fields in this panel show the values currently defined for the model. Just overtype to change the value in any field

C Copy

Entering the function code 'C' will copy an existing model definition to create a new entry.

Model Definitions for PCL Output

The following table gives an example showing the individual fields used when delivering data to a PCL printer. To enter printer controls or hexadecimal/binary data, ESCAPE characters must be used. For more information on escape characters, please refer to the information in "Model Definitions ESCAPE Characters". For a description of possible PCL commands, please refer to the PCL reference for the respective printer.

Panel: Model Definitions Refer to Fig. 25 on page 50	
Prefixdata....: textname	The name of a set of predefined prefix data. The prefix data specified here is inserted at the beginning of the print data stream. The prefix data typically contains the PCL commands for printer setup.
Data prefixdata: \e(s3T \e(s0P \e(s12H \e(s8V \e(s0S \e(s0B \e&&l10 \e&&6D \e(0N	Typeface: Courier Spacing: fixed Pitch in Chars / inch Height in points Style: solid/upright Stroke weight 0 (-7 to +7) Page Orientation: Landscape Line spacing: 6 lines per inch Symbol Set: ECMA-94 Latin 1
Suffixdata....: textname	The name of a set of predefined suffix data. The suffix data specified here is inserted at the end of the print data stream.
Data suffixdata: \eE	Reset
ESC-Character.....: \	The character to be used as first character and followed by an additional character, which stands for a printer control, or which marks the beginning of binary data within the data stream. (Refer to the table of ESCAPE characters).
Automatic line/forms feed: X	Automatic line/forms feed. If 'X' is entered, PrintEx inserts a page eject after reaching the specified maximum number of lines per page, or line feed after reaching the maximum number of characters per line.
Max lines per page.....: 072	Page eject after printing 72 lines.
Max characters per line.....: 132	Line feed after printing 132 columns
Printer specific hex data: Interpret data as 2 byte hexa EBCDIC (yes=X)....: x	If 'X' is entered, the data to be output will be converted from hexadecimal 2-byte character code to a 1-byte Hexa-Code, else the hexadecimal data is passed through without change.
Start identifier: Hostdata.....: \$\$1B	Character sequence that marks the beginning

replace with...: \x1B		of hexadecimal data. Hexadecimal characters to be inserted before the hexadecimal data.
End identifier: Hostdata.....: §		Character sequence that ends the sequence of the hexadecimal data to be output. Hexadecimal characters to be inserted after the hexadecimal data..
replace with:		
Channels:		No – Number of the channel feed
No replace with	Line	replace with – PCL command for the desired vertical positioning.
01 \r\&a720V	10	Line– Logical line number, which correlates with the position of the channel feed. If no PCL command is entered, then empty lines are inserted up to the specified line number. The line number counter of the automatic eject is set to the specified line number. The cursor position is set to 720 * 1/72 inch from the top margin = print line 10.
02 \r\&a1440V	20	The cursor position is set to 1440 * 1/72 inch from the top margin = print line 20.
03 \r\&a2160V	30	The cursor position is set to 2160 * 1/72 inch from the top margin = print line 30.
04 \r\&a2880V	40	The cursor position is set to 2880 * 1/72 inch from the top margin = print line 40.
05 _____	_____	
06 _____	_____	
07 _____	_____	
08 _____	_____	
09 _____	_____	
10 _____	_____	
11 _____	_____	
12 _____	_____	

Panel: Printer controls Refer to Fig. 26 on page 52	The printer controls to be used in place of the SCS printer commands or POWER commands.
Forms feed.....: \f	Output FORMSFEED (0x0C)
Carriage return.....: \r	Output CARRIAGE RETURN (0x0D)
Line feed.....: \n	Output LINE FEED (0x0A)
Backspace.....: \b	Output BACK SPACE (0x16)
Std line density.: \e&l6D	Set line distance to 6 lines/inch
3 lines per inch.....: \e&l3D	Set line distance to 3 lines/inch
4 lines per inch.....: \e&l4D	Set line distance to 4 lines/inch
6 lines per inch.....: \e&l6D	Set line distance to 6 lines/inch
8 lines per inch.....: \e&l8D	Set line distance to 8 lines/inch
10 characters per inch....: \e(s10H	Set character distance to 10 characters/inch
15 characters per inch....: \e(s15H	Set character distance to 15 characters/inch
Begin bold print.....: \e(s3B	Set stroke weight to 3 (-7 to 7)
End bold print.....: \e(s0B	Set stroke weight to 0 (normal)
Begin underscore print.....: \e&d0D	Print with underscore
End underscore print.....: \e&d@	Print without underscore

Panel: Printer char replacement Refer to Fig. 27 on page 54		This panel is used to define replacement strings for specific sequences in the data stream.
Hostdata	replace with	
\$1B	\x1B	Replace character '1B' with hexa 1B (ESC)
!!!!!!		Delete the character sequence '!!!!!!'
!\x010101\x!	<->	Replace character sequence '!' + x'010101' + '!' with '<->'

Model Definitions for PostScript Output

The following table gives an example showing the individual fields used when delivering data to a PostScript printer. To enter controls or hexadecimal/binary data, ESCAPE controls must be used. For more information, refer to the section describing "Model Definitions for ESCAPE Characters". For a description of the PostScript syntax and commands, please refer to the manual "PostScript® Language Reference" of Adobe Systems Incorporated.

Panel: Model Definitions Refer to Fig. 25 on page 50	
Prefixdata...: textname	The name of a set of predefined prefix data. The prefix data specified here is inserted at the beginning of the print data stream. The prefix data typically contains the PostScript commands for printer setup.
Data prefixdata: \x04\x\r\n %!PS-Adobe-3.0\r\n %%BeginSetup\r\n %%BeginFeature: *Duplex Long Edge Binding\r\n <</Duplex true\r\n /Tumble false\r\n >>setpagedevice\r\n %%EndSetup\r\n /ff\r\n { prtout\r\n /savepage save def\r\n showpage\r\n savepage restore\r\n 12.0 offset sub 0 translate\r\n /temp offset def\r\n /offset noffset def\r\n /noffset temp def\r\n offset 0 translate\r\n newpath 0 pgtop moveto\r\n } def\r\n /lf\r\n { prtout\r\n 0 ldist rmoveto\r\n /Ypos currentpoint exch pop def\r\n Ypos 0 lt\r\n { ff } if\r\n } def\r\n /cr\r\n { prtout\r\n /Ypos currentpoint exch pop def\r\n 0 Ypos moveto\r\n } def\r\n /bs\r\n { prtout\r\n /Xpos currentpoint pop Cdist sub def\r\n /Ypos currentpoint exch pop def\r\n Xpos 0.0 ge\r\n	Header-Info with PostScript version Printer Setup information Definition ff (\f – Forms Feed) Definition lf (\n – New Line) Definition cr (\r – Carriage Return) Definition bs (\b – Back Space)

<pre> { Xpos Ypos moveto }\r\n { cr } ifelse\r\n } def\r\n /prtout\r\n { count 0 gt\r\n { currentpoint\r\n /Ypos exch Udist sub def\r\n /Xpos exch def\r\n Cdist xshow\r\n currentpoint\r\n /Ysav exch def\r\n /Xsav exch def\r\n Usc\r\n { Xpos Ypos moveto\r\n Lwidth setlinewidth\r\n Xsav Ypos lineto stroke\r\n Xsav Ysav moveto\r\n } if\r\n } if\r\n } def\r\n /Courier-BoldLatin\r\n << /Courier-Bold findfont {} forall >>\r\n begin\r\n /Encoding ISOLatin1Encoding\r\n 256 array copy def currentdict\r\n end\r\n definefont pop\r\n /Courier-ItalicLatin\r\n << /Courier-Oblique findfont {} forall >>\r\n begin\r\n /Encoding ISOLatin1Encoding\r\n 256 array copy def currentdict\r\n end\r\n definefont pop\r\n /Courier-Latin\r\n << /Courier findfont {} forall >>\r\n begin\r\n /Encoding ISOLatin1Encoding\r\n 256 array copy def currentdict\r\n end\r\n definefont pop\r\n /Symbol false def\r\n /Bold false def\r\n /sfc\r\n { prtout\r\n Bold\r\n { /Courier-BoldLatin 9.0 selectfont }\r\n { /Courier-Latin 9.0 selectfont } ifelse\r\n /Symbol false def\r\n } def\r\n /sfs\r\n { prtout\r\n Bold\r\n { /SymbolBold 9.0 selectfont }\r\n { /Symbol 9.0 selectfont } ifelse\r\n /Symbol true def\r\n } def\r\n /boldon\r\n { prtout\r\n Symbol\r\n { /Symbol-Bold 9.0 selectfont }\r\n { /Courier-Bold 9.0 selectfont } ifelse\r\n /Bold true def\r\n } def\r\n /boldoff\r\n { prtout\r\n Symbol\r\n { /Symbol 9.0 selectfont }\r\n { /Courier 9.0 selectfont } ifelse\r\n /Bold false def\r\n } def\r\n /cpi10 { prtout /Cdist [256 { 7.2 } repeat] def } def\r\n /cpi15 { prtout /Cdist [256 { 4.8 } repeat] def } def\r\n </pre>	<p>Definition prtout (with underscore print)</p> <p>Definition Font Courier-BoldLatin</p> <p>Definition Font Courier-ItalicLatin</p> <p>Definition Font Courier-Latin</p> <p>No Symbol-Set No bold print Definition sfc (activate normal font)</p> <p>Definition sfs (activate Symbol Font)</p> <p>Definition boldon (activate bold print)</p> <p>Definition boldoff (deactivate bold print)</p> <p>Definition cpi10 (10 characters per inch)</p> <p>Definition cpi15 (15 characters per inch)</p> <p>Definition lpi3 (3 lines per inch)</p>
---	--

<pre> /lpi3 { prtout /Ldist -24.0 def } def\r\n /lpi4 { prtout /Ldist -18.0 def } def\r\n /lpi6 { prtout /Ldist -12.0 def } def\r\n /lpi8 { prtout /Ldist -9.0 def } def\r\n /uscon { prtout /Usc true def } def\r\n /uscoff { prtout /Usc false def } def\r\n /coffset 4.0 def\r\n /noffset 4.0 def\r\n /Lwidth 0 def\r\n /Udist 2.0 def\r\n uscoff\r\n boldoff\r\n lpi6\r\n cpil0\r\n sfc\r\n clippath pathbbox\r\n /pgtop exch def\r\n pop /y exch def y translate\r\n /pgtop pgtop y sub 14.2 sub Ldist add def\r\n coffset 0 translate\r\n newpath 0 pgtop moveto\r\n (</pre>	<p>Definition lpi4 (4 lines per inch)</p> <p>Definition lpi6 (6 lines per inch)</p> <p>Definition lpi8 (8 lines per inch)</p> <p>Definition uscon (Begin underscore print)</p> <p>Definition uscoff (End underscore print)</p> <p>Start parameters:</p> <p>set position to line 1, column 1.</p> <p>Beginning of data (String starts here)</p>
<pre> Suffixdata....: textname </pre>	<p>The name of a set of predefined suffix data. The suffix data specified here is inserted at the end of the print data stream</p>
<pre> Data suffixdata:) ff/r/n/x04\x </pre>	<p>Page eject + EOT-Marker</p>
<pre> ESC-Character.....: \ </pre>	<p>The character to be used as first character and followed by an additional character, which stands for a printer control, or which marks the beginning of binary data within the data stream. (Refer to the table of ESCAPE characters).</p>
<pre> Automatic line/forms feed: X </pre>	<p>Automatic line/forms feed. If 'X' is entered, PrintEx inserts a page eject after reaching the specified maximum number of lines per page, or line feed after reaching the maximum number of characters per line.</p>
<pre> Max lines per page.....: 072 </pre>	<p>Page eject after printing 72 lines.</p>
<pre> Max characters per line.....: 132 </pre>	<p>Line feed after printing 132 columns</p>
<pre> Printer specific hex data: Interpret data as 2 byte hexa EBCDIC (yes=X)....: x </pre>	<p>If 'X' is entered, the data to be output will be converted from hexadecimal 2-byte character code to a 1-byte Hexa-Code, else the hexadecimal data is passed through without change.</p>
<pre> Start identifier: Hostdata.....: \$\$1B replace with...: \x1B </pre>	<p>Character sequence that marks the beginning of hexadecimal data.</p> <p>Hexadecimal characters to be inserted before the hexadecimal data.</p>
<pre> End identifier: Hostdata.....: \$ replace with: </pre>	<p>Character sequence that ends the sequence of the hexadecimal data to be output.</p> <p>Hexadecimal characters to be inserted after the hexadecimal data..</p>
<pre> Channels: No replace with 01 </pre>	<p>No – Number of the channel feed</p> <p>replace with – no direct positioning with a PostScript command or definition.</p> <p>Line – Logical line number, which correlates</p>

		with the position of the channel feed. If 'replace with' is not specified, then empty lines are inserted up to the specified line number. The line number counter of the automatic eject is set to the specified line number
02	11	Set current print position to line 11.
03	21	Set current print position to line Zeile 21.
04	31	Set current print position to line Zeile 31.
05	41	Set current print position to line 41.
06	_____	
07	_____	
08	_____	
09	_____	
10	_____	
11	_____	
12	_____	

Panel: Printer controls Refer to Fig. 26 on page 52		The printer controls to be used in place of the SCS printer commands or POWER commands. Before entering a definition, please close the current data string with the character ')' and then immediately reopen for the next string with '('. To enter a line break in the PostScript data stream, enter the character sequence '\r\n' (carriage return + line feed).
Forms feed.....:)	ff\r\n(	Use ff to perform a form feed.
Carriage return.....:)	cr\r\n(	Use cr to set current point to the beginning of the line.
Line feed.....:)	nl\r\n(	Use lf for a line feed.
Backspace.....:)	bs\r\n(	Use bs to set current position to -1.
Std line density..:)	lpi6\r\n(	Set line distance to 6 lines/inch
3 lines per inch.....:)	lpi3\r\n(	Set line distance to 3 lines/inch
4 lines per inch.....:)	lpi4\r\n(	Set line distance to 4 lines/inch
6 lines per inch.....:)	lpi6\r\n(	Set line distance to 6 lines/inch
8 lines per inch.....:)	lpi8\r\n(	Set line distance to 8 lines/inch
10 characters per inch....:)	cpi10\r\n(	Set character distance to 10 characters/inch
15 characters per inch....:)	cpi15\r\n(	Set character distance to 15 characters/inch
Begin bold print.....:)	boldon\r\n(	Set stroke weight to 3 (-7 to 7)
End bold print.....:)	boldoff\r\n(	Set stroke weight to 0 (normal)
Begin underscore print.....:)	uscon\r\n(	Print with underline
End underscore print.....:)	uscoff\r\n(	Print without underline

Panel: Printer char replacement Refer to Fig. 27 on page 54		This panel is used to define replacement strings for specific sequences in the data stream.
Hostdata \x9F	replace with sfs (\240) sfc\r\n	Replace hexadecimal character 0x9F (EURO currency sign) with octal character \240 (€) of the Symbol character set.

Model Definitions for PDF Output (E-Mail)

The following table gives an example showing the individual fields used when delivering data in PDF-Format. To enter controls or hexadecimal/binary data, ESCAPE controls must be used. For more information, refer to the section describing "Model Definitions for ESCAPE Characters". For a description of the objects in PDF, please refer to the manual "PDF Reference" of Adobe Systems Incorporated.

Panel: Model Definitions Refer to Fig. 25 on page 50	
Prefixdata...: textname	The name of a set of predefined prefix data. The prefix data contains the header information with the PDF version, on which the print data is based. The data also has the object information that specifies page format and resources. Object numbers must not be specified more than once. Dictionary entries, which are automatically added by PrintEx, must not be entered in the prefix data. PrintEx adds these entries automatically only if the respective object has been specified.
Data prefixdata: %PDF-1.3\r\n 1 0 obj\r\n <<\r\n /Type /Info\r\n >>\r\n endobj\r\n 2 0 obj\r\n <<\r\n /Type /Catalog\r\n /Pages 3 0 R\r\n /PageLayout /SinglePage\r\n /MarkInfo << /Marked /true >>\r\n >>\r\n endobj\r\n 3 0 obj\r\n <<\r\n /Type /Pages\r\n /MediaBox [-25 0 612 840]\r\n >>\r\n endobj\r\n 4 0 obj\r\n <<\r\n /Type /Font\r\n /Subtype /Type1\r\n /Name /F1\r\n /BaseFont /Courier\r\n /Encoding 9 0 R\r\n /FirstChar 0\r\n /LastChar 255\r\n /Widths 6 0 R\r\n >>\r\n	Header information with PDF version Object /Info (optional) The following entries are added: /Title (PrintEx dateiname)\r\n /Producer (PrintEx V1.0(XPS Software GmbH, 2005))\r\n /CreationDate (D:yyyymmddhhmmss)\r\n Object /Catalog (mandatory) Reference to the /Pages object (mandatory) Object /Pages (mandatory) The following entries are added: /Count nnn\r\n /Kids [n 0 R n+3 0 R n+6 0 R ...]\r\n Object /Font /F1 (at least 1 Font object must be specified)

<pre> /dotaccent /dieresis /.notdef /ring /cedilla /.notdef\n /hungarumlaut /ogonek /caron /space /exclamdown /cent\n /sterling /currency /yen /brokenbar /section /dieresis\n /copyright /ordfeminine /guillemotleft /logicalnot /hyphen\n /registered /macron /degree /plusminus /twosuperior\n /threesuperior /acute /mu /paragraph /periodcentered\n /cedilla /onesuperior /ordmasculine /guillemotright\n /onequarter /onehalf /threequarters /questiondown /Agrave\n /Aacute /Acircumflex /Atilde /Adieresis /Aring /AE\n /Ccedilla /Egrave /Eacute /Ecircumflex /Edieresis /Igrave\n /Iacute /Icircumflex /Idieresis /Eth /Ntilde /Ograve\n /Oacute /Ocircumflex /Otilde /Odieresis /multiply /Oslash\n /Ugrave /Uacute /Ucircumflex /Udieresis /Yacute /Thorn\n /germandbls /agrave /aacute /acircumflex /atilde /adieresis\n /aring /ae /ccedilla /egrave /eacute /ecircumflex\n /edieresis /igrave /iacute /icircumflex /idieresis /eth\n /ntilde /ograde /oacute /ocircumflex /otilde /odieresis\n /divide /oslash /ugrave /uacute /ucircumflex /udieresis\n /yacute /thorn /ydieresis]\n >>\n endobj\r\n 7 0 obj\r\n <<\r\n /Font << /F1 4 0 R /F2 5 0 R >>\r\n /XObject << /Im0 10 0 R >>\r\n /ProcSet [/PDF /Text \ImageC] \r\n >>\r\n endobj\r\n 8 0 obj\r\n <<\r\n /Type /Page\r\n /Parent 3 0 R\r\n /Resources 7 0 R\r\n >>\r\n endobj\r\n 10 0 obj\r\n <<\r\n /Type /XObject\r\n /Subtype /Image\r\n /Width 1190\r\n /Height 1683\r\n /ColorSpace /DeviceRGB\r\n /BitsPerComponent 8\r\n /Filter /DCTDecode \r\n >>\r\n stream\r\n \as\$ASIS-DATEN\$a %INCLUDE STREAM=FORMJPG% \$\$ASIS-DATEN\$a \r\nendstream\r\n endobj\r\n </pre>	<p>Object /Resources (mandatory)</p> <p>Object /Page (mandatory) (this object is duplicated for each output page) Reference to the object /Pages Reference to the object /Resources The following entry is added for each: /Contents nnn R (Reference to the data) Object /Image (information about forms data) The following entry is added to define the length of the data:/Length nnn\r\n Width of image file Height of image file Color definition (/Device Gray/RGB/CMYK) Number of bits per color component</p> <p>Image file (.JPG), This file must be available and loaded in XPS-MACLIB (.DATA) (via FTP download) before using it.</p>
<p>Suffixdata....: textname</p>	<p>The suffix data defines the base settings for print data preprocessing. The parameters to be specified are described in the following table 'PDF-Parameter'. These parameters are also used for channel feeds and printer controls.</p>
<p>Data suffixdata: tm=825 lm=20 fn=/F1 fs=8 ud=2 uw=0.25 lh=9.0 cw=4.8 cd=1.1</p>	<p>Settings are in 1/72 inch.</p>
<p>ESC-Character.....: \</p>	<p>The character to be used as first character and followed by an additional character, which stands for a printer control, or which marks the beginning of binary data within the</p>

Panel: Printer controls Refer to Fig. 26 on page 52		The printer controls to be used in place of the SCS printer commands or POWER commands.
Forms feed.....: q\n595 0 0 841.5 0 0cm\n/Im0 Do\nQ\n		The data entered here will be placed at the beginning of each page in the print data stream (the forms data, objects, images defined in the prefix data are also inserted in the page)
Carriage return.....:		This field is ignored, the function is handled internally.
Line feed.....:		This field is ignored, the function is handled internally.
Backspace.....:		This field is ignored, the function is handled internally.
Std line density..: lh=12		Set line distance to 6 lines/inch
3 lines per inch.....: lh=24		Set line distance to 3 lines/inch
4 lines per inch.....: lh=18		Set line distance to 4 lines/inch
6 lines per inch.....: lh=12		Set line distance to 6 lines/inch
8 lines per inch.....: lh=9		Set line distance to 8 lines/inch
10 characters per inch....: cd=2.4		Set character distance to 10 characters/inch
15 characters per inch....: cd=0.0		Set character distance to 15 characters/inch
Begin bold print.....: fn=/F2 fs=8		Activate Font /F2 for bold print.
End bold print.....: fn=/F1 fs=8		Activate Font /F1 for normal weight.
Begin underscore print.....:		An entry in this field is not required if the parameteres 'uw=' and 'ud=' have already been specified in the suffix data.
End underscore print.....:		No entry required in this field
Panel: Printer char replacement Refer to Fig. 27 on page 54		This panel is used to define replacement strings for specific sequences in the data stream.
Hostdata \x9F	replace with \240	Replace hexadecimal character Zeichen 0x9F with '\240' (octal) = EURO sign.

Table: PDF Parameters:

Variable	Description	Example (1/72 inch)
lh=	Line height	10
cd=	additional character spacing	0.2
cw=	Character width	6.0 (wird folgendermassen errechnet: /Width / 1000 * fs)
fn=	Font name	/F1
fs=	Font size	10
lm=	Left margin	25
tm=	Top margin	820
du=	Distance underscore	2
uw=	underscore line width	0.25
vp=	Vertical position	480
hp=	Horizontal position	200

Model Definitions for POWER Output

The following table gives an example showing the individual fields used when delivering data to the POWER LST-Queue.

Panel: Model Definitions		
Refer to Fig. 25 on page 50		
Prefixdata...: textname		The name of a set of predefined prefix data. The prefix data specified here is inserted at the beginning of the print data stream. (not required).
Suffixdata....: textname		The name of a set of predefined suffix data. The suffix data specified here is inserted at the end of the print data stream (not required).
ESC-Character.....: \		The character to be used as first character and followed by an additional character, which stands for a printer control, or which marks the beginning of binary data within the data stream. (Refer to the table of ESCAPE characters).
Automatic line/forms feed: X		Automatic line/forms feed. If 'X' is entered, PrintEx inserts a page eject after reaching the specified maximum number of lines per page, or line feed after reaching the maximum number of characters per line.
Max lines per page.....: 072		Page eject after printing 72 lines.
Max characters per line.....: 132		Line feed after printing 132 columns
Printer specific hex data: Interpret data as 2 byte hexa EBCDIC (yes=X)....: x		If 'X' is entered, the data to be output will be converted from hexadecimal 2-byte character code to a 1-byte Hexa-Code, else the hexadecimal data is passed through without change.
Start identifier: Hostdata.....: \$BEGHEX replace with..:		Character sequence that marks the beginning of hexadecimal data. Hexadecimal characters to be inserted before the hexadecimal data.
End identifier: Hostdata.....: \$ENDHEX replace with:		Character sequence that ends the sequence of the hexadecimal data to be output. Hexadecimal characters to be inserted after the hexadecimal data..
Channels: No replace with Line 01 \x89 1		No – Number of the channel feed replace with – Controls for the POWER print output. Line – Logical line number, which correlates with the position of the channel feed. If 'replace with' is not specified, then empty lines are inserted up to the specified line number. The line number counter of the automatic eject is set to the specified line number Feed on channel 1 = line 1.
02 \x91 11		Feed on channel 2 = line 11.
03 \x99 21		Feed on channel 3 = line 21.

04	\xA1	31	Feed on channel 4 = line 31.
05	\xA9	41	Feed on channel 5 = line 41.
06	\xB1	51	Feed on channel 6 = line 51.
07	\xB9	61	Feed on channel 7 = line 61.
08	\xC1	—	Feed on channel 8, internal line count set to 0.
09	\xC9	—	Feed on channel 9, internal line count set to 0.
10	\xD1	—	Feed on channel 10, internal line count set to 0.
11	\xD9	—	Feed on channel 11, internal line count set to 0.
12	\xE1	—	Feed on channel 12, internal line count set to 0.

Panel: Printer controls
Refer to Fig. 26 on page 52

All entries in this panel are ignored because commands cannot be processed.

Forms feed.....:	Ignored.
Carriage return.....:	Ignored.
Line feed.....:	Ignored.
Backspace.....:	Ignored.
Std line density..:	Ignored.
3 lines per inch.....:	Ignored.
4 lines per inch.....:	Ignored.
6 lines per inch.....:	Ignored.
8 lines per inch.....:	Ignored.
10 characters per inch.....:	Ignored.
15 characters per inch.....:	Ignored.
Begin bold print.....:	Ignored.
End bold print.....:	Ignored.
Begin underscore print.....:	Ignored.
End underscore print.....:	Ignored.

Panel: Printer char replacement
Refer to Fig. 27 on page 54

This panel is used to define replacement strings for specific sequences in the data stream.

Hostdata	replace with	
ä	ae	Replace character 'ü' with 'ue'
ö	oe	Replace character 'ö' with 'oe'
ü	ue	Replace character 'ü' with 'ue'
Ä	AE	Replace character 'Ä' with 'AE'
Ö	OE	Replace character 'Ö' with 'OE'
Ü	UE	Replace character 'Ü' with 'UE'
ß	ss	Replace character 'ß' with 'ss'.

Model Definitions for VTAM-SCS Output

The following table gives an example showing the individual fields used when delivering data to a VTAM/SCS printer. To enter controls or hexadecimal/binary data, ESCAPE controls must be used. For more information, refer to the section describing "Model Definitions for ESCAPE Characters".

Panel: Model Definitions Refer to Fig. 25 on page 50	
Prefixdata...: textname	The name of a set of predefined prefix data. The prefix data specified here is inserted at the beginning of the print data stream.
Suffixdata....: textname	The name of a set of predefined suffix data. The suffix data specified here is inserted at the end of the print data stream
ESC-Character.....: \	The character to be used as first character and followed by an additional character, which stands for a printer control, or which marks the beginning of binary data within the data stream. (Refer to the table of ESCAPE characters).
Automatic line/forms feed: X	Automatic line/forms feed. If 'X' is entered, PrintEx inserts a page eject after reaching the specified maximum number of lines per page, or line feed after reaching the maximum number of characters per line.
Max lines per page.....: 072	Page eject after printing 72 lines.
Max characters per line.....: 132	Line feed after printing 132 columns
Printer specific hex data: Interpret data as 2 byte hexa EBCDIC (yes=X).....: x	If 'X' is entered, the data to be output will be converted from hexadecimal 2-byte character code to a 1-byte Hexa-Code, else the hexadecimal data is passed through without change.
Start identifier: Hostdata.....: \$BEGHEX replace with..:	Character sequence that marks the beginning of hexadecimal data. Hexadecimal characters to be inserted before the hexadecimal data.
Endekennung: Hostdata.....: \$ENDHEX replace with:	Character sequence that ends the sequence of the hexadecimal data to be output. Hexadecimal characters to be inserted after the hexadecimal data..
Channels: No replace with Line 01 \x0401 1	No – Number of the channel feed replace with – SCS command for channel feed. Line – Logical line number, which correlates with the position of the channel feed. If 'replace with' is not specified, then empty lines are inserted up to the specified line number. The line number counter of the automatic eject is set to the specified line number Feed on channel 1 = Print line 1.
02 \x0402 11	Feed on channel 2 = Print line 11.
03 \x0403 21	Feed on channel 3 = Print line 21.
04 \x0404 31	Feed on channel 4 = Print line 31.

05	\x0405	41	Feed on channel 5 = Print line 41.
06	\x0406	51	Feed on channel 6 = Print line 51.
07	\x0407	61	Feed on channel 7, internal line count is set to 0.
08	\x0408	—	Feed on channel 8, internal line count is set to 0.
09	\x0409	—	Feed on channel 9, internal line count is set to 0.
10	\x040A	—	Feed on channel 10, internal line count is set to 0.
11	\x040B	—	Feed on channel 11, internal line count is set to 0.
12	\x040C	—	Feed on channel 12, internal line count is set to 0.

Panel: Printer controls
Refer to Fig. 26 on page 52

The printer controls to be used in place of the commands.

Forms feed.....: \x0C	Output FORMSFEED (0x0C)
Carriage return.....: \x0D	Output CARRIAGE RETURN (0x0D)
Line feed.....: \x25	Output LINE FEED (0x0A)
Backspace.....: \x16	Output BACK SPACE (0x16)
Std line density...: \x2BC601	Set line distance to 6 lines/inch
3 lines per inch.....: \x2BC60218	Set line distance to 3 lines/inch
4 lines per inch.....: \x2BC60212	Set line distance to 4 lines/inch
6 lines per inch.....: \x2BC6020C	Set line distance to 6 lines/inch
8 lines per inch.....: \x2BC60209	Set line distance to 8 lines/inch
10 characters per inch....: \x2BD204290A0A	Set character distance to 10 characters/inch
15 characters per inch....: \x2BD204290F0F	Set character distance to 15 characters/inch
Begin bold print.....:	ignored
End bold print.....:	ignored
Begin underscore print.....: \x280141F4	Print with underline.
End underscore print.....: \x28014100	Print without underline

Panel: Printer char replacement
Refer to Fig. 27 on page 54

This panel is used to define replacement strings for specific sequences in the data stream.

Hostdaten	replace with	
\x9F	EURO	Replace hexadecimal character 0x9F (EURO) with the character sequence 'EURO'

Model Definitions ESCAPE Characters

The following table describes the ESCAPE characters used to insert printer controls, hexadecimal or binary data in the output data. The ESCAPE characters can be used in all fields of the model definition, and in the text of prefix and suffix data. A sequence of ESCAPE characters always starts with the character defined in the field 'ESC-Character.....', followed by an addition character identifying the function. In the following table, it is assumed that the ESC-Character is defined as '\'.

ESCAPE-Sequence	Description
\e	Escape (output data = 0x1B, host data = 0x27)
\f	Forms Feed (output data = 0x0C, host data = 0x0C)
\n	New Line (output data = 0x0A, host data = 0x15)
\r	Carriage Return (output data = 0x0D, host data = 0x0D)
\b	Back Space (output data = 0x08, host data = 0x08)

\x	The data following is to be transformed from 2-byte hexadecimal to 1-byte binary. Only characters 0 – 9 and A – F are processed. The next entry \x ends the processing of hexadecimals.
\a	The sequence in the format \aCHARACTERSEQUENCE\a marks the start and the end of data to be passed through without any changes. Thus, binary data (for example, images) can be inserted in the prefix or suffix data.
\a\h	The sequence in the format \a\hCHARACTERSEQUENCE\a marks the start and the end of data to be converted to a hexadecimal character code. This makes it possible, for example, to insert binary data (images) in the prefix, suffix data, or referenced text, which can be processed by the '/ASCIISHexDecode' filter in PostScript, if the PostScript printer cannot process binary data with the '/SubFileDecode' filter.
\a\8	The sequence in the format \a\8CHARACTERSEQUENCE\a marks the start and the end of data to be converted to an ASCII based-85 character code. This makes it possible, for example, to insert binary data (images) in the prefix, suffix data, or referenced text, which can be processed by the '/ASCIISHexDecode' filter in PostScript, if the PostScript printer cannot process binary data with the '/SubFileDecode' filter.

Forms / Image Files

When delivering output in PostScript or PDF format, image files (JPEG, TIFF ...) can be inserted as forms in the print output. To do this, load the desired image file as a binary file via ftp into the library 'XPS.DAEMV400 with the prefix ".D". To insert the image file into the prefix data, into the text for page eject, or as character replacement, enter the directive "%INCLUDE STREAM=filename%". When specified in the text file, ensure that the inserted data is not processed by the standard character replacement. This is achieved by entering the ESCAPE characters '\aCHARACTERSEQUENCE\a' immediately before the 'INCLUDE STREAM=' directive. Repeating the ESCAPE characters '\aCHARACTERSEQUENCE\a' will re-activate the standard character replacement. Using the ESCAPE characters '\a\hCHARACTERSEQUENCE\a' will convert the included data to a 2-byte ASCII hexadecimals. Using the ESCAPE characters '\a\8CHARACTERSEQUENCE\a' will convert the included data to an ASCII Base-85 code. In each case, the image file should be simultaneously processed using either the ASCIIHexEncode or the ASCII85Encode filter.

Example of PostScript (converting to ASCII Base-85):

```

) gsave\r\n
/DeviceRGB setcolorspace\r\n
0.0 coffset sub 0 translate\r\n
595.0 800.0 scale\r\n
495.0 coffset sub 740.0 translate\r\n
100.0 100.0 scale\r\n
<<\r\n
/ImageType 1\r\n
/Width 354\r\n
/Height 354\r\n
/BitsPerComponent 8\r\n
/Decode [0 1 0 1 0 1]\r\n
/ImageMatrix [354 0 0 -354 0 354]\r\n
/DataSource currentfile\r\n
/ASCII85Decode filter\r\n
/DCTDecode filter\r\n
>>\r\n
image
\a\8$$END-ASIS\a
%INCLUDE STREAM=FORMJPG1%
$$END-ASIS
~>
\r\ngrstore\r\n(

```

Example of PDF:

```
10 0 obj\r\n
<<\r\n
/Type /XObject\r\n
/Subtype /Image\r\n
/Width 1190\r\n
/Height 1683\r\n
/ColorSpace /DeviceRGB\r\n
/BitsPerComponent 8\r\n
/Filter /DCTDecode \r\n
>>\r\n'
stream\r\n
%INCLUDE STREAM=FORMJPG1%
\r\nendstream\r\n
Endobj\r\n
```

Electronically Stored Form Overlay

Musterfirma

Musterfirma - Teilstrasse 9 - 10705 München

Obige Daten bei Zahlung/Rückfragen bitte nicht angeben.

Anzahl	Bezeichnung	E-Preis	G-Preis	Ust%

Steuereinführung	Umsatzsteuer	Rechnungspreis
------------------	--------------	----------------

Musterfirma GmbH
Teilstrasse 9 - 10705 München
Stz der Gesellschaft München
Handelsregister HRB 408

Ust-ID-Nr. DE123456789

Variable Page Data

4022/1

Rechnung/Invoice
Nr.: 000001234 Datum: 01.09.2004
Konto-Nr.: 0001234567

Ansprechpartner:
Team Fahrzeugverwertung
Telefon: 030/12345678
Telefax: 030/12345679
Ihr Abrechnungskonto 0000123456
Vertreger, Lds. 000054321
Unsere Bankverbindung:
Musterbank GmbH
Bankleitzahl 900909090
Kto-Nr. 000123456

Ust-ID-Nr. DE123456789

Wir liefern Ihnen nachstehenden Gebrauchtwagen.
Die Forderung wurde an die Auto Händler Service GmbH abgetreten und
Ihrem Gebrauchtwagenkonto - KZF- belastet.

1 Gebrauchtwagen	ALFA 156 SW 1.9 JTD 16V P Kfz-Nr: B-AD-7777	11.137,93	11.137,93	16,00
	Fgstrnr: SAR93200004445555			

Der Verkauf des Fahrzeuges erfolgt unter Ausschluss jeglicher Gewährleistung.
Das Fahrzeug bleibt bis zur vollständigen Bezahlung unser Eigentum.
Die Fahrzeugdokumente werden bei Ihrer treuhandverwahren Stelle hinterlegt.

11.137,93	16,00 %	1.782,07	MW	12.920,00
-----------	---------	----------	----	-----------

Merge

4022/1

Musterfirma

Musterfirma - Teilstrasse 9 - 10705 München

Hans Mustermann
Hauptstr. 1
10035 Berlin

Obige Daten bei Zahlung/Rückfragen bitte nicht angeben.

Ansprechpartner:
Team Fahrzeugverwertung
Telefon: 030/12345678
Telefax: 030/12345679
Ihr Abrechnungskonto 0000123456
Vertreger, Lds. 000054321
Unsere Bankverbindung:
Musterbank GmbH
Bankleitzahl 900909090
Kto-Nr. 000123456

Ust-ID-Nr. DE123456789

Anzahl	Bezeichnung	E-Preis	G-Preis	Ust%
Wir liefern Ihnen nachstehenden Gebrauchtwagen. Die Forderung wurde an die Auto Händler Service GmbH abgetreten und Ihrem Gebrauchtwagenkonto - KZF- belastet.				
1 Gebrauchtwagen	ALFA 156 SW 1.9 JTD 16V P Kfz-Nr: B-AD-7777	11.137,93	11.137,93	16,00
	Fgstrnr: SAR93200004445555			

Der Verkauf des Fahrzeuges erfolgt unter Ausschluss jeglicher Gewährleistung.
Das Fahrzeug bleibt bis zur vollständigen Bezahlung unser Eigentum.
Die Fahrzeugdokumente werden bei Ihrer treuhandverwahren Stelle hinterlegt.

Steuereinführung	Umsatzsteuer	Rechnungspreis
11.137,93	16,00 %	1.782,07

Musterfirma GmbH
Teilstrasse 9 - 10705 München
Stz der Gesellschaft München
Handelsregister HRB 408

Ust-ID-Nr. DE123456789

Fig. 28: Creating an overlay

Text Definitions

When defining a printer model, it is possible to assign predefined set of text data to be used as prefix or suffix data. Text data can be maintained using the maintenance menu function "6". A predefined text can be assigned to any number of printers in the model definition. This helps minimize multiple occurrences of text data used for printing.

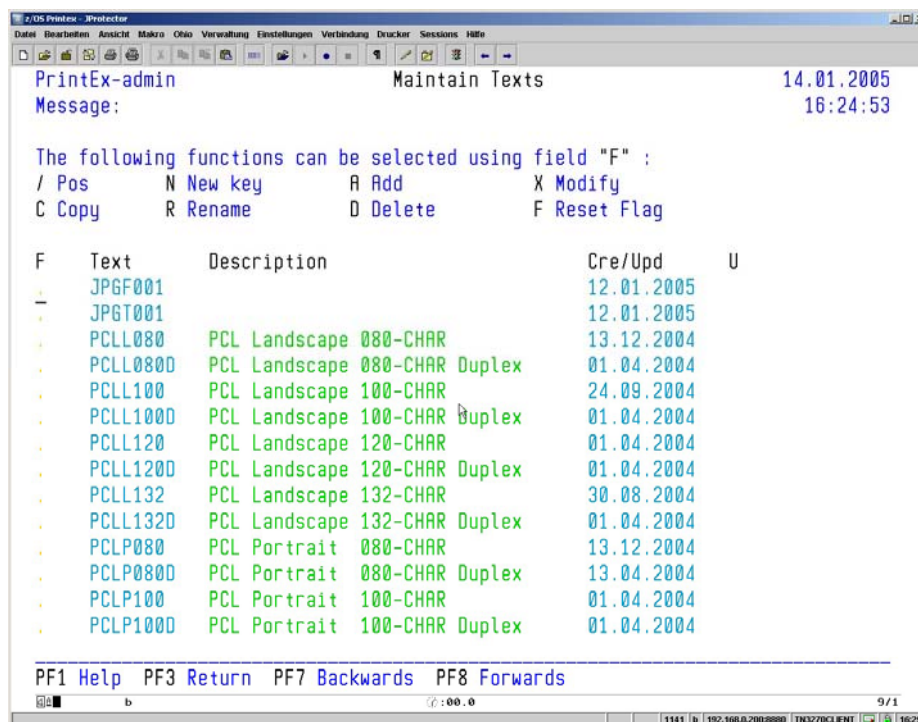


Fig. 29: Maintain Texts

Function Keys

- PF1** Online Help
- PF3** Return to the PrintEx menu.
- PF7** Page backwards in the list. Paging stops at the beginning of the list.
- PF8** Page forwards in the list. Paging stops at the end of the list.

Panel Fields

- Text** Name of the text.
- Description** A description of the text up to 32 characters.
- Cre/Upd** Created or last change date
- U** State of text definition. If 'X' is displayed, the text is currently being edited.

Function Codes

'F' is the function field used to enter one of the function codes listed in the panel header.

/ Pos

Re-display all entries, starting with the entry marked with the slash.

N New Key

Entering 'N' in any function field will let you select a new start position for the list.

A popup panel appears, in which you can enter a new text name to be displayed as the first list entry. This name will be used for a generic search – the list begins with the text name that is either equal or greater than the name entered.

R Rename

By entering 'R' in a function field, the selected text can be re-named in a data entry panel. As additional information, the name that is currently valid is also displayed in the data entry panel. In this panel, a new name for the text can be entered.

The new name must be unique.

D Delete

Entering this function code deletes the text A selected entry is deleted only after pressing the ENTER key as confirmation.

A Add

New entries for Text are made entering the function code 'A' in any function field. Using a data entry panel, the name of the text can be entered for the new text.

The name of the new text must be unique.

C Copy

Entering the function code 'C' will copy an existing text definition to create a new text. Using a data entry panel, the name of the text can be entered for the new text.

The name of the new text must be unique.

F	Reset Flag
----------	-------------------

If a printer text is locked for update (this is indicated by the value 'X' in the display field 'U'), then the function 'F Reset Flag' can be used to unlock the text for editing again. This function should only be used after ensuring that no other user is currently working on the text. Otherwise, if a text is concurrently updated by two or more users, then results will be unpredictable.

X	Modify
----------	---------------

Editing text is done by entering the function 'X' in the function field of the text's entry in the list. This function opens the text editor.

Text Editor

The text editor is available for creating and maintaining text data to be added as prefix or suffix data to the print output. Using the editor, any number of text lines up to 132 characters each can be entered.

The PrintEx installation has prefix and suffix data available for output in PCL, PostScript, and also Adobe PDF.

The following figure shows an example of a text edited using the PrintEx Text-Editor.

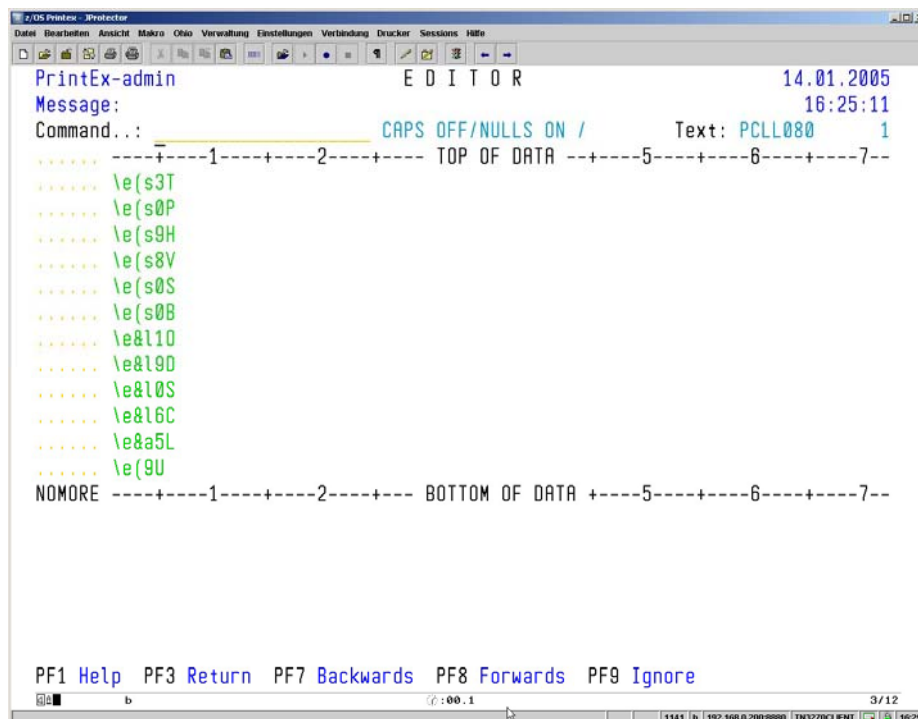


Fig. 30: Text Editor

Function Keys

PF1	Online Help
PF3	Return to the list of text definitions. The text displayed is saved when leaving this panel.
PF7	Page backwards in the text. If the cursor is located on a text line, this text line will be the last displayed on the screen.
PF8	Page forwards in the text. If the cursor is located on a text line, this text line will be the first displayed on the screen.
PF9	Ignore the previous change made to the text.
PF22	Move the view to the left to show column 1 of the text lines.
PF23	Move the view to the right to show column 132 of the text lines.

Panel Fields

Text state Line 3 of the editor displays a field showing the state of the text definition. The following values are possible:

State	Meaning
CAPS ON	Entered characters are converted to uppercase.
CAPS OFF	Entered characters are not converted to uppercase.
NULLS ON	Text lines are initialized with 'Low Values', thus, data can be inserted.
NULLS OFF	Text lines are initialized with 'Blanks', data cannot be inserted.
HEX ON	Text is displayed as hexadecimal characters.
HEX OFF	Text is displayed as printable characters in EBCDI-Code.
Trennzeichen: /	The period sign is considered to be a normal text character.
Trennzeichen: .	The period sign is considered to be a special character.

Fig. 31: Text Editor State

Text Name of the text to edit. Next to this field, the line number of the first text line is displayed.

Description of Entry Fields

The Editor offers three types of input field.

Command field This field is used to enter commands that process the complete text. For example, a command can change the editing mode. Which commands can be entered is described in the table below. The enhancement '+cc' indicates that the command must specify a character sequence, separated by at least one blank. '+n' means that the command can specify a decimal number, separated by at least one blank. '+nn' means that the command must specify a decimal number. Column 'L' indicates the minimum number of command characters to enter in order for the command to be recognized.

Command	L	Meaning
ATTDOT	4	Treat the period sign as special character. This command is required when hexadecimal characters are entered, which cannot be displayed as printable characters in EBCDI-Code. In display mode 'HEX OFF', non-displayable

		characters are displayed as periods, by default.
BOT	1	Show the end of the text.
CANCEL	3	Leave the editor without updating the text.
CAPS OFF	8	Deactivate translating to uppercase.
CAPS ON	7	Activate translating to uppercase.
CDOTS	2	Display command lines as periods.
CLEFT	2	Display command lines at the left.
CNUMBS	2	Display command lines as line numbers.
COLUMN +nn	3	Refresh the display, beginning with specified column.
CRIGHT	2	Display the command lines to the right.
DETDOT	4	Deactivate treating periods as special characters.
DOWN +nn	3	Go down the specified number of lines.
FIND +cc	3	Look downwards from the current position to find the specified string. The text above the current position is not searched.
FINDUP +cc	5	Look upwards from the current position to find the specified string. The text below the current position is not searched.
HEX OFF	7	Reset the text display to the standard mode.
HEX ON	6	Display the text in hexadecimals. The lines of the text are preserved in the display.
LEFT +n	3	Go to the left by the number of columns specified.
LOCATE ++n	1	Locate the text line and display at the top of the display area.
NULLS OFF	9	Use blank characters as fill characters. In this case, text cannot be moved within a line using the 'Insert' key.
NULLS ON	8	Use 'Low Values' as fill characters. This means, text can be moved within the line using the 'Insert' key.
POS +cc	3	Text is searched for from the current position downward to the end of the text. The search does not include the lines above the current position.
POSUP +cc	4	Text is searched for from the current position upward to the top of the text. The search does not include the lines below the current position.
RESET	3	Undo all changes to the text made after the last use of a function key.

RIGHT +n	3	Go to the right by the number of columns specified.
SAVE	3	Save the text as file.
SDL +n	3	Move a text area to the left, beginning with the current column up to the number of columns specified. The text left to the current column is not modified.
SDR +n	3	Move a text area to the right, beginning with the current column up to the number of columns specified. The text left to the current column is not modified.
TOP	1	Go to the top of the text.
UP +n	2	Go up the specified number of lines.

Fig. 32: Text Editor Commands

Text area

The text area is used to enter the text data. Display and edit mode is controlled by the state field. For special functions, reserved character strings are available. These variables are dynamically replaced with runtime values when the print output is processed. The following table describes these variables. In addition, instructions are available and, when used, must begin in **column 1**:

<EDITOR.Textb

The following table describes all variables, which are replaced with runtime values when printing:

Variable	Meaning
&DATE	Current date in the currently defined date format.
&SYST	The system starting the print job. Under PrintEx, this field is set to the name of the XPSDaemon ACBs.
&TIME	Print time

Fig. 33: Text Editor Variables

Please note that the text area occupied by a variable is expanded to the full length of the variable's value. Any text within that area will overwrite the variable's value.

Line command fields Command fields for each text line are used to enter commands for selected lines of text. In the following table describing these commands, the enhancement '+n' means that the command can specify a decimal number. When entered, the decimal number must be either appended to the command without blank, or it must immediately precede the command. A command can be entered at any position within the command line.

Various commands apply to a block of lines within the text area. A line command for a text block is entered on the lines that mark the beginning and the end of the text block. Line commands apply only to the selected text block. The internal stack used for the command Copy/Move can hold up to 16 lines. The contents of the stack are preserved until the user leaves the list of text definitions and exits the text maintenance. Thus, data copied to the stack can be copied to any other text definition. Within a text definition, any number of line commands can be entered for individual text lines. Any command affecting the stack deletes the contents previously copied to the stack and rebuilds the stack. The following table shows the line commands, which are available.

Command	Meaning
/	Redisplay the text area, starting with this line.
A	Insert the contents of the Copy/Move stack after this line.
B	Insert the contents of the Copy/Move stack before this line.
C+n	Copy n lines, beginning with this line, to the Copy/Move stack.
CC	This is either the beginning or the end of the text block to be copied to the Copy/Move stack.
D+n	Delete n lines, beginning with this line.
DD	This is either the beginning or the end of the text block to be deleted.
I+n	Insert n blank lines after this line.
M+n	Move n lines, beginning with this line, to the Copy/Move stack.
MM	This is either the beginning or the end of the text block to be moved to the Copy/Move stack.
R+n	Repeat this line n times.
SL+n	Move n lines, beginning with this line, to the left, beginning with the current column up to the number of columns specified. The text left to the current column is not modified.

SR+n	Move n lines, beginning with this line, to the right, beginning with the current column up to the number of columns specified. The text left to the current column is not modified.
------	---

Fig. 34: Text Editor Line Commands

Code Pages

PrintEx requires country-specific translation tables to convert print data from EBCDIC to ASCII/OEM/ANSI. Per default, the PrintEx installation includes code pages for most of the European countries and for the USA.

Selecting the maintenance function displays a list of the existing code pages.

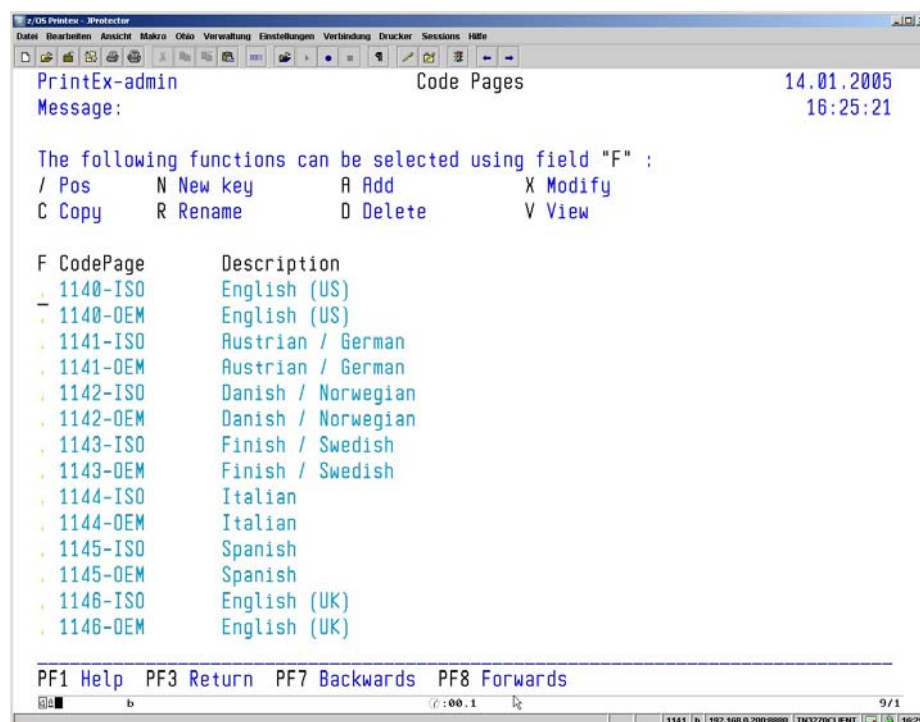


Fig. 35: Code Pages

Function Keys

- PF1** Online Help
- PF3** Return to the PrintEx menu
- PF7** Page backwards in the list. Paging stops at the beginning of the list.

PF8 Page forwards in the list. Paging stops at the end of the list.

Panel Fields

F Function field to enter one of the function codes offered in the panel header.

CodePage Name of the translation table, up to 8 characters in length.

Description Description, up to 20 characters.

Function Codes

'F' is the function field used to enter one of the function codes listed in the panel header.

/ Pos

Re-display all entries, starting with the entry marked with the slash.

N New Key

Entering 'N' in any function field will let you select a new start position for the list.

A popup panel appears, in which you can enter a new name to be displayed as the first list entry. This name will be used for a generic search – the list begins with the name that is either equal or greater than the name entered.

R Rename

By entering 'R' in a function field, the selected entry can be re-named.

As additional information, the name that is currently valid is also displayed in the data entry panel. In this panel, a new name for the code page can be entered. If the name is unique, the selected entry will be re-named.

The name entered can be up to 8 characters in length.

D Delete

Entering the function code 'D' deletes the entry for a code page.

A selected entry is deleted from the list of code pages after pressing the ENTER key. As additional information, the name of the selected code page is displayed in the delete panel.

The following data entry panel is displayed for the other maintenance function codes:

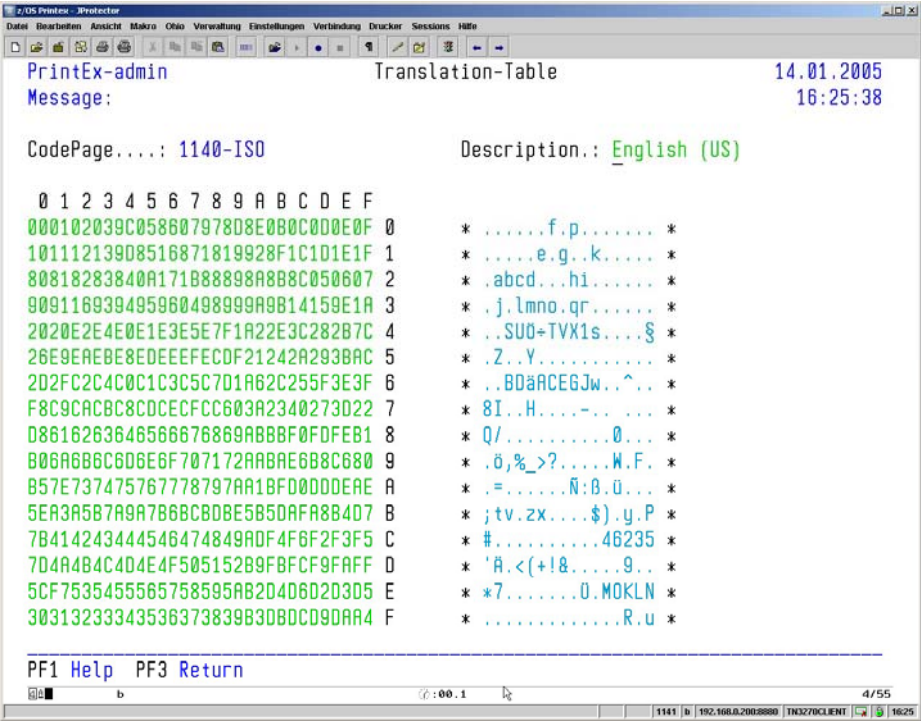


Fig. 36: Add/ Modify / Copy Panel for a Code Page

Function Keys

- PF1** Online Help
- PF3** Return to the list of code pages.

CodePage This field is the key value for the new code page definition. The value in this field must be unique. It is limited to a maximum of 8 characters, only alphanumeric characters are allowed. An **entry** in this field is **mandatory**.

Description This field takes a description of the code page with up to 20 characters..

00-255 Fields to enter the ASCII/OEM/ANSI characters to be used when translating the host-specific EBCDIC character set.

X **Modify**

Using the function code 'X', an existing entry for a code page can be changed. This function displays the data entry panel shown in Figure 36. The fields in this panel show the values currently defined for the printer. Just overwrite to change the value in any field.

C **Copy**

Entering the function code 'C' will copy an existing code page definition to create a new entry.

V View

Entering the function code 'V' displays the definition of the selected code page in the panel illustrated in Figure 36.

System Parameters

When installed, PrintEx sets defaults for various system parameters. Using the maintenance menu function '**A Systemparameters**', these parameters can be modified.

The following panel is used for the maintenance of system parameters in PrintEx::

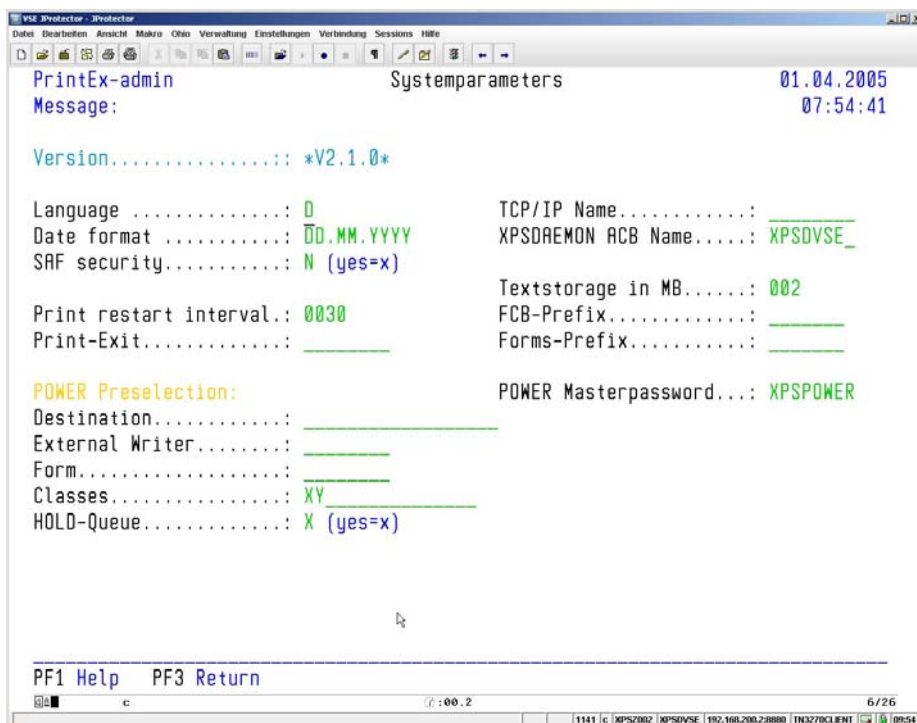


Fig. 37: Maintain System Parameters

Function Keys

PF1 Online Help

PF3 Return to the PrintEx menu.

Panel Fields

Version This field displays the current version number of PrintEx.

Language	<p>Field that specifies the global language code . The entry in this field is used to check whether a message module exists with the name XPSV?SG, the question mark being replaced with the value for the language code. Per default, XPSVDSG is installed (D=German). A change in this field is immediately effective.</p>
Date format	<p>The format for displayed the system date. To specify a blank character, use the paragraph symbol '§'. 'D' stands for a day value, 'M' for month, and 'Y' for year. Each token represents one character. A change in this field is immediately effective.</p>
SAF-Security	<p>A PrintEx administrator logon can be checked by the SAF router. If 'X' is entered in this field, PrintEx will apply a security check. A change in this field is immediately effective.</p>
Print restart interval	<p>If print output arrives for an output destination, which is momentarily busy (for example, a network printer currently used by another application), then PrintEx attempts to deliver the print output again after waiting for the time interval specified in this field. These attempts are repeated until PrintEx can successfully connect to the destination. The time interval specifies the time in seconds. A change in this field is immediately effective.</p>
Print-Exit	<p>PrintEx offers the possibility of modifying the process or the data stream via user exits at particular events. The following exit entry points are implemented:</p> <ul style="list-style-type: none">"1" after reading data from the POWER spool resp. VTAM."2" before PrintEx converts data."3" after PrintEx converts data."4" after building the file name for the destination of type "File"."5" after selecting the destination <p>To activate the user exit, enter the name of the user exit (up to 8 characters) in this field. Exits are described in Chapter 6 - Print-Exit on page 111 of this manual A change in this field is immediately effective.</p>
TCP/IP Name	<p>Job name of the TCP/IP system PrintEx is to be connected to.</p>
XPSDaemon ACB Name	<p>VTAM ACB-Name, under which the PrintEx carrier system XPSDaemon runs.</p>
Textstorage in MB	<p>For performance reasons, PrintEx holds the prefix and suffix data used in storage. This field specifies the storage size to use. If storage is exhausted, text, which has not been used for the longest time, is removed from storage.</p>
FCB-Prefix	<p>To specify a destination dynamically, PrintEx can use the tokens &FCB or &FCBFORM as model name, in both cases the FCB name of the spool file is used as the name of the print model. This field defines the prefix to add to the FCB name in the spool file.</p>

Forms-Prefix	To specify destinations dynamically, PrintEx can use the token &FCBFORM as model name, in which case the FCB name of the spool file is used as the name of the print model. Furthermore, the name of the FORMS is used as additional prefix data. This field defines the prefix to be added to the FNO name in the spool file.
POWER Masterpassword	Damit PrintEx auf alle Listen der POWER LST-Queue zugreifen kann, muss hier das POWER- Masterpassword angegeben werden.
POWER Preselection	<p>PrintEx is connected to the POWER LST-Queue via the PrintEx-SAPI subsystem. When logging on to SAPI, PrintEx can specify a set of preselection criteria, that is, spool lists must meet the preselection criteria to be processed by PrintEx. A preselection can significantly reduce the number POWER requests to PrintEx.</p> <p>Entries can use the wildcard "*" as a placeholder for many characters, and "?" for a single character.</p> <p>A change in this field will be effective after restarting PrintEx.</p>
Destination	This field specifies the destination, only spool files for this destination are sent to PrintEx. A generic entry is possible, for example "TCP*". If this field is empty, the destination is not considered in the preselection.
External Writer	This field specifies the external writer, only spool files using this external writer are sent to PrintEx. A generic entry is possible, for example "TCP*". If this field is empty, the external writer is not considered in the preselection.
Form	This field specifies the form, only spool files using this form are sent to PrintEx. A generic entry is possible, for example "FRM*". If this field is empty, the form is not considered in the preselection.
Classes	This field specifies the class, only spool files using this class are sent to PrintEx. Up to 16 classes can be specified, for example "ABC". If this field is empty, the class is not considered in the preselection.
HOLD-Queue	If 'X' is entered in this field, PrintEx processes print files coming from the HOLD queue.
<SYSP.HOLD	

User Definitions

Users, who want to access to the PrintEx administration, must be defined using the PrintEx maintenance menu function **'B'**. When selected, this menu function displays a list of the defined users.

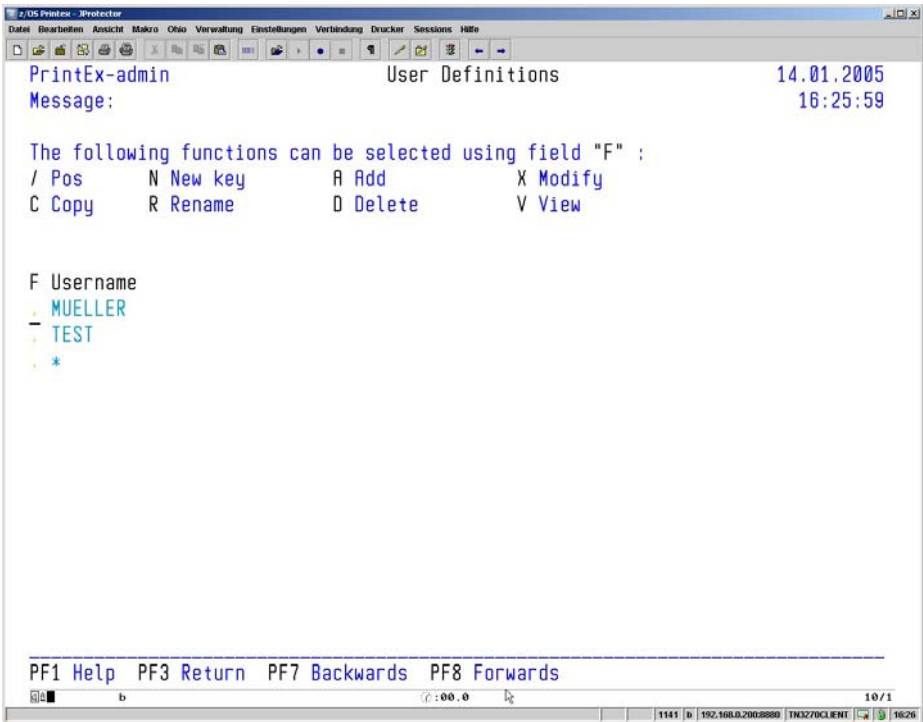


Fig. 38: List of Users

Function Keys

- PF1** Online Help
- PF3** Return to the PrintEx menu.
- PF7** Page backwards in the list. Paging stops at the beginning of the list.
- PF8** Page forwards in the list. Paging stops at the end of the list.

Panel Fields

- F** Function field to enter one of the function codes offered in the panel header.
- Username** User name, up to 20 characters in length.

Function Codes

'F' is the function field used to enter one of the function codes listed in the panel header.

/ **Pos**

Re-display all entries, starting with the entry marked with the slash.

N **New Key**

Entering 'N' in any function field will let you select a new start position for the list.

A popup panel appears, in which you can enter a new name to be displayed as the first list entry. This name will be used for a generic search – the list begins with the name that is either equal or greater than the name entered.

R Rename

By entering 'R' in a function field, the selected user can be re-named.

As additional information, the name that is currently valid is also displayed in the data entry panel. In this panel, a new name for the user can be entered. If the name is unique, the selected user will be re-named.

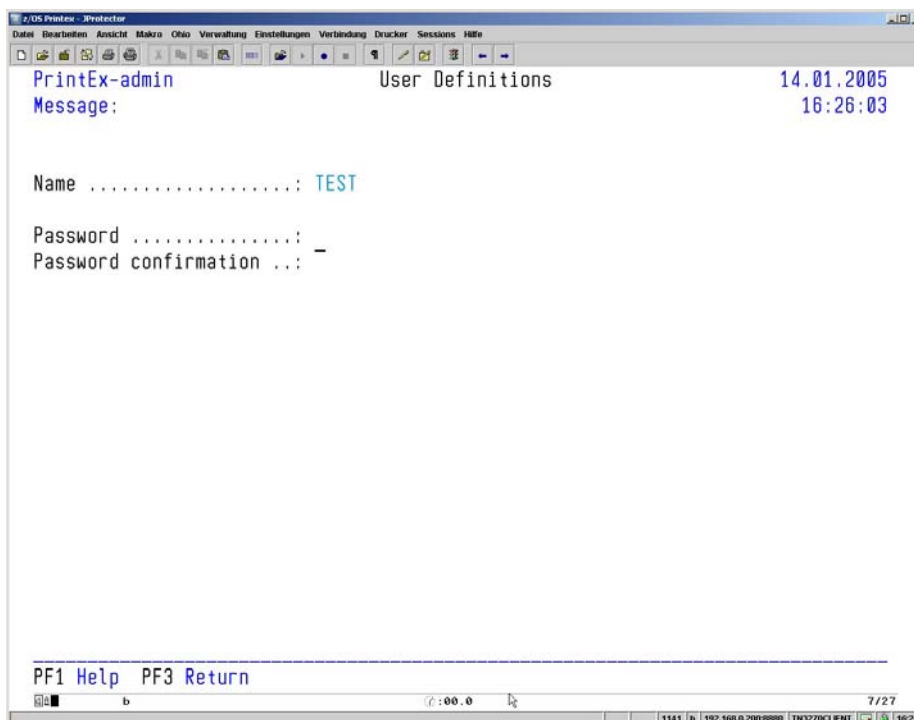
The name can be up to 20 characters long. The name is used together with the password to identify a user when logging on to PrintEx.

D Delete

Entering a function code 'D' deletes the entry for the user.

A selected entry is deleted from the list of users after pressing the ENTER key. As additional information, the name of the selected user is displayed in the delete panel.

The following data entry panel is displayed for the other maintenance function codes:



The screenshot shows a terminal window titled "z/OS PrintEx - JPrintex". The menu bar includes "Datei", "Bearbeiten", "Ansicht", "Makro", "Objekt", "Verwaltung", "Einstellungen", "Verbindung", "Drucker", "Sessions", and "Hilfe". The toolbar contains various icons for file operations and user management. The main display area shows the following text:

```
PrintEx-admin          User Definitions          14.01.2005
Message:               16:26:03

Name .....: TEST
Password .....:
Password confirmation ...: -
```

At the bottom of the window, there is a status bar with the text "PF1 Help PF3 Return" and a small display showing "b", "00.0", and "7/27".

Fig. 39: Add / Modify / Copy Panel for a User Definition

Function Keys

- PF1** Online Help
- PF3** Return to the list of users.

A Add

New users added using the function code 'A'. The data defining user can be entered using the panel above.

Data Entry Fields

Name This field is the key value for the user definition. The value in this field must be unique. It is limited to a maximum of 20 characters, only alphanumeric characters are allowed. The user must enter this name together with the password when logging on to PrintEx.

An **entry** in this field **is mandatory**.

Password Password required for the access to the PrintEx administration. Up to 8 characters can be entered.

Password confirmation Field used to repeat the password as confirmation. The password must be entered in both fields, and must be identical in order to be accepted by the system.

X Modify

Using the function code 'X', an existing entry for a user can be changed. This function displays the data entry panel shown in Figure 39. The fields in this panel show the values currently defined for the user. Just overwrite to change the value in any field..

C Copy

Entering the function code 'C' will copy an existing user definition to create a new user.

V View

The function code 'V' displays the user definition. Changes to the user definition are not possible when using this function.

System Storage Control Table

The predefined settings of the PrintEx installation with respect to storage management can be modified and adapted to the current situation using the online maintenance function. The PrintEx maintenance menu offers the menu function 'C' for this purpose. The following panel is used for storage management:

XPSDREMOM-admin
Message: 14.01.2005 16:27:39

	Storage size	Nbr of Overflows	Overflow Storage
above 16M....:	144640	0	0
below 16M....:	14080	0	0

----- Subpool Summary -----

Subpool	Slot1	Slot#	Nbr bytes	active	maxact	Overfl#	Requests
ACB	128	110	14080	9	9	0	26
RPL/NIB	176	330	58080	13	14	0	19
Event	24	660	15840	35	38	0	547
Terminal	256	110	28160	12	13	0	20
Session	128	110	14080	8	9	0	13
Task	200	55	11000	3	4	0	494
Resource	44	27	1188	0	1	0	748
Security	44	110	4840	3	4	0	8
Interval	48	27	1296	1	2	0	265
LUG.2/APPC	104	50	5200	0	1	0	1

PF1 Help PF3 Return PF5 Chart display PF6 Working Storage

Fig. 40: Storage Control

Function Keys

- PF1** Field-specific online help
- PF3** Return to the list of system parameters.
- PF5** Save the settings.

Data Entry Fields

Number of Terminals	For each printer, PrintEx requires storage for system tables. This field specifies the estimated number of printers to be maintained by PrintEx. On system startup, PrintEx uses this information to calculate the amount of storage to reserve for system tables within the XPSDaemon region/partition. If the actual number of active printers in the XPSDaemon region/partition exceed this number, GETMAIN/GETVIS is used to request for “overflow” storage.
Working storage size	<p>All storage requests by PrintEx are determined by these fields. The amount to be reserved for working storage on system startup must be specified in both fields defining the working storage. The first field specifies the amount in kilobyte, the second field in megabyte. The maximum values allowed are 101376 kilobyte resp. 99 megabyte. The last field in the line displays the size of the working storage in bytes.</p> <p>The working storage defined in the fields 'Working storage size' is divided into subpools with differing slot lengths. The the following data entry fields, it is possible to define slot length and usage percentage of each subpool in the working storage. For this, data can be entered in the fields 'Slot length' and 'Percent'.</p>
Slot Length	This field specifies the length of the subpool slot. A valid entry will be rounded up to a multiple of 8. Entries for the slot length must be entered in ascending sequence. The maximum slot length allowed is 65528. A slot length of 0 is not possible. If a particular subpool is not to be used, then this can be specified by entering 0 in the field 'Percent'.
Percent	An entry in this field determines the size, in percent, of the working storage to be allocated to this pool. All percentages must add up to 100. The entry '0 Percent' is valid and will keep the associated subpool empty.

All other fields display information resulting from the data entry fields described above.

Panel Fields

%(cumul)	This field displays the cumulative percentage reserved for all subpools up to this subpool. This information helps correcting data, for example, when an error is signalled by the message 'M873 Percentage total exceeds 100'.
Nbr slots	The number of slots currently available in the subpool, as determined by the entries in the fields Percent, Slot length, and working storage size.
Nbr bytes	The size of the subpool in bytes, resulting from the current allocation. This size is calculated as 'Slot length' multiplied by 'Nbr slots'.
Byte(cumul)	The cumulative size of all subpools up to this subpool entry, as determined by current definition.

All data entries are checked after the ENTER key is pressed. Please note that the system file XPSVFIL will be updated only after pressing the function key PF5, and only if all entries are considered valid.

The changes to the system file will be effective after restarting PrintEx, and are used to initialize the internal storage management.

To investigate the current settings for subpool sizes and percentages, the running system provides viewing functions which display an overview of the actual storage usage in the PrintEx region/partition. This information can help to optimize the values for the number of terminals, the working storage size, and individual subpool definitions:

The screenshot shows the 'Working Storage Control Table' and a 'Subpool Summary' table. The interface is in German, with a menu bar at the top including 'Datei', 'Bearbeiten', 'Ansicht', 'Makro', 'Objekt', 'Verwaltung', 'Einstellungen', 'Verbindung', 'Drucker', 'Sessions', and 'Hilfe'. The main window displays the following information:

XPSPREMON-admin Working Storage Control Table 14.01.2005
 Message: 16:26:57

Storage.: 20830720 Overflow#: 0 Overflow Storage.: 0

----- Subpool Summary -----

Sp	Slot1	Slot#	Nbr bytes	%	active	maxact	Overfl#	Requests
1	40	12582	503280	3	79	85	0	385
2	136	2467	335512	2	136	137	0	987
3	264	3177	838728	5	32	48	0	375
4	520	967	502840	3	44	48	0	242
5	776	1081	838856	5	6	9	0	310
6	1032	487	502584	3	1	4	0	118
7	1544	869	1341736	8	3	6	0	324
8	2056	489	1005384	6	9	13	0	1856
9	3080	272	837760	5	10	15	0	278
10	4104	367	1506168	9	4	6	0	89
11	6152	218	1341136	8	86	86	0	101
12	10248	130	1332240	8	3	6	0	1474
13	33032	50	1651600	10	22	27	0	1414
14	65528	64	4193792	25	4	4	0	4

PF1 Help PF3 Return PF5 Chart display PF6 System Storage

NUM 1 / 1

1141 192.168.0.200:8880 TNC3270CLIENT 16227

Fig. 41: Storage Maintenance

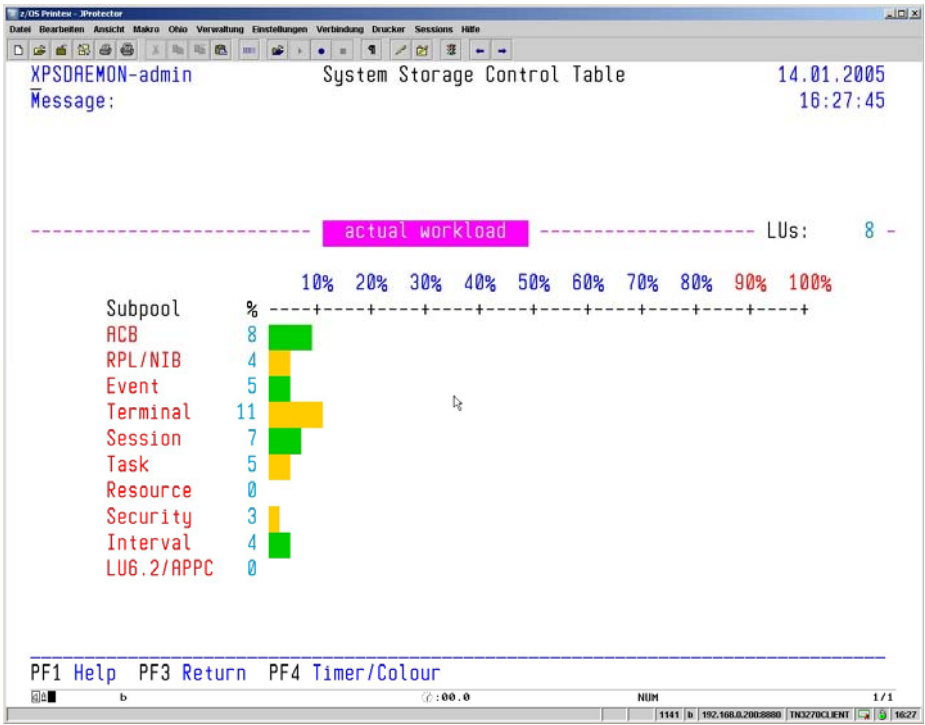


Fig. 42: Storage Maintenance

Spool Maintenance

Using the spool maintenance, print output delivered to an XPS spool can be printed at any time. Besides that, the actual and the maximum usage (high water mark) of the spool file can be displayed.

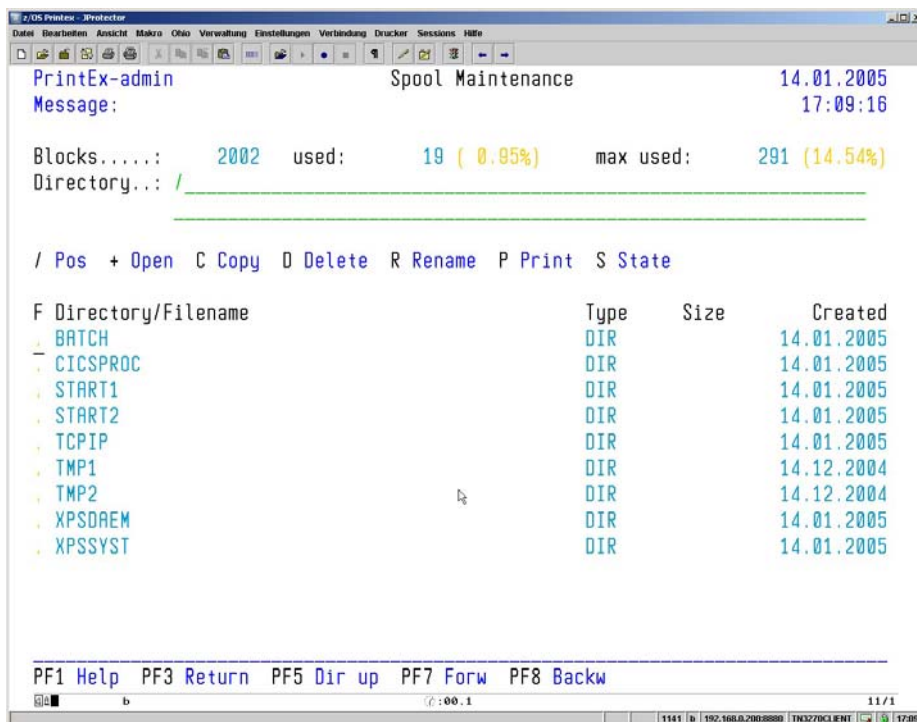


Fig. 43: Spool Maintenance

Function Keys

- | | |
|------------|--|
| PF1 | Online Help |
| PF3 | Return to the previous display (+). After reaching the root directory, return to the PrintEx menu. |
| PF5 | Go up to the next higher directory. |
| PF7 | Page backwards in the list. Paging stops at the beginning of the list. |
| PF8 | Page forwards in the list. Paging stops at the end of the list. |

Panel Fields

- | | |
|---------------|---|
| Blocks | The number of blocks in the XPSPOOL-RRDS-VSAM file. This number is determined by PrintEx. |
|---------------|---|

used	The number of blocks currently used in the XPSPOOL file. A usage percentage of at least 75% will cause messages to be sent to SYSLOG.
max used	The maximum usage detected (high water mark) for the XPSPOOL-file.
Directory	The currently displayed directory in the hierarchical spool file.
F	Function field to enter one of the function codes offered in the panel header.
Directory/Filename	The contents of the currently displayed directory.
Type	Type of the entry. Possible values are DIR (directory) or FILE (file).
Size	For entries of type FILE, this field displays the size of the file.
Created	Date, on which the file or directory was created.

Funktionsauswahl

'F' is the function field used to enter one of the function codes listed in the panel header.

/ Pos

Re-display all entries, starting with the entry marked with the slash.

+ Open

Entering '+' in any function field will display the next lower directory with at least 2 entries, or, if multiple subdirectories do not exist, the lowest level of this directory.

C Copy

Entering the function code 'C' will copy an existing file or directory.

The selected entry is displayed in the data entry panel. In this panel, name of the new file or directory to create can be entered.

R Rename

By entering 'R' in a function field, the selected entry can be re-named. Only files (TYPE=FILE) can be re-named, not directories.

As additional information, the name that is currently valid is also displayed in the data entry panel. In this panel, a new name for the file can be entered.

The file name including the complete file path must not exceed 100 characters.

D Delete

Entering the function code 'D' deletes the selected file or directory.

A selected entry is deleted from the PrintEx spool file after pressing the ENTER key. As additional information, the name of the entry to be deleted is displayed in the delete panel.

P Print

Entering the function code 'P' prints a file, resp. all files of a directory.

After entering 'P', the following panel is displayed:

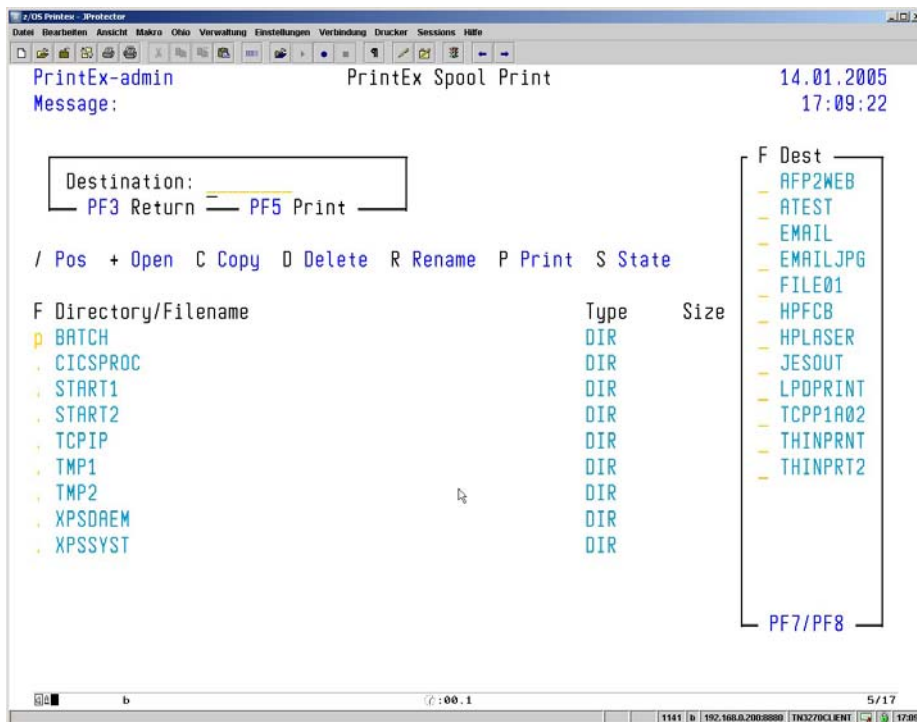


Fig. 44: Spool Maintenance Print

Function Keys

PF1	Online Help
PF3	Return to the spool file display
PF5	Print the selected file or directory at the specified destination.
PF7	Page backwards in the list. Paging stops at the beginning of the list..
PF8	Page forwards in the list. Paging stops at the end of the list

Panel Fields

Destination	Destination, to which to deliver the file(s) to be printed. The destination must be defined as a destination in PrintEx. (Refer to Destinations). The possible destinations are displayed in the panel to the right. Use the function keys PF7/PF8 to page backwards and forwards in the list. To select a destination, enter 'X' in the field next to the entry in the list.
--------------------	---

S State

This field displays the state of the file or directory. The information displayed includes the create date and time, the size of the file, and the storage size after compression. XPS-internal file flags are also displayed.

Stopping the PrintEx Carrier System XPSDaemon

The menu function '**E Shutdown XPSDaemon**' performs a controlled shutdown of the PrintEx carrier system XPSDaemon. The following panel is displayed, when selecting this menu function:

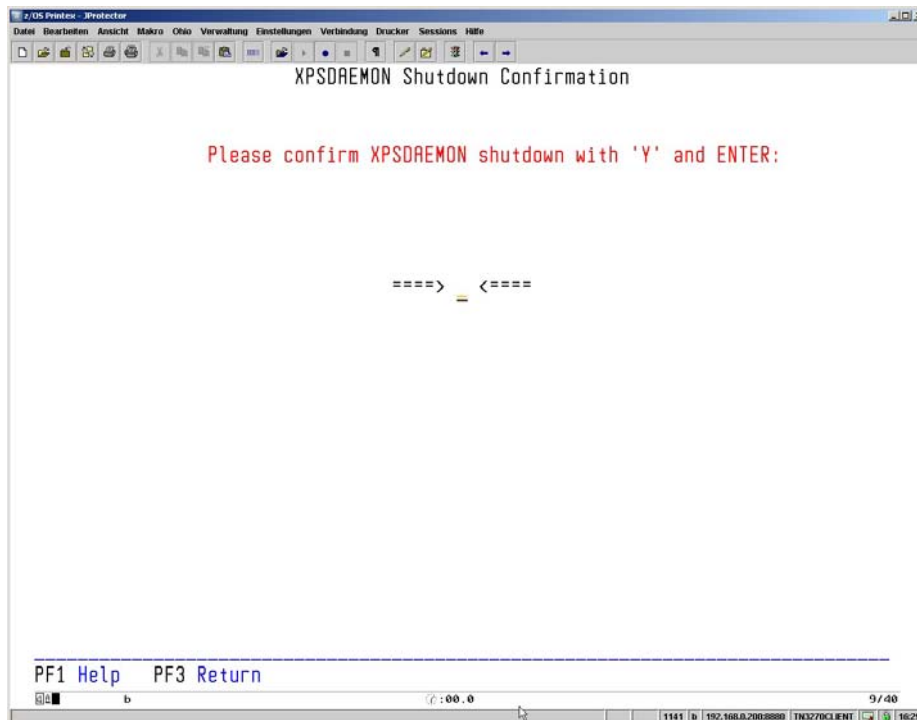


Fig. 45: XPSDaemon Shutdown

The XPSDaemon server is stopped only after entering '**Y**' and pressing the ENTER key.

This function stops the XPSDaemon server, it is then no longer possible to work with XPSDaemon server, resp. with PrintEx.

A protocol of the XPSDaemon shutdown is written to system console, informing about the terminal and the user starting the shutdown.

Batch Maintenance

The Batch Generator

The online functions of PrintEx are complemented by the functionality of the delivered batch generator. The batch generator can be used to create and maintain all necessary entries in the tables used to control PrintEx processes. The batch generator offers functions, which are limited to the batch generator itself, other functions can be used online and in batch.

When using functions, which write to the PrintEx system file, please note that this will only be possible if this file is closed for online access.

Various batch functions are controlled using parameter cards, which must be made available to the batch processor **XPSVTMNT**. Which function to use is specified by an operation code which must be followed by the desired parameters.

Both the operation code and its parameters must be entered within the columns 1 and 72. Each parameter must be separated by either comma or blank, the operation code must be followed by at least one blank character.

For some of the functions, one single card is not sufficient. To signal that input continues on an additional card, a line with a single comma must follow the last parameter on the card. The next card must continue the structure according to its preceding card, whereby the operation code must not be repeated. Parameters, which contain blanks or which have multiple options, must be enclosed in quotes.

One card may have only one operation code.

Examples for calling functions:

LANG D

This card specifies the language code used to select the batch messages to be printed. 'LANG D' specifies that batch messages are taken from the module XPSVDHD. 'LANG E' specifies the module XPSVEHD.

DUMP

This card, which consists only of operation code, lets the batch generator create a formatted printout of the PrintEx dump file.

```
* $$ JOB JNM=XPSVMNT,DISP=D,PRI=3,CLASS=0
* $$ LST CLASS=X
// JOB XPSVMNT
// LIBDEF PHASE,SEARCH=(XPS.DAEMV400)
// DLBL XPSVFILE,'XPS.VTAM.FILE',,VSAM,CAT=VSESPUC
// DLBL XPSVDMP,'XPS.DUMP.FILE',,VSAM,CAT=VSESPUC
// DLBL XPSVTRA,'XPS.TRACE.FILE',,VSAM,CAT=VSESPUC
// ASSGN SYS005,PRINTER
// EXEC XPSVMNT,SIZE=AUTO
... PARAMETERKARTEN
/*
/&
* $$ EOJ
```

Fig. 46: JCL Example of Using the Batch Generator

ADDU – Add Users

Using the function 'ADDU' will add user definitions. The format of the parameter card:

ADDU NAME=name,PSWD=password,PROF=prof

'name'	User identification up to 20 characters. The name specified must be a unique user name. It is possible to specify a generic name by using the character '*'.
'password'	User password, which the user must enter, when logging on to the PrintEx administration system.
'prof'	This parameter specifies the name of the user profile to be associated with the user. In PrintEx, each user must be associated with the profile "ADMIN".

The parameters, which are mandatory, are 'NAME' and 'PROF'.

ADST – Add Destination

The function 'ADST' is used to define destinations. PrintEx currently supports destinations of type: **TCP/IP, POWER LST-Queue, SNA, e-mail and File.**

The parameter card to define a **TCP/IP** destination has the following format:

```
ADST NAME=name,DESC='desc',TYPE=IP,IPADD=ipaddr,  
PORT=port,RESTRT=restrt,  
MODEL='(080,PCLP080),(100,PCLP100),(120,PCLP120),(132,PCLP132)',  
THINPR=X,PAKSIZ=paksiz,BANDW=bandw
```

'name'	<p>This parameter is the destination's key value. The name can be up to 8 characters in length, only alphanumeric characters are allowed.</p> <p>This parameter is mandatory.</p>
'TYPE=IP'	<p>The type of the destination. For TCP/IP destinations, the value must be 'IP'.</p> <p>This parameter is mandatory.</p>
'desc'	<p>A short description of the destination, up to 20 characters in length.</p>
'ipaddr'	<p>The TCP/IP address or the DNS name of the network printer.</p>
'port'	<p>The TCP/IP port of the network printer. For the "direct socket protocol", the port must be 9100. For the LPR/LPD protocol, the port must be 515.</p>
'restrt'	<p>If the connection cannot be established, then PrintEx will wait the number of seconds specified in this field and then, again, try to connect. If the connection cannot be established after the second attempt, then the "Print Restart Interval" defined in the system parameters will determine when PrintEx tries to connect.</p>
'model'	<p>PrintEx converts output data according to predefined models. Each output destination must have at least one model specified. A model defines, for example, which EBCDIC-to-ASCII translation table to use, which prefix or suffix data shall be inserted into the print output, how to handle control characters (page eject, line feed, carriage return, backspace, channels).</p> <p>PrintEx offers facilities that modify print output for PCL printer language, PostScript, and Adobe PDF.</p> <p>A model definition has two fields, which define the maximum width of a listing and name of the model.</p> <p>One output destination can have up to six models assigned. This makes it possible to apply the model, which uses, for example, the font size that fits best for the width of a listing. The complete expression must be enclosed in quotes, each model specified (up to six are possible) must be enclosed in parentheses, within the parentheses, the maximum width of a listing must come as first argument, the name of the model as second argument, and the two arguments must be separated by a comma.</p>

'thinpr'	<p>The parameter "THINPR=X" specifies that print data is to be sent to the above IP address using the ThinPrint protocol.</p> <p>In cooperation with ThinPrint GmbH, Berlin, PrintEx offers the capability of sending mainframe print output to printers via TCP/IP networks using the ThinPrint protocol for compression and bandwidth-optimization.</p> <p>PrintEx operates in this context as "ThinPrint Server Engine Host". Output can be delivered to any ThinPrint ".print" client</p>
'paksiz'	<p>If ThinPrint is used as protocol for transmission, then this field can be used to specify the number of bytes per transmitted packet. If the ThinPrint client dictates a packet size, then the client's packet size is used and the value in this field is ignored. If "0" is entered, the value "64000" is used.</p>
'bandw'	<p>If ThinPrint is used as protocol for transmission, then this field can be used to specify the number of bits per second for the transmission to the ThinPrint client. If the ThinPrint client dictates the bandwidth, then the client's bandwidth is used and the value in this field will be ignored. If "0" is entered, then the complete packet will be sent.</p>
<p>The parameter card used to create POWER destination has the following format:</p> <pre>ADST NAME=name,DESC='desc',TYPE=POWER,DEST=dest, CLASS=class,FORM=fno,FCB=fcb,DISP=disp, MODEL='(080,PCLP080),(100,PCLP100),(120,PCLP120),(132,PCLP132)'</pre>	
'name'	<p>This parameter is the destination's key value. The name can be up to 8 characters in length, only alphanumeric characters are allowed.</p> <p>This parameter is mandatory.</p>
'TYPE=POWER'	<p>The type of the destination. For POWER destinations, the value must be 'POWER'.</p> <p>This parameter is mandatory.</p>
'desc'	<p>A short description of the destination, up to 20 characters in length.</p>
'dest'	<p>This parameter can be used to specify the destination for the output list. If specified, the value is used for the parameter DEST= when writing to SYSOUT.</p>
'class'	<p>This parameter can be used to specify the output class for the output list. If specified, the value is used for the parameter CLASS= when writing to SYSOUT.</p>
'form'	<p>This parameter can be used to specify the form for the output list. If specified, the value is used for the parameter FNO= when writing to SYSOUT.</p>
'fcb'	<p>This parameter can be used to specify the forms control buffer (FCB) for the output list. If specified, the value is used for the parameter FCB= when writing to SYSOUT.</p>

'disp'	This parameter can be used to specify the disposition for the output list. If specified, the value is used for the parameter DISP= when writing to SYSOUT.
'model'	Model, as described above for TCP/IP destinations.

The parameter card to define a **SNA** destination has the following format:

```
ADST NAME=name,DESC='desc',TYPE=SNA,VAPPL=vappl,
MODEL='(080,PCLP080),(100,PCLP100),(120,PCLP120),(132,PCLP132)'
```

'name'	This parameter is the destination's key value. The name can be up to 8 characters in length, only alphanumeric characters are allowed. This parameter is mandatory .
'TYPE=SNA'	The type of the destination. For SNA destinations, the value must be 'SNA' . This parameter is mandatory .
'desc'	A short description of the destination, up to 20 characters in length.
'vappl'	This field can be used to enter the name of a VTAM application. The output will be transformed to a SCS data stream (LUType 1) and delivered to the specified VTAM application. If the VTAM printer is momentarily used by another application (CICS, for example), then the system attempts to automatically acquire the printer. At the end of the print job, the printer will be available to other applications.
'model'	Model, as described above for TCP/IP destinations.

The parameter card to define an **e-mail** destination has the following format:

```
ADST NAME=name,DESC='desc',TYPE=EMAIL,
      SERVER=server,ACNT=acnt,PASSW=passw,
      FROM=from,TO=to,CC=cc,
      SUBJ='subj',BODY='body',
MODEL='(080,PCLP080),(100,PCLP100),(120,PCLP120),(132,PCLP132)'
```

'name'	This parameter is the destination's key value. The name can be up to 8 characters in length, only alphanumeric characters are allowed. This parameter is mandatory .
'TYPE=EMAIL'	The type of the destination. For e-mail destinations, the value must be 'EMAIL' . This parameter is mandatory .
'desc'	A short description of the destination, up to 20 characters in length.
'server'	This field can be used to enter the TCP/IP address or the DNS name of the e-mail server, to which to send the output via SMTP protocol.
'acnt'	A valid user name must be entered in this field if the SMTP server requires authorization.

'passw'	A valid password must be entered in this field if the SMTP server requires authorization.
'from'	The sender's valid e-mail address must be entered in this field.
'to'	The recipient's valid e-mail address must be entered in this field.
'cc'	This field can be used to send the message to more than one recipient. It takes a list of e-mail addresses, each separated with a semi-colon. cc=(carbon copy).
'subj'	This field can be used to enter the subject of the e-mail.
'body'	This field can be used to enter a message text to be passed as body of the e-mail. The print output itself is passed as Adobe PDF attachment..
'model'	Model, as described above for TCP/IP destinations.

The parameter card to define a **file** destination has the following format:

```
ADST NAME=name,DESC='desc',TYPE=FILE, FILENM='filenm',  
      MODEL='(080,PCLP080),(100,PCLP100),(120,PCLP120),(132,PCLP132)'
```

'name'	<p>This parameter is the destination's key value. The name can be up to 8 characters in length, only alphanumeric characters are allowed.</p> <p>This parameter is mandatory.</p>																		
'TYPE=FILE'	<p>The type of the destination. For file destinations, the value must be 'FILE'.</p> <p>This parameter is mandatory</p>																		
'desc'	A short description of the destination, up to 20 characters in length																		
'filenm'	<p>This field accepts up to 128 characters for the file name, under which the output shall be stored as XPS spool file. It is possible to enter the character "/" (Slash) as delimiter for directories.</p> <p>Portions of the file name can also be dynamic by entering the following variables:</p> <table><tr><td>&USERID</td><td>Username of the output (POWER)</td></tr><tr><td>&JOBNAME</td><td>SYSOUT job name of the output (POWER)</td></tr><tr><td>&JOBID</td><td>SYSOUT job ID of the output (POWER)</td></tr><tr><td>&CLASS</td><td>SYSOUT class of the output (POWER)</td></tr><tr><td>&DEST</td><td>SYSOUT destination of the output (POWER)</td></tr><tr><td>&WRITER</td><td>External writer specified for the output (POWER)</td></tr><tr><td>&DATE</td><td>Date of the output (POWER/VTAM)</td></tr><tr><td>&TIME</td><td>Time of the output (POWER/VTAM)</td></tr><tr><td>&VAPPL</td><td>VTAM application of the output (VTAM)</td></tr></table>	&USERID	Username of the output (POWER)	&JOBNAME	SYSOUT job name of the output (POWER)	&JOBID	SYSOUT job ID of the output (POWER)	&CLASS	SYSOUT class of the output (POWER)	&DEST	SYSOUT destination of the output (POWER)	&WRITER	External writer specified for the output (POWER)	&DATE	Date of the output (POWER/VTAM)	&TIME	Time of the output (POWER/VTAM)	&VAPPL	VTAM application of the output (VTAM)
&USERID	Username of the output (POWER)																		
&JOBNAME	SYSOUT job name of the output (POWER)																		
&JOBID	SYSOUT job ID of the output (POWER)																		
&CLASS	SYSOUT class of the output (POWER)																		
&DEST	SYSOUT destination of the output (POWER)																		
&WRITER	External writer specified for the output (POWER)																		
&DATE	Date of the output (POWER/VTAM)																		
&TIME	Time of the output (POWER/VTAM)																		
&VAPPL	VTAM application of the output (VTAM)																		

The following example shows how PrintEx builds a file name:

A file name specified as:

&USERID/&CLASS/&JOBNAME/&JOBID/&FILE

will lead to a real file name:

XPSSYST/A/JOB0010/005998/040901/17.03.2005-09:48:44

'model'

Model, as described above for TCP/IP destinations.

AJPR – Add POWER Printer

The function 'AJPR' is used to define a POWER printer.

The parameter card to define a POWER printer has the following format:

AJPR NAME=name,DESC='desc',STATE=state,SDEST=sdest,SWRIT=swriter,
SFORM=sform,SCLASS=sclass,DISP=disp,SEPS=seps,SEPE=sepe,DEST='dest'

'name' This parameter is the key value for the printer definition. The name can be up to 8 characters in length, only alphanumeric characters are allowed.

This parameter **is mandatory**.

'desc' A short description of the printer, up to 20 characters in length.

'state' This parameter sets the state of the printer. **"STATE=A"** (default) specifies that, after restarting PrintEx, the parameters of this printer are to be considered when selecting a POWER-Printer.

"STATE=D" sets the printer state to "drained", that is, the parameters of this printer are **not** considered when selecting a POWER printer.

POWER selection criteria A POWER-Printer is described in terms of the selection criteria **Destination, Class, Writer, and Form**. Whenever the POWER LST-Queue notifies PrintEx about output into a spool, PrintEx compares these parameters with the POWER printer definitions. To process the print data, PrintEx selects the printer that best matches the selection criteria and delivers the print data to the output destinations defined for this printer.

It is not possible to add a new printer, if another printer with the same selection criteria is already active.

'sdest' The SYSOUT destination.

'sclass' Specifies up to eight SYSOUT classes.

'swriter' Specifies the SYSOUT External-Writer.

'sform' Specifies the SYSOUT form to use.

'disp' This parameter specifies the disposition to set for the POWER spool file after delivering to PrintEx. Possible is a value out of: "DELETE", "HOLD", or "KEEP".

'seps'	This parameter can be used to add separator start pages to the POWER spool file. Default pages, which are available, are the start pages SEP#S01 thru SEP#S05. It is also possible to enter simple commands to create custom separator pages (Refer to Chapter 7 Separator Pages)
'sepe'	This parameter can be used to add separator end pages to the POWER spool file. Default pages, which are available, are the end pages SEP#E01 thru SEP#E05. It is also possible to enter simple commands to create custom separator pages (Refer to Chapter 7 Separator Pages)
'dest'	Up to 10 destinations or pool names can be specified for this printer. Destinations must be defined in the PrintEx maintenance using the menu function "3 - Destinations", pool names must be defined using the menu function "4 - Pool Definitions". Data arriving for this printer will be sent to each destination, resp. to the first available destination in the pool.

ATXT - Add Text

When defining a printer model, it is possible to assign predefined texts to be used as prefix or suffix data. The function "ATXT" is used to maintain text data. A predefined text can be assigned to any number of printers in the model definition. This helps minimize multiple occurrences of text data for printing.

Text data must be 80 characters per line in the XPS.DAEMV400 library with the prefix ".D".

The parameter card to define a text data has the following format:

ATXT MEMBER=member,DESC='desc'

'member'	This parameter is the key value for the text definition. The name must be unique, it can be up to 8 characters in length, only alphanumeric characters are allowed. The text name must exist as member in the XPS.DAEMV400 library with the prefix ".D". This parameter is mandatory .
'desc'	A short description of the text data, up to 20 characters in length.

AVPR - Add VTAM Printer

The function 'AVPR' is used to define a VTAM printer.

The parameter card to define a VTAMP printer has the following format:

AVPR NAME=name,DESC='desc',STATE=state,DEST='dest'

'name'	<p>This parameter is the key value for the printer definition. The name must be unique, it can be up to 8 characters in length, only alphanumeric characters are allowed.</p> <p>The printer name must exist as application definition in the ACF/VTAM network.</p> <p>This parameter is mandatory.</p>
'desc'	A short description of the VTAM printer, up to 20 characters in length
'state'	<p>This parameter sets the state of the VTAM-Printer. "STATE=A" (default) specifies that the printer shall be activated in the ACF/VTAM network - immediately and upon each re-start of PrintEx. Upon activation, the printer will be available to subsystems such as CICS. "STATE=D" will set the printer state to "drained", that is, a printer currently active will be de-activated. After re-starting PrintEx, no further operation will be performed on this printer.</p>
'dest'	<p>Up to 10 destinations or pool names can be specified for this printer, each entry separated by comma.</p> <p>Destinations must be defined in the PrintEx maintenance using the menu function "3 - Destinations", pool names must be defined using the menu function "4 - Pool Definitions".</p> <p>Data arriving for this printer will be sent to each destination, resp. to the first available destination within a pool.</p>

BACK – Creating an XPSVFIL Backup

It is highly recommended to backup the current contents of the PrintEx system file XPSVFIL at regular intervals. This is done using the function 'BACK', which creates backups of XPSVFIL on tape or cassette. The parameter card has the following format:

BACK

CPAG – Load Standard Code Pages

PrintEx requires country-specific translation tables to convert print data from the mainframe format (EBCDIC) to the format required by the network printer (ASCII). Per default, the PrintEx installation includes code pages for most of the western countries. These standard code pages are loaded when PrintEx is started. The function "CPAG" is used to reset to the standard code pages. The standard code pages are located in the member "CODEPAGE.D" in the XPS.DAEMV400 library.

The parameter card to add standard code pages has the following format:

CPAG MEMBER=member

'member' The member name, up to 8 characters in length, only alphanumeric characters are allowed.

 The member must exist in the XPS.DAEMV400 library with the prefix “.D”.

 This parameter **is mandatory**.

DELU – Delete Users

A user can be removed from PrintEx using the function 'DELU'. User definitions can also be maintained using the appropriate online function of the PrintEx transaction.

The DELU parameter card has the following format:

DELU NAME=name

'name' User identification, which has been defined, up to 20 characters in length.

DDST – Delete Destinations

The function 'DDST' is used to remove a destination from PrintEx. The DDST parameter card has the following format:

DDST NAME=name

'name' The identification of the destination, up to 8 characters in length.

DJPR – Delete POWER Printers

The function 'DJPR' is used to remove POWER printer from PrintEx. The DJPR parameter card has the following format:

DJPR NAME=name

'name' The printer identifier, up to 8 characters in length.

DUMP – Print a Formatted PrintEx Dump

The file XPSVDMP is used to secure storage, which has been allocated on the event of a program abend or when a loop condition has been detected. To reduce any performance degradation of the online system, the system dump is formatted only when the dump file is printed.

To create a formatted dump, the following parameter card is used:

DUMP

To ensure that a system dump can be created, the dump file must be closed against online access.

DVPR – Delete VTAM Printers

The function 'DVPR' is used to remove a VTAM printer from PrintEx. The DVPR parameter card has the following format:

DVPR NAME=name

'name' Identifier of the printer, up to 8 characters in length.

FREC – Determining the Number of Free Blocks in XPSVFIL

Using the function 'FREC', the usage of the file XPSVFIL can be evaluated. The result is the number of free blocks in XPSVFIL. A block has the length of 1024 bytes. The parameter card to determine this values has the following format:

FREC

IMOD - Load Standard Models

PrintEx converts output data according to predefined models. Each output destination must have at least one model specified. A model defines, for example, which EBCDIC-to-ASCII translation table to use, which prefix or suffix data shall be inserted into the print output, how to handle control characters (page eject, line feed, carriage return, backspace, channels). PrintEx offers facilities that modify print output for PCL printer language, PostScript, and Adobe PDF. Standard models are loaded, when Print is installed. Using the function "IMOD" will restore the standard models.

The standard models are located in the XPS.DAEMV400 library.

The parameter card to load the standard models has the followin format:

IMOD

INDU – Print a List of User Definitions

The function 'INDU' is used to print a list of users defined in PrintEx, sorted in alphabetically ascending sequence. This list does not display passwords. The parameter card has the following format:

INDU

INIT – Initialization of the System File XPSVFIL

This function is used to initialize the file XPSVFIL. The initialization is only possible, if the file has been previously created using IDCAMS. Any data in the file will be lost during the initialization.

INIT

Besides initializing the data blocks, this function creates an administrator block, which contains the standard values for the PrintEx system parameters.

Special Case:

INIT SYSTEM

If the option SYSTEM is added to the command, only the administrator block will be initialized. As an exception to the general rules, the function 'INIT SYSTEM' requires that the operation code 'INIT' start at position 1 in the parameter card, and that the option 'SYSTEM' be separated by exactly one blank character.

LANG – Set the Language Module for Batch Messages

The function 'LANG' is used to determine, which message module to use for batch messages issued by the batch generator. The module loaded is **XPSV?HD**. The question mark is replaced by the language code specified in the 'LANG' parameter card. The format of the parameter card:

LANG langident

'langident' Single-character language code that identifies the desired XPSDaemon batch message module.

LPAG – Set the Number of Print Lines per Page

This function is used to set the number of print lines per printed page.

LPAG numoflines

'numoflines' The desired number of lines per print page. The default value is 66. The maximum value allowed is 99.

REST - Restore the XPSVFIL Data

The function 'REST' is used to restore the contents of the file XPSVFIL, which were previously backed up using the function 'BACK'. The parameter card has the following format:

REST (SL) (REW) (SYSTEM) OPT=option

'SYSTEM' The PrintEx administrator block is restored, if the the parameter 'OPT' with the option 'REP' is used.

'option'	An option, which can be either 'MER' or 'REP'. 'MER' restores data blocks, which do not exist. 'REP' replaces existing data blocks.
----------	---

SNUP – Open File XPSVFIL for READONLY Access

This function is used to open the file XPSVFIL for read-only access. This mode is required whenever the file has been opened in an online region/partition. If the file is opened using the function 'SNUP', then only those functions of the batch generator can be used, which require read access to the file XPSVFIL. By default, the batch generator opens the file XPSVFIL for update. The parameter card has the following format:

SNUP

SUPD – Open the File XPSVFIL for Write Access

By default, the batch generator opens the file XPSVFIL for update. This is also done using the function 'SUPD'. A parameter card using this function is necessary, if the file has been previously opened by a job in read-only mode. The parameter card has the following format:

SUPD

TRAC – Print the PrintEx Trace File

This function is used to print the PrintEx Trace file. To use the function, the trace file must be closed in the online region/partition. The parameter card has the following format:

TRAC

TROF – Stop the File Access Trace

Using the parameter card with the entry 'TROF' stops logging file access operations during batch processing. of the batch generator. This function is the opposite of the function 'TRON'. The parameter card has the following format:

TROF

TRON – Start the File Access Trace

The function 'TRON' is used to tell the batch generator to start logging all file access operations in the following job. The function 'TROF' stops logging. The parameter card has the following format:

TRON

Print-Exit

Possible Applications

Print-Exit can be used to modify print output before and after the conversion. It is also possible to change the file name when delivering to a destination of type file. An additional exit point can be used to change the destination selected by PrintEx.

An example of using an exit can be found in the installation in the member XPSPRTEX.A in the XPS.DAEMV400 library.

Definition of the Exit

The exit is specified using the field 'Print-Exit' in the maintenance menu System Parameters'.

Execution Time

PrintEx passes control to the exit program before and after the conversion of print data. For destinations of type file, the exit is called after building the file name. Another exit point is possible before transmitting the print job to the destination.

Parameters of the Call Interface

01-01	Execution time '1' After reading the POWER-Spool resp. VTAM '2' Before the PrintEx conversion '3' After the PrintEx conversion '4' After PrintEx builds the file name for the file destination '5' After PrintEx selects the destination
02-04	Reserved
05-12	Printer name
13-20	Session name (VTAM application) for VTAM printers PrintEx internal printer name for POWER printers
21-24	Data address for the functions "1" - "3"
25-28	Length of data for functions "1" - "3"
21-24	Address of original name for the function "4"
25-28	Address new file name for the function "4"
21-24	Address destination name for the function "5"
25-28	Address new destination for the function "5"

If the exit point "1 - After reading the POWER-Spool resp. VTAM" is set, position 21-24 specifies the address of the EDCDIC host data, position 25-28 the length of the data to be passed. If it is required to modify the data, then new storage must be allocated. The host data must be copied to and modified in this storage area. The address and length of this storage area must be passed to PrintEx in the positions 21-24 and . 25-28.

For the exit point "2 - Before the PrintEx conversion", please refer to the notes under exit point "1".

For exit point "3 - After the PrintEx conversion", please refer to the notes under exit point "1". In this case, the data depends on the type of destination and is in ASCII/OEM/ANSI. Furthermore, the data is already converted to the destination's printer language, for example PCL, PostScript or PDF.

If exit point "4 - After PrintEx builds the file name " is used, position 21-24 provides the address of the file definition. Position 25-28 passes the address of the generated file name, and this storage area can be used to create a new file name.

Exit point "5 - After PrintEx selects the destination" provides the address of the PrintEx printer instance at position 21-24. The structure of the data is defined in the member VTMPRTQ.A of the XPS.DAEMV400 library. Position 25-28 provides the address of the PrintEx destination instance. The structure of the data is defined in the member VTMDST.A of the XPS.DAEMV400 library. This address can be used to specify a new/alternative destination instance, to which to send the data.

Separator Pages

Before, resp. after printing POWER spool data, PrintEx separator pages can be added. PrintEx offers convenient separator page routines. Five standard separator start and end pages are available. It is also possible to create custom separator pages using simple instructions. Separator pages must be located in the XPS.DAEMV400 library with the prefix “.D”. The following default separator pages are provided by the PrintEx installation:

Start Separator "SEP#S01":

```

**START*****START*****START*****START*****START*****START*****START*****START*****START*****
*
* JOBID:          STC09530
* JOB NAME:       XPSD400
* USER ID:        XPSDAEM
* SYSOUT CLASS:   Y
* OUTPUT GROUP:   2.1.1
* TITLE:
*
* NAME:
* ROOM:
* BUILDING:
* DEPARTMENT:
* ADDRESS:
*
*
* PRINT TIME:     11:39:36
* PRINT DATE:     2.08.2004
* PRINTER NAME:   U001
* SYSTEM:         SYS1
*
**START*****START*****START*****START*****START*****START*****START*****START*****START*****

      X      XX P P P P P P P P P P S S S S S S S S D D D D D D D D 44      44      00000000      00000000
      XX      XX P P P P P P P P P P S S S S S S S S D D D D D D D D 44      44      0000000000      0000000000
      XX      XX P P      P P S S      S S D D      D D 44      44      00      0000      00      0000
      XX      XX P P      P P S S      S S D D      D D 44      44      00      00 00      00      00 00
      XX      XX P P      P P S S      S S D D      D D 44      44      00      00 00      00      00 00
      XXX      P P P P P P P P P P P P S S S S S S S S D D      D D 44444444444444 00 00      00      00 00      00
      XXX      P P P P P P P P P P P P S S S S S S S S D D      D D 44444444444444 00 00      00      00 00      00
      XX      XX P P      S S S S S S S S D D      D D      44      00 00      00      00 00      00
      XX      XX P P      S S S S S S S S D D      D D      44      0000      00      0000      00
      XX      XX P P      S S      S S D D      D D      44      000      00      000      00
      XX      XX P P      S S S S S S S S S S D D D D D D      44      0000000000      0000000000
      X      XX      XX P P      S S S S S S S S S S D D D D D D      44      00000000      00000000

      S S S S S S S S S S T T T T T T T T T T C C C C C C C C C C 00000000      9999999999      555555555555      3333333333      00000000
      S S S S S S S S S S T T T T T T T T T T C C C C C C C C C C 0000000000      999999999999      555555555555      333333333333      0000000000
      S S      S S      T T      C C      C C      00      0000      99      99      55      33      33      00      0000
      S S      S S      T T      C C      C C      00      00 00      99      99      55      33      33      00      00 00
      S S S      T T      C C      C C      00      00 00      99      99      55      33      33      00      00 00
      S S S S S S S S S S T T      C C      C C      00      00 00      999999999999      5555555555      3333      00      00 00
      S S S S S S S S S S T T      C C      C C      00      00 00      999999999999      5555555555      3333      00      00 00
      S S S      T T      C C      C C      00      00 00      99      99      55      33      33      00      00 00
      S S      S S      T T      C C      C C      0000      00      99      99      55      33      33      0000      00
      S S      S S      T T      C C      C C      000      00      99      99      55      33      33      000      00
      S S S S S S S S S S T T      C C C C C C C C C C C C 0000000000      999999999999      5555555555      333333333333      0000000000
      S S S S S S S S S S T T      C C C C C C C C C C C C 00000000      9999999999      5555555555      3333333333      00000000

```

Start Separator "SEP#S02":

```

      X      XX PPPPPPPPPP SSSSSSSSS DDDDDDD 44      44 00000000 00000000
      XX XX PPPPPPPPPPPP SSSSSSSSSSS DDDDDDD 44      44 0000000000 0000000000
      XX XX PP PP SS SS DD DD 44      44 00 0000 00 00
      XX XX PP PP SSS DD DD 44      44 00 00 00 00 00
      XXX PPPPPPPPPPPP SSSSSSSSS DD DD 444444444444 00 00 00 00 00
      XXX PPPPPPPPPPPP SSSSSSSSS DD DD 444444444444 00 00 00 00 00
      XX XX PP SSS DD DD 44 00 00 00 00 00
      XX XX PP SS DD DD 44 0000 00 0000 00
      XX XX PP SS SS DD DD 44 000 00 000 00
      XX XX PP SSSSSSSSSSS DDDDDDD 44 0000000000 0000000000
      X      XX PP SSSSSSSSS DDDDDDD 44 00000000 00000000

SSSSSSSSS TTTTTTTTTT CCCCCCCCC 00000000 999999999 55555555555 333333333 222222222
SSSSSSSSSSS TTTTTTTTTT CCCCCCCCC 0000000000 99999999999 55555555555 33333333333 22222222222
SS SS TT CC CC 00 0000 99 99 55 33 33 22 22
SS TT CC CC 00 00 99 99 55 33 33 22
SSS TT CC 00 00 99 99 55 33 33 22
SSSSSSSSS TT CC 00 00 99999999999 5555555555 3333 22
SSSSSSSSS TT CC 00 00 99999999999 5555555555 3333 22
SSS TT CC 00 00 99 55 55 33 22
SS TT CC CC 0000 00 99 55 55 33 22
SS SS TT CC CC 000 00 99 55 55 33 22
SSSSSSSSSSS TT CCCCCCCCC 0000000000 99999999999 5555555555 33333333333 22222222222
SSSSSSSSS TT CCCCCCCCC 00000000 999999999 555555555 333333333 22222222222

*Y START SIC09532 XPSD400 LOCAL XPSDAEM 11:40:24 2.08.2004 U001 START Y*
*Y START SIC09532 XPSD400 LOCAL XPSDAEM 11:40:24 2.08.2004 U001 START Y*
*Y START SIC09532 XPSD400 LOCAL XPSDAEM 11:40:24 2.08.2004 U001 START Y*
*Y START SIC09532 XPSD400 LOCAL XPSDAEM 11:40:24 2.08.2004 U001 START Y*
*Y START SIC09532 XPSD400 LOCAL XPSDAEM 11:40:24 2.08.2004 U001 START Y*
*Y START SIC09532 XPSD400 LOCAL XPSDAEM 11:40:24 2.08.2004 U001 START Y*
*Y START SIC09532 XPSD400 LOCAL XPSDAEM 11:40:24 2.08.2004 U001 START Y*
*Y START SIC09532 XPSD400 LOCAL XPSDAEM 11:40:24 2.08.2004 U001 START Y*
```

Start Separator "SEP#S03":

```

      XX XX PPPPP SSSSS DDDDD 44 00000 00000
      XX XX PPPPPP SSSSSSS DDDDD 44 0000000 0000000
      XX XX PP PP SS DD DD 44 44 00 000 00 000
      XXX PPPPPP SSSS DD DD 4444444 00 0 00 00 0 00
      XXX PPPPP SSSS DD DD 4444444 000 00 000 00
      XX XX PP S SS DD DD 44 00 00 00 00
      XX XX PP SSSSSS DD DD 44 0000000 0000000
      XX XX PP SSSSS DDDDD 44 00000 00000

SSSSS TTTTTT CCCCC 00000 99999 66666 11 22222
SSSSSSS TTTTTT CCCCCC 0000000 9999999 6666666 111 2222222
SS TT CC CC 00 000 99 99 66 1111 22 222
SSSS TT CC 00 0 00 999999 666666 11 11 222
SSSS TT CC 000 00 99 6666666 11 22
S SS TT CC CC 00 00 99 66 66 11 22 2
SSSSSSS TT CCCCCC 0000000 9999999 6666666 11111111 2222222
SSSSS TT CCCCC 00000 9999 66666 1111111 2222222

* START LOCAL XPSDAEM 11:52:51 2.08.2004 *
* START LOCAL XPSDAEM 11:52:51 2.08.2004 *
* START LOCAL XPSDAEM 11:52:51 2.08.2004 *
* START LOCAL XPSDAEM 11:52:51 2.08.2004 *
* START LOCAL XPSDAEM 11:52:51 2.08.2004 *
* START LOCAL XPSDAEM 11:52:51 2.08.2004 *
* START LOCAL XPSDAEM 11:52:51 2.08.2004 *
* START LOCAL XPSDAEM 11:52:51 2.08.2004 *
*****
*Y SIC09612 XPSD400 U001 XPSD400 SIC09612 Y*
```

Start Separator "SEP#S04":

```
*****
*      S T A R T                P R I N T E X  V2.1  S T C:  X P S D 4 0 0                S T A R T
*****
*
*      J O B   /   P R I N T E R   I D E N T I F I C A T I O N      !           !           !           !
*
*      !           !           !           !           !           !           !           !
*
*      J O B N A M E:  X P S D 4 0 0   P R I N T E R   N A M E:  U 0 0 1   !   D A T E:   2 . 0 8 . 2 0 0 4   !   D A T E:   2 . 0 8 . 2 0   !   D E S T:
*
*      J O B I D:   S T C 0 9 6 1 6   T C P I P   N A M E:   T C P I P 1 A   !           !           !           !   C L A S S ( E S ) :   Y
*
*      !           !           !           !           !           !           !           !
*
*      !           !           !           !           !           !           !           !
*
*      !           !           !           !           !           !           !           !
*
*      !           !           !           !           !           !           !           !
*****
```

Start Separator "SEP#S05":

```
*****  
*   S T A R T             P R I N T E X V2.1 SIC: XPSD400           S T A R T *  
*****  
*                               !                               !                               !  
*      JOB/PRINTER ID        !    ON-PRINTER       !    ON-READER     !    SELECTION  
*                              !                       !                     !          CRITERIA  
*                              !                       !                     !  
* JOBNAM:                    XPSD400 ! DATE:   2.08.2004 !    2.08.20         ! DEST:  
* JOBID:                      SIC9609 !                !                   ! CLASS(ES): Y  
* PRINTER NAME:               U001    ! TIME:  11:43:20 !    8:43:15        ! WRITER:  
* TCPIP NAME:                 TCP/IPA !                !                   ! FORM:  
*                              !                       !                     !  
*****
```

End Separator "SEP#E01":

```
***END*****END*****END*****END*****END*****END*****END*****END*****END*****
*
* JOBID:          SIC09530
* JOB NAME:       XPSD400
* USER ID:        XPSDAEM
* SYSOUT CLASS:   Y
* OUTPUT GROUP:   2.1.1
* TITLE:
*
* NAME:
* ROOM:
* BUILDING:
* DEPARTMENT:
* ADDRESS:
*
*
* PRINT TIME:     11:39:36
* PRINT DATE:     2.08.2004
* PRINTER NAME:   U001
* SYSTEM:         SYS1
*
***END*****END*****END*****END*****END*****END*****END*****END*****END*****
X      XX  PPPPPPPPPP  SSSSSSSSS  DDDDDDDDD  44      44      00000000  00000000
XX     XX  PPPPPPPPPPPP SSSSSSSSSSS DDDDDDDDD  44      44      0000000000  0000000000
XX     XX  PP      PP  SS      SS  DD      DD  44      44      00      0000  00      0000
XX     XX  PP      PP  SS      SS  DD      DD  44      44      00      00  00  00      00  00
XX     XXX  PPPPPPPPPPPP SSSSSSSSS  DD      DD  44444444444444  00  00      00  00      00  00
XX     XXX  PPPPPPPPPPPP SSSSSSSSS  DD      DD  44444444444444  00  00      00  00      00  00
XX     XX  XX  PP      SS      SS  DD      DD      44  00  00      00  00      00  00
XX     XX  XX  PP      SS      SS  DD      DD      44  0000      00  0000      00
XX     XX  XX  PP      SS      SS  DD      DD      44  000      00  000      00
XX     XX  XX  PP      SSSSSSSSSSS DDDDDDDDD  44      0000000000  0000000000
X      X      XX  PP      SSSSSSSSS  DDDDDDDDD  44      00000000      00000000

SSSSSSSSSS  TTTTTTTTTTTT  CCCCCCCCCC  00000000  9999999999  555555555555  3333333333  00000000
SSSSSSSSSSSS  TTTTTTTTTTTT  CCCCCCCCCCCC  0000000000  999999999999  555555555555  333333333333  0000000000
SS      SS      TT      CC      CC  00      0000  99      99  55      33      33  00      0000
SS      TT      CC      CC  00      00  00  99      99  55      33      33  00      00  00
SSS      TT      CC      00      00  00  99      99  55      33      33  00      00  00
SSSSSSSSSS  TT      CC      00      00  00  999999999999  5555555555  3333      00      00  00
SSSSSSSSSS  TT      CC      00      00  00  999999999999  5555555555  3333      00      00  00
SSS      TT      CC      00      00  00      99      55      33      33  00      00  00
SS      TT      CC      CC  0000      00      99      55      33      33  0000      00
SS      SS      TT      CC      CC  000      00  99      99  55      55  33      33  000      00
SSSSSSSSSSSS  TT      CCCCCCCCCCCC  0000000000  999999999999  5555555555  333333333333  0000000000
SSSSSSSSSS  TT      CCCCCCCCCC  00000000  9999999999  555555555  3333333333  00000000  E
```

End Separator "SEP#E02":

```

      X      XX P P P P P P P P P P S S S S S S S S S S D D D D D D D D 44      44      00000000      00000000
      XX      XX P P P P P P P P P P S S S S S S S S S S D D D D D D D D 44      44      0000000000      0000000000
      XX      XX PP      PP SS      SS DD      DD 44      44 00      0000      00      0000
      XX      XX PP      PP SSS      DD      DD 44      44 00      00 00      00      00 00
      XXX      P P P P P P P P P P S S S S S S S S S S DD      DD 44444444444444 00 00      00 00      00 00
      XXX      P P P P P P P P P P S S S S S S S S S S DD      DD 44444444444444 00 00      00 00      00 00
      XX      XX PP      SSS DD      DD      44 00 00      00 00      00 00
      XX      XX PP      SS DD      DD      44 0000      00 0000      00
      XX      XX PP      SS      SS DD      DD      44 000      00 000      00
      XX      XX PP      S S S S S S S S S S D D D D D D D D      44      0000000000      0000000000
      X      XX PP      S S S S S S S S S S D D D D D D D D      44      00000000      00000000

      S S S S S S S S S S T T T T T T T T T T C C C C C C C C C C 00000000      9999999999      555555555555      3333333333      2222222222
      S S S S S S S S S S T T T T T T T T T T C C C C C C C C C C 0000000000      999999999999      555555555555      3333333333      2222222222
      SS      SS      TT      CC      CC      00      0000      99      99      55      33      33      22      22
      SS      SS      TT      CC      CC      00      00 00      99      99      55      33      33      22
      SSS      SS      TT      CC      00      00 00      99      99      55      33      33      22
      S S S S S S S S S S TT      CC      00      00 00      999999999999      5555555555      3333      22
      S S S S S S S S S S TT      CC      00      00 00      999999999999      5555555555      3333      22
      SSS      SS      TT      CC      00      00 00      99      99      55      33      33      22
      SS      SS      TT      CC      CC      0000      00      99      99      55      33      33      22
      SS      SS      TT      CC      CC      000      00      99      99      55      33      33      22
      S S S S S S S S S S TT      C C C C C C C C C C 0000000000      999999999999      5555555555      3333333333      2222222222
      S S S S S S S S S S TT      C C C C C C C C C C 00000000      9999999999      5555555555      3333333333      2222222222

*Y END      STC09532 XPSD400 LOCAL      11:40:24 2.08.2004 U001
*Y END      STC09532 XPSD400 LOCAL      11:40:24 2.08.2004 U001
*Y END      STC09532 XPSD400 LOCAL      11:40:24 2.08.2004 U001
*Y END      STC09532 XPSD400 LOCAL      11:40:24 2.08.2004 U001
*****
*      END      P R I N T E X V2.1      END      *
*****
```

End Separator "SEP#E03":

```

      XX      XX P P P P P P S S S S S S D D D D D D 44      00000      00000
      XX      XX P P P P P P S S S S S S D D D D D D 44      0000000      0000000
      XX      XX PP      PP SS      DD      DD 44 44      00 000      00 000
      XXX      P P P P P P S S S S S S DD      DD 44444444      00 0 00      00 0 00
      XXX      P P P P P P S S S S S S DD      DD 44444444      000 00 000      00
      XX      XX PP      S      SS DD      DD      44      00 00 00      00
      XX      XX PP      S S S S S S S S S S DD      DD      44      0000000      0000000
      XX      XX PP      S S S S S S S S S S D D D D D D      44      00000      00000

      S S S S S S T T T T T T C C C C C C 00000      99999      66666      11      22222
      S S S S S S T T T T T T C C C C C C 00000000      9999999      6666666      111      2222222
      SS      TT      CC      CC      00 000      99      99      66      1111      22 222
      SSSS      TT      CC      00 0 00      9999999      6666666      11 11      222
      SSSS      TT      CC      000 00      99      6666666      11      22
      S      SS      TT      CC      CC      00 00      99      66 66      11      22 2
      S S S S S S TT      C C C C C C 00000000      9999999      6666666      11111111      2222222
      S S S S S S TT      C C C C C C 00000      9999      66666      11111111      2222222

* END      LOCAL      XPSDAEM      11:52:51 2.08.2004      *
* END      LOCAL      XPSDAEM      11:52:51 2.08.2004      *
* END      LOCAL      XPSDAEM      11:52:51 2.08.2004      *
* END      LOCAL      XPSDAEM      11:52:51 2.08.2004      *
* END      LOCAL      XPSDAEM      11:52:51 2.08.2004      *
* END      LOCAL      XPSDAEM      11:52:51 2.08.2004      *
* END      LOCAL      XPSDAEM      11:52:51 2.08.2004      *
* END      LOCAL      XPSDAEM      11:52:51 2.08.2004      *
*****
*Y STC09612 XPSD400 U001      XPSD400 STC09612 Y*
*****
* END      P R I N T E X V2.1      END      *
*****
```

End Separator "SEP#E04":

```
*****
*                               !                               !
*      JOB / PRINTER IDENTIFICATION      !      OFF-PRINTER      !
*                               !                               !
* JOBNAM: XPSD400  PRINTER NAME: U001      !      DATE:  2.08.2004      !
* JOBID:  STC09616  TCPIP NAME:  TCPIP1A      !                               !
*                               !      TIME: 11:43:01      !
*                               !                               !
*****
*      E N D                               P R I N T E X  V2.1  STC: XPSD400                               E N D
*****
```

End Separator "SEP#E05":

```
*****
*                               !                               !
*      JOB/PRINTER ID      !      OFF-PRINTER      !
*                               !                               !
* JOBNAM:      XPSD400      ! DATE:  2.08.2004      !
* JOBID:      STC09609      !                               !
* PRINTER NAME:  U001      ! TIME: 11:43:20      !
* TCPIP NAME:   TCPIP1A      !                               !
*                               !                               !
*****
*      E N D                               P R I N T E X  V2.1  STC: XPSD400                               E N D  *
*****
```

The default separator pages can be modified by the system administrator. Any number of new separator pages can be created. The following commands, or variables, are available:

Variable	Description
#BIG	All caps 12-lines
#BIGITALIC	All caps 12-lines, italic
#SMALL	Characters 8-lines
#SMALLITALIC	Characters 8-lines, italic
#HALF	Characters 6-lines
#HALFITALIC	Characters 6-lines, italic
&NP	New page
&NL	New line
&2L	Eject 2 lines
&3L	Eject 3 lines
&JOBID	Job ID
&JOBNAME	Job name

&USERID	User ID
&CLASS	SYSOUT class
&GROUP	SYSOUT group
&DEST	Destination
&WRITER	External Writer
&FORM	Form
&FCB	FCB
&STEP	Step name
&PROG	Program name
&SYSTEM	Subsystem name
&ADDR#1	MAILFROM=
&ADDR#2	MAILTO=
&ADDR#3	MAILCC=
&BUILD	Build the OUTPUT statement: BUILDING='BUILDING #1'
&DEPT	Department of OUTPUT statements: DEPT='DEPART-#1'
&NAME	Name of OUTPUT statements: NAME='HANS MUSTER'
&ROOM	Room of OUTPUT statements: ROOM='ROOM#4'
&TITLE	TITLE=
&UDATA	UDATA=
&TIME	Print time
&DATE	Print date
&PRINTER	PrintEx printer name
&SDEST	PrintEx Selection-Destination
&SCLASS	PrintEx Selection-Class
&SWRITER	PrintEx Selection-Writer
&SFORM	PrintEx Selection-Form

&STCNAME	Started-Class Name
&JOBTIME	Job time
&JOBDATE	Job date
&TCPIP	TCPIP name
&LINES	Number of print lines
&PAGES	Number of print pages
<n>	Position to column n
(n)	Repeat the following character sequence n-times

A few examples of defining a 'BIG-Character' is give below:

#BIG.&JOBNAME

#BIGITALIC."TEST"

#SMALL.&JOBID

Using the character '*' in position 1, comments can be added. A definition, which is longer than one line, must be indicated by the continuation character 'X' in column 72.

The Problem

A bottleneck in the bandwidth is a frequently encountered problem in computer networks. Although bandwidths have increased significantly in the last years, it is always recommended to optimize the use of network communication with respect to amount of data transferred.

Above all, this is a major concern when processing print jobs. Because of the fact that the network load resulting from the transfer of print data is not always apparent, this topic deserves special awareness.

The same applies to processing print jobs using the mainframe computer. Because of the advantages they offer and, as a result, the important role that they play in modern networks, mainframe computers are often used as printing platforms of central strategic importance.

ThinPrint Server Engine Host

During the development of PrintEx, there has been an early recognition of the problem described above.

As a solution resulting from the cooperation with ThinPrint GmbH, Berlin, the ThinPrint Server Engine Host has been developed. This optional component to PrintEx provides the patented .print technology of ThinPrint GmbH, thus providing bandwidth optimization and print data compression to IBM mainframes.

The Functionality

The ThinPrint .print technology is based on the communication between a server and client component.

The server component negotiates with the client the maximum available bandwidth use possible and then transfers incoming print data in compressed form.

The client component de-compresses the received print data and then initiates the print process. The client component can be implemented as software program or as hardware.

Use of the ThinPrint technology in PrintEx is specified in the definition of print job destinations.

The specification includes use of the ThinPrint protocol, the packet size, the desired maximum bandwidth.

When print data arrives for a destination using ThinPrint, PrintEx connects to the specified IP address and continues processing as described above.

Summary

By consequently embedding the ThinPrint .print technology in modern network printing components, print processes can be optimized in server-based computing up to the output devices within the network.

Besides strategically minimizing the load on the network infrastructure, benefits are also gained by facilitating administration tasks and reducing hardware costs.

Using the optional ThinPrint Server Engine Host under PrintEx includes the IBM mainframe in the optimization of print processing.

For additional information on the .print technology, please refer to the Internet site of der ThinPrint GmbH, Berlin at the URL <http://www.ThinPrint.com>.

A

Messages

BBIE MISSING PARAMETERS

Description: Parameter cards are missing for the function being called.

Action: Correct the entries in the parameter card and rerun XPSVTMNT.

BB01 FUNCTION ##### NOT KNOWN

Description: A parameter card selects a function, which is not known.

Action: Correct the entries in the parameter card and rerun XPSVTMNT.

BB02 NUMBER OF LINES MISSING OR NOT NUMERIC

Description: The number specified in the parameter LPAG is incorrect. The default value 66 lines is used.

Action: If a line number other than the default 66 is desired, then correct the entries in the LPAG parameter card and rerun XPSVTMNT.

BB03 PARAMETER INFORMATION TOO LONG

Description: The information entered for the parameter exceeds the maximum allowable length.

Action: Correct the entries in the parameter card and rerun XPSVTMNT

BB04 PARAMETER NOT KNOWN

Description: A selected parameter is not known.

Action: Correct the parameter and rerun XPSVTMNT.

BB10 NUMBER HAS MORE THAN 7 DIGITS

Description: The number has too many digits.

Action: Correct the number entered and rerun XPSVTMNT.

BB11 PARAMETER IS NOT A NUMBER

Description: The parameter expected should be a number.

Action: Correct the parameter and rerun XPSVTMNT

BB12 TOO MANY PARAMETERS SPECIFIED

Description: Too many parameters have been entered.

Action: Correct the parameters and rerun XPSVTMNT

BB16 INVALID OPTION SPECIFIED

Description: The option specified is not valid for the parameter.

Action: Correct the parameter option and rerun XPSVTMNT.

BI01 FILE TOO SMALL (LESS THAN 10 RECORDS)

Description: The file to create is too small.

Action: Make the file larger and rerun XPSVTMNT.

BI02 FILE TOO LARGE FOR STORAGE CONTROL

Description: The new file to be created is too large.

Action: Make the file smaller and rerun XPSVTMNT.

BK01 TAPE HAS AN INVALID BACKUP FORMAT

Description: The tape or cassette entered has an invalid format.

Action: Use a valid PrintEx backup tape and rerun the Restore operation.

H999	INFORMATION ##### NOT IN BATCH MESSAGE TABLE Description: An error occurred, for which a message cannot be found in the PrintEx message table. Action: Please note the error number and notify your XPS sales representative.
MA01	Field is not numeric Description: The entry expected should be numeric. Action: Correct the entry and rerun the function.
MA02	Field is not hexadecimal Description: The entry expected should be numeric. Action: Correct the entry and rerun the function.
MA03	Language does not exist Description: There is no message module available for the language code entered. Action: Correct the entry and rerun the function. The default message module installed is XPSVDSG.
MS01	The logon data is not correct => A signon is rejected! Description: The data entered in the PrintEx logon panel is not correct. If the PrintEx security mechanism uses an external system, then the message pair BVS1/BVS2 is issued to the system console. Action: Enter correct data and try to log on again.
MS03	The new and the old passwords are identical! Description: Both entries for the new and the old password are identical. Action: Repeat the logon to PrintEx.
MS04	Confirmation of the new password is missing! Description: A confirmation of the new password by the user is missing. Action: Repeat the logon to PrintEx.

MS05 The new password and the confirmation are not identical!

Description: The new password and the confirmation are not identical.

Action: Repeat the logon to PrintEx.

MS07 A password must be entered for logon

Description: A user must enter password to log on to PrintEx. This message is issued when the logon is performed using the option 'USERID' in the Logon parameter 'DATA'. It is not possible to specify a password when logging on with the option 'USERID'.

Action: Retry to log on by using the PrintEx logon panel. If the logon is required by using the option 'USERID', then change the user definition to have no password.

MS10 An entry for a new password is missing

Description: When logging on to PrintEx, the user did not enter a new password, although the system has notified that the current password is no longer valid.

Action: Enter a new password and confirm the entry in the PrintEx logon panel, or cancel the action by pressing the 'DELETE' key.

MS12 The password is no longer valid

Description: When logging on to PrintEx, the system detects that the validity period of the password has expired.

Action: Enter a new password and confirm the entry in the PrintEx logon panel, or cancel the action by pressing the 'DELETE' key.

MS13 The new password is not valid

Description: The user password entered when logging on to PrintEx has been rejected as invalid by an external security system.

Action: Enter the password conforming to the rules of the installation and repeat the logon.

M602 Please enter the new name

Description: PrintEx expects a new name in order to rename the entry.

Action: Please enter the new name.

M603 Confirm the delete by pressing ENTER

Description: An attempt has been made to delete an entry.

Action: Confirm the delete action by pressing ENTER or cancel the action by pressing any other function key.

M606	Paging forward is no longer possible Description: The end of the list has been reached. Action: No other action is required.
M607	Paging backward is no longer possible Description: The top of the list has been reached. Action: No other action is required.
M702	The user name entered is incorrect Description: An attempt has been made to create a new entry for a user. The new name entered for the user is incorrect. Action: Repeat the action using a valid user name.
M703	The password entered is incorrect Description: The password entered is incorrect Action: Repeat the action using a valid password.
M705	No message module available for the language code Description: For the language code entered, no message module can be found. Action: Change the entry for the language code and repeat the last action.
M710	Incorrect entry Description: The entry made is incorrect. Action: Correct the entry and repeat the function.
M713	Confirmation of the password is missing Description: The password must be repeated in the field 'Confirmation'. Action: Enter the password in both required fields and repeat the function.

M714 Password and Confirmation are not identical

Description: The passwords entered in Password and Confirmation are not identical.

Action: Enter the same password in both fields and repeat the function.

M785 The entry is incorrect, only 'X' is valid

Description: A field to set a flag has a entry other than 'X'. 'X' is the only valid entry for a flag.

Action: Correct the entry and repeat the function.

M862 The entry has blank characters

Description: The data entered has blank characters.

Action: Remove the blanks and repeat the function.

M870 Slot length is already defined

Description: When defining slot lengths of the PrintEx working storage, a value (rounded up to a multiple of 8) is specified more than once.

Action: Correct the entry.

M871 Slot lengths are not in ascending sequence

Description: When defining slot lengths of the PrintEx working storage, a value exists, which is less than the value of at least one slot with a lower slot number in the slot pool.

Action: Correct the entry.

M872 Slot length 0 is not valid

Description: In the definition of slot lengths for the PrintEx working storage, the value 0 has been entered.

Action: Correct the entry.

M873 Percentage total exceeds 100

Description: The percentages of the individual subpools of the PrintEx working storage sum up to a total of more than 100.

Action: Correct the entries for percentages to reach the total of 100.

M874	Value entered is too large: the maximum value = 101376 Description: In the definition of the working storage size, an entry was made for the size in kilobyte, which exceeds the maximum value 101376K (99M). Action: Correct the entry.
M875	Value entered is too large: the maximum value = 32760 Description: In the definition of the working storage size, an entry was made for the size of a slot, which exceeds the maximum value 65528. Action: Correct the entry.
M876	The total of percentages is not 100 Description: The percentages entered for individual subpools of the PrintEx working storage sum up to a total of less than 100. Action: Corrent the percentages to reach the total of 100.
M878	Storage definitions are saved Description: The current settings for the internal storage control of PrintEx has been saved in the system file XPSVFIL. The current settings will be effective and used to initialize the storage management the next time PrintEx is started. Action: No Action is required.
NODC	Wrong entry for the decimal sign Description: The decimal sign is missing in a field that expects a decimal number. Action: Enter the decimal sign and repeat the action.
NOHX	Wrong entry for hexadecimal characters Description: An entry, which is not a valid hexadecimal character, has been made in a field that expects hexadecimal characters. Action: Enter valid hexadecimal characters and repeate the action.
VREA	Error when reading the file Description: When reading the file, an error occurred. Action: Open the file.

VREU Error when reading for update

Description: When reading the file, an error occurred.

Action: Open the file.

VRWR Error when writing back to file

Description: When writing to the file, an error occurred.

Action: Open the file.

VUPD Error on Update

Description: When updating the file, an error occurred.

Action: Open the file.

V001 PARAMETER INFORMATION '####' INVALID

Description: The entry for the PrintEx startup parameter is invalid.

Action: Correct the parameter and repeat the PrintEx Startup.

V002 OPTION '####' FOR PARAMETER '####' UNKNOWN

Description: An entry for a PrintEx startup option is not valid.

Action: Correct the parameter and repeat the PrintEx Startup.

V003 PARAMETER '####' UNKNOWN

Description: The PrintEx startup parameter entered is not known.

Action: Correct the parameter and repeat the PrintEx Startup.

V004 XPSDaemon OPEN ERROR: '#####' RC=####

Description: The XPSDaemon application cannot be opened.

Action: Activate the XPSDaemon application (V NET,ACT,ID=XPSDaemon).

V006 XPSDaemon START ERROR: R15=## FB=#####

Description: The XPSDaemon servers cannot be started.

Action: Internal failure. Please notify your XPS sales representative.

V007 XPSDaemon RC00 RPL ERROR: FB=##### SNS=#####

Description: An error occurred when performing a VTAM command.

Action: Internal failure. Please notify your XPS sales representative.

V008 XPSDaemon GENCB ERROR: R15=## R0=##

Description: An error occurred when creating a control block.

Action: Internal failure. Please notify your XPS sales representative.

V009 GETMAIN ERROR: R15=## RTE=#####

Description: An error occurred when requesting dynamic storage.

Action: Increase the PrintEx region/partition.

V010 FREEMAIN ERROR: R15=##

Description: An error occurred when releasing dynamic storage.

Action: Internal failure. Please notify your XPS sales representative.

V011 XPSDaemon VSAM ERROR RC=##### DATEI=#####

Description: An error occurred when performing a VSAM command.

Action: Internal failure. Please notify your XPS sales representative.

V029 XPSDaemon STORAGE PARAMETER = 0

Description: The PrintEx Storage Control Programm has been called without parameter list.

Action: Internal failure. Please notify your XPS sales representative.

V035 XPSDaemon DUMPFIL FULL ==> DUMP TERMINATED

Description: When writing the PrintEx Dump, the end of the dump file has been reached.

Action: Close the PrintEx dump file and, if the existing dumps need to be saved, print the data. After that re-open the dump file. If the terminated dump is needed, try to repeat the dump.

V057 XPSDaemon NOT APF-AUTHORIZED

Description: On startup of XPSDaemon, the system detects that XPSDaemon must run as APF-authorized application. The XPSDaemon startup, however, was not performed using a loadlib authorized by APF.

Action: Authorize the XPSDaemon loadlib in APF and rerun the startup.

V060 XPSDaemon KCPENQ: RESOURCE ALREADY LOCKED

Description: An attempt has been made to lock a resource, which was already locked.

Action: Internal failure. Please notify your XPS sales representative.

V061 XPSDaemon KCPDEQ: TASK IS NOT THE OWNER OF THE RESOURCE

Description: A task attempts to release a resource, which it has not previously locked.

Action: Internal failure. Please notify your XPS sales representative.

V062 XPSDaemon KCPDEQ: RESOURCE NOT LOCKED

Description: A attempt is made to release a resource, which is not locked..

Action: Internal failure. Please notify your XPS sales representative.

V092 XPSDaemon release expires in ## days

Description: The expiry date of the XPSDaemon is reached in .. days. The system will not be able to start from this date on.

Action: Please ask your XPS sales representative for expiry information.

V093 XPSDaemon release is expired

Description: XPSDaemon cannot be started because the date of expiry has been reached.

Action: Please ask your XPS sales representative for expiry information.

V094

XPSDaemon expiry information is not correct

Description: The expiry date entered in the installation is invalid, the system cannot be started.

Action: Check the expiry information. If necessary, ask your XPS sales representative for expiry information.

X001 NO SUBTASK AVAILABLE

Description: An error occurred when trying to create a new subtask.

Action: Internal failure. Please notify your XPS sales representative.

X015 THERE IS NO DATA FOR THE USER INSTANCE

Description: The data transferred to the XPSDaemon client is not valid.

Action: The connection is terminated, changed might have occurred in the data.

X016 TCPIP IS STOPPED

Description: The TCP/IP system on the host is stopped.

Action: Restart the XPSDaemon

X020 TCPIP Error: R15=## RTE=#####

Description: An error occurred in a TCP/IP call.

Action: Internal failure. Please notify your XPS sales representative.

X023 STORAGE ERROR: R15=## RTE=#####

Description: An error occurred when requesting dynamic storage.

Action: Internal failure. Please notify your XPS sales representative.

X030 START APPLICATION ##### NOT AVAILABLE

Description: The start application ##### is not available at the time when requested.

Action: The connection is terminated, the VTAM error message is written to the XPSDaemon log.

X045 INVALID EVENT: ##### IP=#####

Description: An unexpected event occurred.

Action: Internal failure. Please notify your XPS sales representative.

X046 A CONNECTION CANNOT BE ESTABLISHED SERVICE=#####

Description: The attempt has been made to connect to the network printer #####. The connection defined for the destination is, however, not available at this time. Possible causes may be that the printer is switched off, or another application is currently using this printer.

Action: PrintEx attempts to connect to this printer after waiting for the specified recovery time. (A-System Parameter).

X053 NUMBER OF VALID PRINTERS EXCEEDED

Description: The number of valid printers exceeds the maximum allowed.

Action: Ask your XPS sales representative for a new license.

X056 LICENSE NOT VALID

Description: An attempt was made to start XPSDaemon with a non-valid or expired license.

Action: Ask your XPS sales representative for a new license.

Y001 **The printer ##### has no model #####**

Description: An attempt was made to convert a print job. The model defined for the destination, however, does not exist.

Action: Define the model.

Y001 **For the printer #####, the code page ##### is missing**

Description: An attempt was made to convert a print job. The code page defined for the model, however, does not exist.

Action: Define the code page.

Y003 **For the printer #####, the prefix data ##### is missing**

Description: An attempt was made to convert a print job. The prefix data defined for the model, however, does not exist.

Action: Define the prefix data.

Y004 **For the printer #####, the suffix data ##### is missing**

Description: An attempt was made to convert a print job. The suffix data defined for the model, however, does not exist.

Action: Define the suffix data

Y006 **A POWER printer with the same criteria already exists**

Description: An attempt is made to define a POWER printer. There is, however, another definition with the same criteria used for the printer selection.

Action: Define different criteria.

Y007 **ThinPrint: data does not exist.**

Description: An attempt has been made to send print data to a ThinPrint destination. The.print-client, however, detected an error.

Action: Internal failure. Please notify your XPS sales representative.

Y008 **ThinPrint: Error RC=##.**

Description: An attempt has been made to send print data to a ThinPrint destination. The.print-client, however, detected an error.

Action: Internal failure. Please notify your XPS sales representative.

Y010 **SMTP RETURN CODE ### NOT SUPPORTED.**

Description: An attempt has been made to send print data via SMTP as e-mail. The SMNT-Server, however, detected an error.

Action: Internal failure. Please notify your XPS sales representative.

Y011 **SMTP: UNKNOWN AUTH PARAMETER.**

Description: PrintEx attempted to log on to the SMTP-Server, using an AUTH parameter, which is not supported.

Action: Internal failure. Please notify your XPS sales representative.

Y012	SMTP: PASSWORD MISSING. Description: When PrintEx attempted to log on to the SMTP server, the server requested for password. In PrintEx, however, this password is not defined in the e-mail destination. Action: Define the password in the e-mail destination.
Y013	Destination ##### does not exist. Description: An attempt has been made to convert a print job. The destination defined for the printer, however, does not exist . Action: Define the destination.
Y014	Separator page ##### does not exist. Description: At attempt has been made to convert a print job. The separator page defined for the printer, however, does not exist. Action: Create the separator page in the XPS.DAEMV400 library.
Y024	The printer ##### has no destination defined. Description: After converting the print job, the destination no longer exists. Action: Define the destination.
Y025	Error when creating the POWER printer ##### . Description: When creating the definition of the POWER printer, an error occurred. Action: Internal failure. Please notify your XPS sales representative.
Y026	Spool file error - RC##### . Description: An error occurred when processing a spool file. Action: Internal failure. Please notify your XPS sales representative.
CV01	INVALID PARTITION ID POS=##### Description: The data stream specifies an invalid implicit partition ID. Action: Check that the print data is valid and correct at the specified position in the data stream.
CV02	WSF SCS DATA: INV. READ PARTITION OPER. POS=##### Description: The data stream uses an invalid operation code. Action: Check that the print data is valid and correct at the specified position in the data stream.
CV03	WSF SCS DATA: INV. BEGIN EOF FLAG POS=##### Description: The data stream uses the command ,Begin EOF' with an unknown flag. Action: Check that the print data is valid and correct at the specified position in the data stream.
CV04	WSF: INVALID STRUCTURED FIELD ID POS=##### Description: The data stream uses a wrong identifier within a ,WRITE STRUCTURED FIELD' command. Action: Check that the print data is valid and correct at the specified position in the data stream.
CV05	SCS COMMAND: INVALID DATA LENGTH POS=##### Description: The data stream has an incorrect length field. The length is larger than the available data.

	Action:	Check that the print data is valid and correct at the specified position in the data stream.
CV06	SCS COMMAND: INVALID CHARACTER DISTANCE POS=#####	
	Description:	The data stream has a SCS command ,SCD – Set Character Distance’, which uses an invalid entry for the character distance.
	Action:	Check that the print data is valid and correct at the specified position in the data stream.
CV07	SCS COMMAND: INVALID LINE DISTANCE POS=#####	
	Description:	The data stream has a SCS command ,SLD – Set Line Distance’ which uses an invalid entry for the line distance.
	Action:	Check that the print data is valid and correct at the specified position in the data stream.
CV08	DATA DECOMPRESSION ERROR POS=#####	
	Description:	An error occurred when decompressing POWER compressed print data.
	Action:	Check that the print data is valid and correct at the specified position in the data stream.
CV11	POWER OUTPUT: INVALID CTL CHARACTER POS=##### CC=##	
	Description:	The print line passed from POWER uses an unknown control characters.
	Action:	Correct the print data to deliver.
CV20	INVALID INPUT TYPE	
	Description:	An invalid data type has been passed for the data to convert.
	Action:	Internal failure. Please notify your XPS sales representative.
CV21	INVALID OUTPUT TYPE	
	Description:	An invalid data type has been passed for the data to convert.
	Action:	Internal failure. Please notify your XPS sales representative.
CV22	INVALID PDF VARIABLE	
	Description:	An unknown variable name was used in the controls for the PDF data to print.
	Action:	Check the data of the model and the text used as suffix data.
CV23	INVALID PDF OBJECT NR	
	Description:	In the definition of PDF objects in the prefix data, an invalid object number was specified (not numeric).
	Action:	Check the text of the prefix data.
CV24	INVALID PDF DEFINITON	
	Description:	In the definition of PDF objects, an object was not correctly closed: ‘endobj’ was not found.
	Action:	Correct the error in the prefix data.
CV25	INVALID PDF OBJECT ENTRY	
	Description:	In the definition of PDF objects, an error was detected (for example, the begin of a datastream ,stream’ has no corresponding end ,endstream”).
	Action:	Correct the error in the prefix data.
CV26	OBLIGATE OBJECT MISSING	

Description: In the prefix data for output to PDF file, an entry is missing for a required PDF object. A required object is of type ,/Catalog', ,/Page' or ,/Pages'.

Action: Check and add the entries for the missing PDF object in in the prefix data.

9999 NO TEXT EXISTS FOR ERROR CODE

Description: There is no corresponding message for the error code.

Action: Please notify your XPS sales representative.

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