

Intermate

Printing Environment Guide for IBM Mainframe Hosts

3rd Edition

This document is a supplement to the *Print Server Administration Manual* external print servers (firmware components G22 and G32).

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1. Introduction

Products covered

The print servers covered by this manual are built on the following firmware component codes:

External print server for printers with Centronics ports

- G22: Intermate100
- G32: Intermate101
- G34: *Intermate101 with JScribe* (no IPDS)

Internal print server for Kyocera-Mitra FS and KM printers

- K92: *LAN FS3*

Scope of the Manual and Conventions

This manual is a supplement to the Print Server Administration Manual for your print server and tells you how to use the Host Print Options (HPOs) for IBM mainframes. There are two main sections:

- [“SCS TN3270E” \[page 5\]](#)
- [“AFP/IPDS” \[page 60\]](#)

Each main section starts with an overview of its structure.

The last chapter of the manual [“HPO Trace Function \(SCS and IPDS\)” \[page 111\]](#) is common to both HPOs, but is only available for products based on G22 and K92.

Unless otherwise specified, all references to configuration pages, fields, buttons, etc. refer to the print server’s HTTP-menu.

Changes since 2nd edition (April 2002)

New Feature: Internet Secure Print Protocol (ISPP):

If your host runs VPS/Secure from LRS (Levi, Ray & Shoup, Inc.), it is now possible to encrypt jobs directed to up to five different **raw socket ports**, thus allowing e.g. secure PCL and

PostScript printing. Because this is so deeply enmeshed in the configuration of raw socket printing on the print server, instructions are in the Print Server Administration Manual; see the section on [Raw Socket] in the chapter on Input Control.

In addition, you can enable secure printing for **IPDS**; how to do this is shown in this Guide on [page 70](#).

SCS TN3270E

2. Printing SCS with TN3270E

2.1. Topic Overview

The topics covered in this introductory chapter are:

- [“Pre-Requisites and Setup Tasks” \[page 7\]](#).
- [“Introducing IDB and IDB-Terminology” \[page 9\]](#).
The Intermediate Data Base (IDB) contains the SCS protocol settings used for host printing. To get the most out of our SCS emulations, you need to learn a little bit about the many facets of "IDB".
- [“Special Status Information and Actions” \[page 11\]](#).
This section describes special facilities connected with SCS TN3270E printing from the print server

The rest of the chapters on SCS cover the following:

- [“SCS Directly From IBM MVS/VM” \[page 12\]](#)
- [“SCS Through an SNA Server” \[page 15\]](#)
- [“Activation and Network Setup” \[page 19\]](#)
- [“\[SCS 3270 Config\]” \[page 24\]](#)
- [“Extended Configuration with IDB” \[page 49\]](#)

2.2. Pre-Requisites and Setup Tasks

The HPO for 3270 supports SCS LU1 printing, emulating an IBM 3287 printer. It will also accept SCS data streams for other printer types such as IBM 4214, IBM 3268 and IBM 3812.

2.2.1. Pre-Requisites

Printing via the TN3270E protocol requires the Mainframe host or SNA Server to support the TCP/IP and extended Telnet protocols.

Recent versions of *IBM Communications Server for OS/390* support SCS/DSC printing via TCP/IP over LANs with the TN3270E protocol. This bypasses the need for SNA gateways and routers. The applications listed below support this kind of printing

- IBM Communications Server for OS/ 390 minimum V2R5
- IBM Communications Server for VTAM minimum V4R4
- IBM Communications Server for MVS with TCP/ IP for MVS minimum V3R2
- IBM Communications Server for VM/ ESA V2R3, TCP/ IP minimum function level 310

If you should need to use an SNA gateway/server, our product will work with any such gateway from IBM, Cisco, CNT, Open-Connect, Novell, or Microsoft whose support for TN3270E fulfills the requirements in RFC 1647.

2.2.2. Setup Tasks

The tasks involved are as follows:

- 1 Host side: Printer-definition
TN3270E printing is done either directly from IBM VS/VM ([page 12](#)) or through a front-end SNA gateway or router ([page 15](#)).

- 2 Print-server side: If you have bought a *License Key* to be able to do production printing, select [License Key] in the "Configurations > Permissions" group and enter the key. Consult the *Printer Administration Guide* if you need help on this. Save the changes.
- 3 Print-server side: "[Activation and Network Setup](#)" [page 19]. When you have saved and rebooted, special items relating to 3270 will appear on the HTTP menu. See "[Special Status Information and Actions](#)" [page 11].
- 4 Print-server side: Configuration of the host-session ("[\[SCS 3270 Config\]](#)" [page 24]. You should always complete step 3, including a reboot, before making your 3270 settings.

Note:

The options/parameters described for the print-server side are those that appear when logged in to the print server as user *admin*.

- 5 Check your settings.

Always check your settings before trying to print, even if you have not made any changes yourself.

For everything except details within [3270 SCS Config], it is usually easiest to check the configurations by printing the *Main Status Pages*. You can do this from the HTTP menu's "Actions" group.

To check the details within [3270 SCS Config] see "[Special Status Information and Actions](#)" [page 11].

As an absolute minimum, you should make sure that the code page you want is chosen "[Country Code \(Option 2\)—Character Set](#)" [page 32]. And because of a historical quirk with the product, you should also check "[Euro Support \(Character event 186\)](#)" [page 41] on the [3270 Config] page.

2.3. Introducing IDB and IDB-Terminology

2.3.1. IDB Understood as a Collection of IDB Configurations

It is possible to name and save a full collection of configurations in what we call "an IDB".

Understood in this way, an IDB can exist in three forms

- 1 An IDB which is the collection of default configuration settings. This is placed in the print server in such a way that a user cannot destroy them, no matter how much you .
- 2 An IDB in the FTP directory. The content of the IDB will either be factory defaults or user settings. User settings can either come from what has been saved on the [3270 SCS Config] page or by importing IDB settings directly from another print server or from a PC-file. An IDB will stay in the FTP directory until you delete it.
- 3 A PC-file. It is possible to download the settings from the FTP directory in the print server to a PC-file. And it is possible to load the PC-file into the FTP directory. The PC-file can even be edited. This kind of functionality is especially useful if you want to re-use IDB settings made on one print server to configure another.

Information on how to work directly with IDBs as mentioned in forms 2 and 3 is given in the chapter on ["Extended Configuration with IDB" \[page 49\]](#).

2.3.2. IDB options and parameters

The IDB is organised in "options" and events.

"IDB **options**" is the term for **configuration parameters**; this is due to historical circumstances (IDB is more than 20 years old).

"IDB **parameters**" is the term used for **values** used in certain types of IDB commands for setting IDB options.

2.3.3. IDB Command Language

The Advanced IDB Command Language (also called "Advanced IDB Language" or just "**Advanced IDB**"), can be used to set any and all IDB Options and Events.

2.3.4. The work of specialists

IDB commands contains a few more options and values than you can set through the the usual configuration tools, as well as giving access to so-called events.

Therefore, specialists may find it useful to work directly with IDB commands as a supplement to the usual configuration tools. These possibilities are explained in "[Extended Configuration with IDB](#)" [page 49].

Specialists may also use IDB files more extensively than generalist users.

In order to ease the work of specialists, each description of an IDB option includes the syntax for "Advanced IDB" commands. The values shown correspond to the default setting.

2.3.5. IDB and Troubleshooting

IDB commands must go into the data stream, but will not print if they are written and executed properly. So, if you see the lead-in string (usually &%) on a print-out, you should get in touch with a specialist familiar with the details of IDB.

If you often print jobs in which it is inconvenient to reserve the default characters as symbols in an IDB language, refer to "[Using \[3270 SCS Config\] to Change CSC and Delimiters characters](#)" [page 55]" "[IDB Delimiter](#)" (Option 7)" [page 56].

When a technical specialist is troubleshooting, he or she may ask for information about current IDB settings. This usually requires working directly with IDB commands as described in "[Extended Configuration with IDB](#)" [page 49].

2.4. Special Status Information and Actions

After TN3270E printing has been enabled on [3270 Network Setup]—including the reboot, a number of additional menu items will be displayed on the HTTP menu. These are described below.

In addition, the *Main Status Pages* will include information on your active TN3270E network configurations as well as (an extract of) the settings in [3270 SCS Config].

Finally, there may be special error messages in the *System Log* (printed directly to screen on your request, but also found as part of the printout in the *Main Status Pages*).

2.4.1. Trace

For print servers based on G22 or K92 there is a *Trace Function* which can be used in connection with problem localisation. It is typically used on request from technical support personnel. Procedures for starting a trace are common to all HPO options; see [“HPO Trace Function \(SCS and IPDS\)” \[page 111\]](#).

2.4.2. "Status > 3270E"

This status will display the following kind of information on the screen

- whether or not the session has been successfully established
- details on the system, device and emulation.

3. SCS Directly From IBM MVS/VM

3.1. Overview of Steps

- 1 Define an LU printer on the host ([page 12](#)).
- 2 Define the LU printer on the TN3270E server ([page 14](#))
- 3 Configure the [3270 Network Settings] as shown starting on [page 19](#). Remember to reboot.
- 4 Verify the connection ([page 23](#)).
- 5 Continue to the settings on [3270 SCS Config] as shown starting on [page 24](#).

3.2. Define an LU-1 Printer on the Host

Define the print server to the host like a normal LU-1 printer. How to define a LU-1 printer in VTAM is described in IBM's VTAM documentation.

Sample configuration - Line definition In NCP

```
* LNACC=SDLC
*#####
*SDLC SWLINE GROUP
*#####
G14SD4  GROUP LNCTL=SDLC,TYPE=NCP,OWNER=PCCU1,
        NRZI=NO,REPLYTO=2, DIAL=YES
S14535  LINE ADDRESS=( 2535,Half),SPEED=9600,
        TRANSFR=20, DUPLEX=FULL,NEWSYNC=NO,
        CLOCKNG=EXT, NPACOLL=YES, LSPRI=NO,
        RETRIES=(1,1,3),ISTATUS=ACTIVE,MAXPU=1,
        OWNER=PCCU1,TYPE=NCP,CALL=IN,ANSWER=ON
*CU=   NR=1  ACT=13  TRM=YES
P1453500 PU PUTYPE=(1,2), NPACOLL=YES
```

Sample configuration - PU/LU definitions in VTAM

```
VBUILD TYPE=SWNET
PSWPG9  PU  ADDR=C9,MAXDATA=1033,MAXOUT=7,
        PACING=(1,1),IDBLK=O61,SSCPFM=USSSCS,
        ISTATUS=ACTIVE,IRETRY=YES,IDNUM=B0008,
        PASSLIM=7,PUTYPE=2,DISCNT=NO,VPACING=0
LCPG90  LU  LOCADDR=2,MODETAB=MT3274P,USSTAB=USB3274B,
        DLOGMOD=T3274M2,ISTATUS=ACTIVE
LCPG91  LU  LOACADDR=3,MODETAB=MTP3816,
        DLOGMOD=SCS1,ISTATUS=ACTIVE
LCPG92  LU  LOACADDR=4,MODETAB=MTP3816,
        DLOGMOD=SCS1,ISTATUS=ACTIVE
LCPG93  LU  LOACADDR=5,MODETAB=MTPRINT,
        DLOGMOD=SCS,ISTATUS=ACTIVE
```

3.3. Define the LU printer on the TN3270E server

The TN3270E attached printer is defined to the Telnet server in much the same way as a display LU. Instead of the LUGROUP and LUMAP commands, the PRTGROUP and PRTMAP commands are used.

A VTAM example similar to the one below can be found in the IBM book *OS/390 eNetwork Communications Server V2R5, TCP/IP Implementation Guide, Volume 1: Configuration and Routing* (document no. SG24-5227-00). The book can be downloaded from <http://www.redbooks.ibm.com>.

```

BEGINVTAM
;
;
PRTGROUP PRINTERS
  RA3ATPR1..RA3ATPR5 ; printers for specific
                    ; mapping and printer to LU
                    ; association
ENDPRTGROUP
PRTGROUP PRINTERS
  RA3ATPR6..RA3ATPR9 ; generic printers
ENDPRTGROUP
IPGROUP SPECIP
222.1.5.36
ENDIPGROUP
PRTMAP PRINTERG SPECIP
LUMAP SPECLX SPECIP SPECIFIC PRINTERS ; specials
;
;
ENDVTAM

```

It is important to observe the one-to-one mapping of display LUs to printer LUs. This means that either a single display LU is mapped to a single printer LU or a display LU group is mapped to a printer LU group. Each group must have the same number of LUs.

4. SCS Through an SNA Server

4.1. Overview of Steps

- 1 Define an LU printer on the host (page 16).
- 2 Set up an SNA gateway/router (page 17).
- 3 Configure [3270 Network Setup] on the as shown starting on page 19. Remember to reboot.
- 4 Verify the connection (page 23).
- 5 Continue to the settings on [3270 SCS Config] as shown starting on page 24

4.2. Define an LU-1 printer on the host

Define the print server to the host like a normal LU-1 printer. How to define a LU-1 printer in VTAM is described in IBM's VTAM documentation.

Sample configuration - Line definition In NCP

```
* LNACC=SDLC
*SDLC SWLINE GROUP
*G14SD4 GROUP LNCTL=SDLC,TYPE=NCP,OWNER=PCCU1,
NRZI=NO,REPLYTO=2, DIAL=YES
S14535 LINE ADDRESS=( 2535,Half),SPEED=9600,
TRANSFR=20, DUPLEX=FULL,NEWSYNC=NO,
CLOCKNG=EXT, NPACOLL=YES, LSPRI=NO,
RETRIES=(1,1,3),ISTATUS=ACTIVE,MAXPU=1,
OWNER=PCCU1,TYPE=NCP,CALL=IN,ANSWER=ON
*CU= NR=1 ACT=13 TRM=YES
P1453500 PU PUTYPE=(1,2), NPACOLL=YES
```

Sample configuration - PU/LU definitions in VTAM

```
VBUILD TYPE=SWNET
PSWPG9 PU ADDR=C9,MAXDATA=1033,MAXOUT=7,
PACING=(1,1),IDBLK=O61,SSCPFM=USSSCS,
ISTATUS=ACTIVE,IRETRY=YES,IDNUM=B0008,
PASSLIM=7,PUTYPE=2,DISCNT=NO,VPACING=0
LCPG90 LU LOCADDR=2,MODETAB=MT3274P,USSTAB=USB3274B,
DLOGMOD=T3274M2,ISTATUS=ACTIVE
LCPG91 LU LOACADDR=3,MODETAB=MTP3816,
DLOGMOD=SCS1,ISTATUS=ACTIVE
LCPG92 LU LOACADDR=4,MODETAB=MTP3816,
DLOGMOD=SCS1,ISTATUS=ACTIVE
LCPG93 LU LOACADDR=5,MODETAB=MTPRINT,
DLOGMOD=SCS,ISTATUS=ACTIVE
```

4.3. Set up a SNA gateway/router

A number of different vendors provide SNA gateways and routers. Among them *Cisco*, *Microsoft*, *CNT*, *Novell*, *IBM*, and *Open Connect* to name just a few. The procedure in this section shows how to set up a *Microsoft SNA Server*. It does therefore not apply to all SNA gateways or routers. The parameters that have to be configured are, however, easy to recognise.

Please note that TN3270E components have to be installed in order to be able to configure the LU printer connection on the SNA gateway or router.

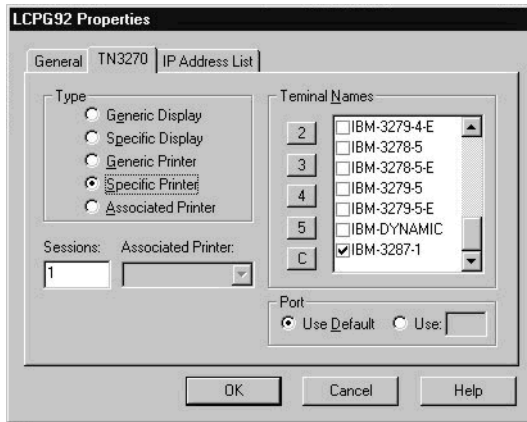
To set up a Microsoft SNA Server 3.0

- 1 Choose Insert > 3270 > Application LU (LUA). This opens the 3270 LU Properties box.

Fill in *LU Number* and *LU Name*. The *LU Number* must match that on the host. If you do not know the *LU Number*, ask your system administrator. Finish by pressing the "OK" button.

- 2 Right-click the new connection created in the previous step. Choose Assign To > TN3270 Service on > Name-of-SNA-Server. This assigns the connection to the SNA server.

- 3 Right-click the new connection again and choose Properties.



Left-click the TN3270 tab. Set the *Type* to *Specific Printer* and the *Terminal Name* to *IBM-3287-1*.

Finish by pressing the "OK" button.

5. Activation and Network Setup

5.1. [3270 Network Setup]

- 1 Connect and log in to the server.
- 2 Choose "3270 Network Setup" from the "TN3270E Option" sub-group within "Configurations". These parameters set up communication with the host via the TN3270E protocol.

Values marked with asterisk (*) are defaults.

Option (Parameter)	Values	Comments
Enable TN3270E Printing	Yes	You can do this even if you do not have a license, but your print-outs will be in Demo mode.
Server Address	IP address	This is normally an IP address. Alternatively, you can specify the name of a DNS server for look-up. This DNS server's IP address must, of course, be known to the print server, and this is done [TCP/IP] page in the "Configurations > Basic" sub-group. Maximum 47 characters.
Server Port	23* Valid range is [1024 .. 65535]	This is the Telnet server port number defined on the host. 23 is the default port number for Telnet sessions according to RFC 1700. The RFC can be found on the Internet, for example: http://www-inf.enst.fr/~dax/services/rfc/ . Your system administrator may have defined another port number for a Telnet host, in which case this should be used instead.
LU Name	<name>	This is the LU name used by the host. It must be filled out if you select "Specific" for the value of the "Device Type" parameter (below). Maximum 10 ASCII characters. Syntactical restrictions can be affected by which SNA server you use, if you have an SNA solution. To be on the safe side, restrict your characters to A-Z and 0-9 or a-z and 0-9, depending on the administrative practice in your environment. Check with your system administrator!

Option (Parameter)	Values	Comments
Enable IR Reply	Yes * No	IR = Intervention Required Yes = The print server will send an IR reply to the host when the target printer is not Ready. No = Do not send any IR replies. See "Low Buffer Use" below before you decide which setting you want.
Device Type	The alternatives are: Specific* Associated Generic	This parameter specifies the device type associated with the LU Name request. The type must match the type specified on the host or SNA gateway. Ask your system administrator for the correct device type to use. Request a specific LU name. If this is chosen, there must be a value set for "LU Name" above. Request a specific printer which is paired with the terminal LU named in the request. Request a generic printer. The LU name is received from the LU pool of names
Keep Alive (Seconds)	15* [1 .. 32000]	Define how often the print server should send a keep alive signal to the host. The settings should be smaller than the session's timeout value defined on the host. The host parameter name is KEEPALIVE OPTIONS. It is located in the IP profile dataset SYS1.TCPPARMS(PROFILE)
Enable Hexdump	Yes No*	This is a special troubleshooting feature. If it is enabled, the data streams received in an SCS job will be printed out in hexadecimal representation.
Low Buffer Use	Yes No*	Yes = The print server minimizes its internal buffer. If you choose this, disable "IR Reply"; it makes no sense to have the host resend a job that is already in the buffer of the printer.
Use Logical Printer or Output To	see next page	This will be—or point to—the target printer for SCS TN3270E jobs sent to the print server. See next page.

Output To—or "Use Logical Printer"

For users of K92-based print servers and older products based on a G-component, this parameter sets the logical printer which will be used for SCS jobs. If the Network Destination Option (NDO) is enabled, the logical printer definition is the only medium through which a network printer (Netw#) can be chosen.

On print servers based on G22 or G32, the "Output To" parameter replaces "Use Logical Printer". "Output To" defines the target printer which will be used for SCS jobs, either directly indirectly through choosing a logical printer.

G22 release levels lower than 2111 and all K92 products "Use Logical Printer"	G32/G34 and G22 release levels at 2111 or higher "Output To"	Comments
PR0*	Logical Printer 0	No manipulation of data. Users of the Network Destination Option (NDO) please note: The target printer will be the printer designated as "System Target Printer" on the [General] configuration page in the "Configurations > Basic" sub-group.
PR1, PR2, PR3, PR4 PR5, PR6, PR7, PR8	Logical Printer 1 Logical Printer 2 Logical Printer 3 Logical Printer 4 Logical Printer 5 Logical Printer 6 Logical Printer 7 Logical Printer 8	Select one of these queues to have data manipulated by a logical printer definition. Users of the Network Destination Option (NDO) please note: The definition of the logical printer includes choice of target printer. An NDO Load Balancing Pool can only be chosen through a logical printer.
not available	Local Printer Network Destination 1 Network Destination 2 Network Destination 3 Network Destination 4	Direct selection of single target printer for users of the Network Destination Option (NDO)

If you need help in understanding what logical printers are and how they are used, please refer to the Print Server Administration Manual.

- 3** Save the changes ("Save & Cont")
- 4** If you have bought a license key including an SCS option, choose "License Key" from the "Permissions" sub-group and enter the key. Save. See the Print Server Administration Manual if you need information about ordering and entering license keys.
- 5** Reboot the print server. See the Print Server Administration Manual if you need information about how to reboot.

5.2. Verify the Connection to the Host

Verify the connection before going on to [3270 SCS Config], starting on [page 24](#).

- 1 Make sure the LU definition on the host is active.
- 2 Activate the TN3270E connection created on the SNA server or on the Telnet server (`VARY` command).
- 3 External print servers:
Even if you are intending to use the print server as stand-alone, you should make your test with the print server attached to a printer. Turn the print server off (pull out the jack).
LAN FS3 (K92):
Turn off the printer.
- 4 Connect the print server to the LAN.
- 5 Turn the printer and (for external units) print server back on. Check that the LUA status changes to *SSCP*.
- 6 Send a print job to the target printer from the host.
- 7 Check the print-out.

6. [SCS 3270 Config]

6.1. Important General Information

With one exception, the order of the "options" follows the order on the configuration page. [“Using \[3270 SCS Config\] to Change CSC and Delimiters characters” \[page 55\]](#) describes the third, fourth, fifth and sixth field on the configuration page.

The defaults chosen reflect many years experience and aim at reducing the need for individual configuration. However, you should always check them, and as a minimum, be sure that the following settings reflect your needs:

[“Country Code \(Option 2\)—Character Set” \[page 32\]](#)

[“Euro Support \(Character event 186\)” \[page 41\]](#)

Do not attempt to use the "Factory Default" button without first consulting [“How to Restore SCS Config Factory Defaults” \[page 48\]](#).

The heading "Option values" refers to the choices available through the HTTP-menu.

The headings "IDB Values" and "IDB Bit Option Values" refer to the values used in *Advanced IDB* commands.

Values marked with asterisk (*) are defaults.

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6.2. FF Support (Option 5)—with MPL or BM

This option determines whether a form feed, a line feed, or both is/are generated when MPL (Maximum Page Length) or BM (Bottom Margin) is reached in the data stream.

Option Values	IDB Values	Comments
Always FF *	0	
Always LF	1	
LF & FF	2	

Advanced IDB: &%IDB_EDIT: OPTION 5:0:EXIT

6.3. Unprintable Character [ASCII Value] (Option 3)

This option determines a printable replacement character to substitute for an unprintable character found in the data stream.

See also “[IBM Trn Code \(Option 169 bit 1\)](#)” [page 38].

The print server will accept all values between and including [0 - 255], but to be on the safe side, you should choose a character within the decimal range 33-122; there is an ASCII table in the Print Server Administration Manual.

Option Values	IDB Values	Comments
45 * [0..255]	45	The number is the decimal representation for the substitution character you want used. 45 is the hyphen.

Advanced IDB: &%IDB_EDIT: OPTION 3:45:EXIT

6.4. Send IR (Option 21) - Do not set to Yes.

Note:

This parameter is only used in our 3270 emulations over coax connections. SCS TN3270E uses the parameter "Enable IR Reply" on the [3270 Network Setup] page. However, it still appears on products based on K92 and on release levels lower than 2111 for G22, G32 and G34.

This option controls Intervention Required (IR) reporting to the host. If the option is enabled, IR signals are sent when the printer reports a Paper Out, Paper Jam, goes Off-line etc.

Option Values	IDB Values	Comments
Yes	1	IR signals are sent.
No *	0	No IR signals are sent.

Advanced IDB: &%IDB_EDIT: OPTION 21:0:EXIT

6.5. Bold Print Controls (Option 22, bit 1, bit 2, bit 3)

6.5.1. Bold Print On CR (Option 22 bit 1)

This option defines whether or not bold printing is enabled on a carriage return (CR).

Option Values	IDB Values	Comments
Yes *	See "How to Set Option 22's 3 Bits Using Advanced IDB" (page 29)	enabled
No		disabled

6.5.2. Bold Print On BS (Option 22 bit 2)

This option defines whether or not bold printing is enabled on a backspace (BS).

Option Values	IDB Values	Comments
Yes *	See "How to Set Option 22's 3 Bits Using Advanced IDB" (page 29)	enabled
No		disabled

6.5.3. Bold Print On Multi BS (Option 22 bit 3)

This option defines whether or not bold printing is enabled on multiple backspaces.

Option Values	IDB Values	Comments
Yes *	See "How to Set Option 22's 3 Bits Using Advanced IDB" (page 29)	enabled
No		disabled

6.5.4. How to Set Option 22's 3 Bits Using Advanced IDB

All three bits are set using one IDB option value. The default is

Advanced IDB: `&%IDB_EDIT: OPTION 22:7:EXIT`

which is calculated on the basis of decimal values as follows.

Bit number	3	2	1
Decimal Value for Yes (individual bit value = 1)	4	2	1

▼ IDB Value // Bit no. ►	1	2	3	comment
7	yes *	yes *	yes *	= 4 + 2 + 1
6	yes	yes	no	= 4 + 2 + 0
5	yes	no	yes	= 4 + 0 + 1
4	yes	no	no	= 4 + 0 + 0
3	no	yes	yes	= 0 + 2 + 1
2	no	yes	no	= 0 + 2 + 0
1	no	no	yes	= 0 + 0 + 1
0	no	no	no	= 0 + 0 + 0

6.6. Format Ctrl Suppression (Option 177)

This option defines the suppression of control codes after Power On.

Option Values	IDB Values	Comments
Normal *	0	Standard handling of control codes after Power On. It can be disabled with the <CSC>+M command.
No AutoNL	1	Is disabled after Power On in Host direct print and Local Copy print. It can be enabled with the <CSC>-M command. All host generated codes are still sent.
No AutoNL'	2	Is disabled after Power On in Host direct print. It can be enabled with the <CSC>-M command. All host generated codes are still sent.
No Codes	3	CR, LF, NL and FF codes from the host are suppressed and the auto-NL function is disabled. It can be enabled with the <CSC>-M command. Because control codes are suppressed, horizontal/vertical tab and other commands which depend on correct page format will not work correctly.
Normal'	4	Standard handling of control codes after Power On. If the <CSC>+M command is used, CR, LF, NL and FF codes from the host are suppressed and the auto-NL function is disabled.
No Codes'	5	CR, LF, NL and FF codes from the host are suppressed. It can be enabled with the <CSC>-M command. The auto-NL is still enabled.
Normal''	6	Standard handling of control codes after Power On. If the <CSC>+M command is used, CR, LF, NL and FF codes from the host are suppressed. The auto-NL function is still enabled.

Advanced IDB:&%IDB_EDIT: OPTION 177:0:EXIT

<CSC> + M [m]:

The effect of the <CSC>+M command is reset per job.

- If Option 177 = 0, 1 or 2: After this command the auto-NL function is disabled. All host generated control codes are still sent to the printer.
- If Option 177 = 3 or 4: All host generated CR, LF, NL and FF control codes are suppressed and the auto-NL function is disabled. Control codes can only be sent to the printer with one of the transparent commands.

<CSC> - M [m]: After this command, all Host generated control

codes are processed and the auto-NL function operates as normal.

Refer to [“Special Commands” \[page 53\]](#) for further information on these and other commands.

6.7. Country Code (Option 2)—Character Set

Option Values	IDB Values	Comments
Aus/Ger	2	Austrian/German
Aus/Ger (alt)	3	Austrian/German Alternate
Belgian	4	Belgian
Brazilian	5	Brazilian
Can Bilin	6	Canadian bilingual
Can French	7	Canadian French
Dan/Nor	8	Danish/Norwegian
Dan/Nor (alt)	9	Danish/Norwegian Alternate
English (UK)	10	English, U.K.
English (US) *	1	English, U.S.
Fin/Swe	11	Finnish/Swedish
Fin/Swe (alt)	12	Finnish/Swedish Alternate
Fre/Azerty	13	French/Azerty 105
International	14	International
Italian	15	Italian
Portugal	16	Portuguese
Portugal (alt)	17	Portuguese Alternate
Spanish	18	Spanish
Spanish Speak.	19	Spanish speaking
Spanish (alt)	20	Spanish Alternate
Ger/Fre (Swiss)	21	Swiss German/Swiss French
Jap/Eng	22	Japanese/English
Spa/Text proc.	23	Spanish data/text processing

Advanced IDB: &%IDB_EDIT: OPTION 2:1:EXIT

6.8. Skip (Valid) Blank Pages (Option 32)

This option controls whether or not valid blank pages are printed.

With this option enabled, pages containing only a CR, NL, LF or FF are skipped.

Option Values	IDB Values	Comments
Yes	1	Skip.
No *	0	Print valid blank pages, do not skip.

Advanced IDB: &%IDB_EDIT: OPTION 32:0:EXIT

6.9. Characters per Inch (Option 100) and per Line (Max Print Position, Option 102)

6.9.1. CPI (Option 100)

This option defines the number of characters per inch.

Option Values	IDB Values	Comments
10 *	10	
12	12	
15	15	
16.7	16	

Advanced IDB: &%IDB_EDIT: OPTION 100:10:EXIT

6.9.2. Maximum Print Position (Option 102)

This option defines the maximum number of characters per line.

Option Values	IDB Values	Comments
132 * [0..255]	132	

Advanced IDB: &%IDB_EDIT: OPTION
102:132:EXIT

6.10. Lines and Line Spacing (Options 105, 106, 107)

6.10.1. LPI (Option 105)

This option defines the number of lines per inch.

Option Values	IDB Values	Comments
6 * [0..255]	6	

Advanced IDB: &%IDB_EDIT: OPTION 105:6:EXIT

6.10.2. Line Spacing (Option 106)

This option defines the line spacing.

Option Values	IDB Values	Comments
Single *	0	
Double	1	

Advanced IDB: &%IDB_EDIT: OPTION 106:0:EXIT

6.10.3. LPP (Option 107)

This option defines the number of lines per page.

Option Values	IDB Values	Comments
66 * [0..255]	66	

Advanced IDB: &%IDB_EDIT: OPTION 107:66:EXIT

6.11. Transparency (Mode) (Option 167)

This option selects the transparency mode. The three available

Option Values	IDB Values	Comments
Intermate *	0	see belowS
Axis	1	
Enable MPI feat	2	

mode vary in their transparency lead-ins. If you choose Intermate (default), you can use “[Leadin Sequence \(Option 169 bit 2\)](#)” [page 39] to remove the IDB "pass through" sequence.

Advanced IDB: &%IDB_EDIT: OPTION 167:0:EXIT

6.12. Form Strings [ASCII-value] (Option 168)

This option defines the lead in character for the Formatted String Utility.

Option Values	IDB Values	Comments
0 * [0..255]	0	The value 0 disables the Formatted String Utility. All other values indicate the decimal value for an ASCII character which must be printable in the code page used. There is a table showing printable ASCII characters in the Print Server Administration Manual.

Advanced IDB: &%IDB_EDIT: OPTION 168:0:EXIT

Important:

Avoid using any of the following characters:

- 0 - 9 (ASCII decimal 49 - 57)
- A - F (ASCII decimal 65 - 70).
- characters used as lead in for one of the other CSC commands (see [“Using \[3270 SCS Config\] to Change CSC and Delimiters characters” \[page 55\]](#) for information on what the defaults are and how to change them).

6.13. IBM Trn Code (Option 169 bit 1)

This option defines how transparent data is translated in connection with the IBM TRN command..

Option Values	Comments
Normal	Transparent data is translated from EBCDIC to ASCII. Data outside the hex range 40H - FEH is printed as a hyphen (decimal 45) unless you have changed this using "Unprintable Character [ASCII Value] (Option 3)" (page 26).
No Translation *	No translation from EBCDIC to ASCII is performed. Data within a transparent data stream (LU-1 (SCS) control code 35H) is printed as received. All transparent data is printed, even "invalid" data, that is data in the range 40H - FEH.

Advanced IDB:

see "How to Set Option 169 with Advanced IDB" [page 40] - not recommended.

6.14. Leadin Sequence (Option 169 bit 2)

This option defines the kind of lead in sequence used in connection with transparent handling.

Option Values	Comments
Normal *	Normal user defined transparent handling. Can be used with any setting in “Transparency (Mode) (Option 167)” (page 36) .
Without '&%'	<p>This setting can be chosen to modify the setting "Intermate" (0) in “Transparency (Mode) (Option 167)” (page 36). What the setting does is to allow user defined transparent lead-in characters to be used without the CSC pass through sequence.</p> <p>The option value "Without '&%' actually means "Without the CSC lead-in used in IDB commands".</p> <p>The terminology used in the option value refers to the fact that the default CSC consists of two character: &%. This can, of course, be changed —see “Using [3270 SCS Config] to Change CSC and Delimiters characters” (page 55)</p>

Advanced IDB:

see [“How to Set Option 169 with Advanced IDB” \[page 40\]](#) - not recommended.

6.15. How to Set Option 169 with Advanced IDB

Both bits are set using one IDB option value. The default is

Advanced IDB: `&%IDB_EDIT: OPTION 169:1:EXIT`

which is calculated on the basis of decimal values as follows.

Bit number	2	1
Decimal Values for Individual Bit Values = 1 = Option Values	2 Without '&%''	1 No translation *
Option Values for Individual Bit Values = 0	0 Normal *	0 Normal

▼ IDB Value // Bit no. ►	1	2	comment
3	1 *	1	= 1 + 2
2	0	1	= 0 + 2
1 (default for the pair)	1 *	0 *	= 1 + 0
0	0	0 *	= 0 + 0

6.16. Euro Support (Character event 186)

The default TN3270E IDB (TN3270.IDB) includes support for the Euro character, that is, the character event has already been set up. However, it must be actively enabled.

The default value is "Yes" in releases of G22, G32, and G32 at level 2111 or higher.

Lower release levels for G-components and all releases of K92 have a default of "No", which you should change to Yes unless you have very strong reasons for not wanting to enable Euro support.

Option Values	IDB Values	Comments
Yes*	80	Enable Euro Support. Information for "nerds": The ASCII character 186d (0xBAh) points to a predefined "string 80" (decimal). This enables the print server to convert ASCII 186d (0xBAh) to the Euro ASCII character 213d (0xD5h) in symbol set 13U.
No	0	Disable Euro Support.

Advanced IDB: &%IDB_EDIT: EVENT /BA:80:EXIT

6.17. Enable APO/COR (Option 122)

This option controls whether or not Automatic Print Orientation (APO) is used.

When APO is enabled the print server calculates the print area required for printing the document based on page formatting commands received from the host. If the document does not fit on a page in portrait orientation, the orientation is changed to landscape.

Option Values	IDB Values	Comments
Yes *	2	
No	1	

Advanced IDB: &%IDB_EDIT: OPTION 122:2:EXIT

6.18. Margin Settings - Left and Right

The character width in these settings is determined by the setting of “[Characters per Inch \(Option 100\) and per Line \(Max Print Position, Option 102\)](#)” [page 34]

6.18.1. Left Margin (Option 103)

This option defines the left margin position in characters. .

Option Values	IDB Values	Comments
1 * [0..255]	1	

Advanced IDB: &%IDB_EDIT: OPTION 103:1:EXIT

6.18.2. Right Margin (Option 104)

This option defines the right margin position in characters.

Option Values	IDB Values	Comments
132 * [0..255]	132	

Advanced IDB: &%IDB_EDIT: OPTION
104:132:EXIT

6.19. Margin Settings - Top and Bottom

Line height in these settings depends on the setting of the “LPI (Option 105)” [page 35].

6.19.1. Top Margin (Option 108)

This option defines line number position of the top margin

Option Values	IDB Values	Comments
1 * [0..255]	1	

Advanced IDB: &%IDB_EDIT: OPTION 108:1:EXIT

6.19.2. Bottom Margin (Option 109)

This option defines the line number position of the bottom margin.

Option Values	IDB Values	Comments
66 * [0..255]	66	

Advanced IDB: &%IDB_EDIT: OPTION 109:66:EXIT

6.20. Source Input (Option 113)

This option selects the input source.

Option Values	IDB Values	Comments
Printer Default	0	
Bin 1 *	1	
Bin 2	2	
Bin 3	3	

Advanced IDB: &%IDB_EDIT: OPTION 113:1:EXIT

6.21. Tray Orientation

6.21.1. Tray 1 Orientation (Option 123)

This option selects the page orientation for source input tray 1.

Option Values	IDB Values	Comments
Portrait	0	
Landscape	1	
COR *	2	

Advanced IDB: &%IDB_EDIT: OPTION 123:2:EXIT

6.21.2. Tray 2 Orientation (Option 124)

This option selects the page orientation for source input tray 2.

Option Values	IDB Values	Comments
Portrait	0	
Landscape	1	
COR *	2	

Advanced IDB: &%IDB_EDIT: OPTION 124:2:EXIT

6.21.3. Tray 3 Orientation (Option 125)

This option selects the page orientation for source input tray 3.

Option Values	IDB Values	Comments
Portrait *	0	
Landscape	1	
COR	2	

Advanced IDB: &%IDB_EDIT: OPTION 125:0:EXIT

6.22. Paper Size

"Paper Size" is used when and ["Enable APO/COR \(Option 122\)" \[page 42\]](#) is activated. This paper size is used to determine the print area for rotations of job text.

Option Values	IDB Values	Comments
A4 *	0	
B5	1	
Letter	2	
Legal	3	

One of the following three options is used if "Bin1", "Bin2" or "Bin3" is selected as ["Source Input \(Option 113\)" \[page 45\]](#).

6.22.1. Tray 1 Paper Size (Option 90) (Bin1)

Advanced IDB: &%IDB_EDIT: OPTION 90:0:EXIT

6.22.2. Tray 2 Paper Size (Option 91) (Bin2)

Advanced IDB: &%IDB_EDIT: OPTION 91:0:EXIT

6.22.3. Tray 3 Paper Size (Option 92) (Bin3)

Advanced IDB: &%IDB_EDIT: OPTION 92:0:EXIT

6.23. How to Restore SCS Config Factory Defaults

In the Print Server Administration Manual there is a chapter on "Types of Resets", including how to restore factory defaults. These instructions are not applicable for SCS configurations.

"All Defaults" on the HTTP Menu does not affect the settings on a [3270 SCS Config] page, but does affect the settings on the [3270 Network Setup] page. This is because IDBs, which contain the 3270E settings, are not a part of the configuration file `ima_cfg.bin` for the other settings on the print server.

So, in order to restore defaults, you must use the "Factory Default" button on the [3270 Config] page. However, you need to know that the settings you can make—and restore—through the [3270 SCS Config] page are only a subset of what can be done with IDB command directly (as explained in the next chapter).

When you use the "Factory Default" button on the [3270 Config] page both the settings in the [3270 SCS Config] subset and the IDB name `tn3270e.idb` are restored.

7. Extended Configuration with IDB

7.1. Introduction

This chapter covers the following topics:

7.1.1. Working Directly with IDB Commands

Each option description shows the syntax for setting an option directly with an IDB command. To use this, you should consult [“How to Send IDB Commands From the Host” \[page 50\]](#).

The following sections give a more general understanding of the possibilities.

- [“Syntax” \[page 51\]](#)
- [“Special Commands” \[page 53\]](#).

Important:

Working directly with IDB commands will often require more information than we have printed here. You may need to consult the *Intermate IDB Technical Reference* (document no. GG-013-x). This manual is found on the CD and on our web-site.

7.1.2. Changing CSC and Delimiter Characters

The sections on [“Using \[3270 SCS Config\] to Change CSC and Delimiters characters” \[page 55\]](#) may be useful for non-specialists who often print jobs in which it is inconvenient to reserve the characters used default as symbols in IDB commands.

7.1.3. Working with IDB Files: see [page 57](#))

7.2. How to Send IDB Commands From the Host

For minor alterations, type the IDB command(s) on the host terminal at the command prompt. Submit a "Print Screen" to the printer you want to adjust.

If you want to send several commands, but don't need to overhaul the whole configuration (as you might do by working with whole IDBs), you might want to use the following method to embed IDB commands into a data stream:

Create a file with a text editor. If you don't have a job you want printed, but do want to affect settings for later jobs, or if you want to test your commands before running an actual job, just include some kind of printable text after the commands.

Send the file as a print job.

The job that comes out will have run the IDB commands. Inspect the print-out. If the IDB commands print, check the commands for spelling and syntax errors, make corrections and run the job again.

7.3. Syntax

With the Advanced IDB Command Language (also called "Advanced IDB Language" or just "Advanced IDB"), you can set any and all IDB Options and Events.

7.3.1. Types of Command Strings

There are two basic types of command strings:

["Commands in Edit Mode" \[page 51\]](#)

Commands in Edit Mode (sometimes called Configuration Mode) are used to change the settings of parameters in all kinds of IDB Tables. After the options are saved, they will be active on the next SCS job.

["Special Commands" \[page 53\]](#)

These commands have a number of functions outside the normal sphere of configuration.

7.3.2. Commands in Edit Mode

The commands used for entering (&%IDB_EDIT:) and leaving Edit Mode (EXIT or QUIT) are common to the two languages.

EXIT or QUIT causes options to be saved, but for some commands, activation requires recycling the printer power.

Editing commands have three parts, the lead-in, the setting(s), and the lead-out.

Example - see next page:

Example

Set Option 1 to the value 2.

```
&%IDB_EDIT: OPTION 1:2: EXIT
```

- 1 The lead-in string and the command to start Edit Mode is
&%IDB_EDIT:

We call the &% lead-in string the CSC, where CSC stands for "Command String Characters", the first being option 8 and the second option 9

- 2 Information on the option or event for which a value is to be set. This information is composed with two elements:

OPTION n: (or EVENT n:) where n is the Option Number or Event Number.

This element must end with an IDB Edit Delimiter, which is usually a colon (this can be changed using Option 7, but we recommend not doing so).

x: where x is the Value or Settings Number. This element must also end with an IDB Edit Delimiter.

- 3 The lead-out string, which is EXIT or QUIT.

You may insert as many settings as you like between a lead-in string and a lead-out string, as long as each setting ends with an IDB Edit Delimiter.

Example:

Set "Power Up Time - Extra Delay at Power On" to wait 120 seconds and the number of minutes to wait before sending the "Intervention Required" signal to the host to 5.

```
&%IDB_EDIT: OPTION 20:120: OPTION 21:5:  
EXIT
```

All configuration options must be separated by a colon. Line feed, form feed etc. should be avoided, but are in some cases accepted.

7.4. Special Commands

"Special commands" have only two parts:

- The lead-in string written in the table below as <CSC>. Default is &%, but this can be changed as explained below.
- The command itself

The table on the next page shows all command strings for Advanced IDB, except EXIT/QUIT.

With the exception of the command for entering IDB edit mode, all of the commands on the list are all "special commands"

Precedence	Command	Comments
5	<CSC>HEXDUMP	Enter hex-dump mode (small format)
5	<CSC>HEXDUMP_FULL	Enter hex-dump mode (large format)
5	<CSC>IDB_EDIT	Enter IDB edit mode
5	<CSC>IDB_PRINT	Dump IDB (small format)
5	<CSC>IDB_PRINT_FULL	Dump IDB (large format)
5	<CSC>L{xx}	Reserved, active if option 31 = 0
5	<CSC>W{xx}	Reserved, active if option 31 = 0
5	<CSC>NOHEXDUMP	Exit hex dump mode
5	<CSC>O{xx}	Reserved, active if option 31 = 0
5	<CSC>REG	Dump House Keep information
5	<CSC>/...	Enter Intermate transparent mode
5	<CSC>=	Reserved, active if option 31 = 0
5	<CSC>+M	Suppress format control codes
5	<CSC>-M	Standard handling of format control codes
5	<CSC>{XY}....	Enter special transparent mode (X = option 171, Y = option 172)
3	<CSC>{X}YYY[,ZZZ] <CSC>	Formatted string (X = Option 168, YYY = String #, ZZZ = Parameters)
2	<CSC><CSC>	Double CSC (prints <CSC>)
1	<CSC>{XY}	Single transparent character
<p>Notes: Large numbers indicate higher precedence. <CSC> represents the Command String Characters. The default CSC is "%%", but they may be changed. IDB First Character (Option 8) and IDB Second Character (Option 9).</p>		

7.5. Using [3270 SCS Config] to Change CSC and Delimiters characters

The CSC is the unique two-character sequence must be used every time IDB commands are sent to the print server. It can also be used for passing single hex values to the printer, e.g. `&%1B = <esc>`.

If you need to print a lot of ampersands & or percent characters %, you may want to change one or both of the characters in the CSC (Command String Characters) sequence.

The character used should be chosen from the ASCII 7-bit character set in the decimal range 33 -122. There is a table showing the 7-bit character set for decimal values 32 -126 in an appendix in the Print Server Administration Manual.

- Note for specialists: The CSC is also used in front of the Lead-in characters defined with option 171 and 172; see the *IDB Technical Reference*.

7.5.1. CSC "IDB First Char" (Option 8)

Option Value	IDB Value	User IDB Parameter	Comments
& *	38 [ampersand]	Not supported	<i>ASCII character as described above</i>

Advanced IDB: `&%IDB_EDIT: OPTION 8:38:EXIT`

7.5.2. CSC "IDB Second Char" (Option 9)

Option Value	IDB Value	User IDB Parameter	Comments
% *	37 [percent]	Not supported	<i>ASCII character as described above</i>

Advanced IDB: `&%IDB_EDIT: OPTION 9:37:EXIT`

7.5.3. CSC "Ignore Second IDB Char (Use Option 8 only)"

This option controls whether the character defined with the CSC "IDB Second Char" (Option 9) option should be ignored.

Option Value	IDB Value	User IDB Parameter	Comments
Yes	Not supported	Not supported	
No *	Not supported	Not supported	

It is also possible to limit the CSC character sequence to a single character by using the *Advanced IDB* command line below, which does **not**, however affect the setting of "Ignore Second IDB Char".

Advanced IDB: &%IDB_EDIT: OPTION 9:0:EXIT

7.5.4. "IDB Delimiter" (Option 7)

This option defines the delimiter used in the User IDB and Advanced IDB command languages to separate programming commands.

Option Value	IDB Value	User IDB Parameter	Comments
.*	58 [colon]	Not supported	ASCII character as described above (page 55).

Advanced IDB: &%IDB_EDIT: OPTION 7:58:EXIT

7.6. Working with PC-files and IDBs in the FTP directory

As mentioned in “[Introducing IDB and IDB-Terminology](#)” [page 9], an IDB becomes an actual file if you download the current settings from your print server to your pc. The IDB files made available on our web-site and CD-ROMs have been made in exactly this way.

You can edit the file on your PC and then load the changed file to the original and/or to others print servers. Or, you can just load the file to several different print servers without having edited.

7.6.1. Using FTP and the DOS-based Editor

Retrieval From the Print Server via FTP

- 1 Start an FTP session on the print server, change to the correct library (important!) and check the contents with the `dir` command. Consult the Print Server Administration Manual if you need information on how to do this.

Products based on G22: the correct library is in the root and is called `TN3270IDB`.

Products based on G32: the correct library is called `TN3270idb` (case-sensitive) and is located in the library called `Misc`, which is in the root.

- 2 The data will be transferred in binary mode, so set the FTP client as follows:

`binary`

- 3 Retrieve the IDB and store it in an appropriate place on your PC. The example below uses `C:\3270idbs` as the PC library.

`get tn3270e.idb c:\3270idb\tn3270e.idb`

It is best to save the file using another name; we will return to this on the next page. Example:

`get tn3270e.idb c:\3270idb\v3.idb`

The following conventions for naming must be followed:
The suffix `idb` must be used after a delimiting period/dot.
You can use maximum 8 ASCII characters (chosen from within the decimal range 33-122) in the name before the delimiter.

- 4 End the FTP session.

bye

Editing

Edit the *IDB configuration file* with the *Intermate 3270 IDB configuration file editor* program (*P01-xxxx.exe*). The utility program is included on the CD-ROM accompanying your print servers and can also be found on the web-site for the manufacturer of your particular print server.

Storage / Loading to a Print Server

- 1 Start an FTP session on the print server you want to load to (it needn't be the same one you took the file from).
- 2 Attach to the correct directory. This is very, very important.
- 3 The data will be transferred in binary mode, so set the FTP client as follows:

binary

- 4 Download the modified file.

```
put c:\3270idb\v3.idb
```

This example shows the exact preservation of the name.

If you want another name in the FTP directory, you must write a target name, for example:

```
put c:\3270idb\v3.idb john.idb
```

The logic behind this example is that there are several expert users of the print server who can signal to each other who is responsible for a given group of settings. However, John then runs the risk of not being able to keep track of which settings he has loaded. So it is probably better for the group to maintain a list of names (such as v1, v2, v3, etc.)

showing who is responsible for each. This is especially important if you do settings in one print server which you want to transfer to others.

The worst thing you can do is to "put" the file to the name `tn3270e.idb`. By doing so, you and your colleagues will not be able to see easily whether the contents of the IDB settings are factory defaults or your own configurations (see ["How to Restore SCS Config Factory Defaults"](#) [page 48]).

5 Activate the new settings. If you do it from the FTP session:

<code>cd ..</code>	Move one directory level up
<code>cd \reboot</code>	Change to the "reboot" directory
<code>get immediate</code>	Perform an immediate reboot or
<code>get controlled</code>	perform a controlled reboot

The FTP session is automatically terminated. If you want to terminate before activating (and then activate from the HTTP menu), end the FTP session with the `bye` command.

AFP/IPDS

8. Introduction to the IPDS Options

8.1. Overview

AFP/IPDS printing is supported over the TCP/IP protocol PPD/PPR. The print server automatically detects installed media sized, duplex, etc. by means of the HP PageJob Language (PJM). PJM is also used to monitor page counting while printing, thus providing an exact reporting to the host PSF.

The IPDS HPO allows the host to address the optional input trays and output bins of the printers, allowing the user to assign IPDS IBM-IDs individually to different trays and bins. You can print to any PCL5 or PCL5e compatible printer.

It is possible to configure one IPDS host session (service).

You can direct your IPDS print directly towards the local printer or (providing you have the Network Destination Option, NDO) towards a network printer.

If you want data manipulation, you must first choose and configure a logical printer which, in turn, carries the data stream to the target printer. If you need help in understanding these concepts, please consult the Print Server Administration Manual.

The IPDS-related information in this manual starts with a chapter on how to configure an IPDS printer on the host running an OS/400 system.

On the print server, there are three configuration pages to work with in the "IPDS Option" Sub-Group, and each of these is described in its own chapter:

- [IPDS]. This is where you enable IPDS printing, choose IPDS emulation and codepage, choose a target printer (or a logical printer, which in turn selects the target printer), and configure the target printer. See [page 70](#).
- [IPDS Margins]. This is used for fine adjustment (offset) of left and top margins for simplex, duplex front side of paper; and duplex back side of paper. It is possible to define settings to be used for all cassettes (input trays) or settings to be used on individually specified

cassettes (up to 8 in all). If you combine these two types of settings, the individual specifications are added to the settings for all cassettes. Finally, this configuration page allows you to adjust left and top margins for envelopes. See [page 92](#).

- [IPDS Mappings]. Our print servers support many different kinds of printers, and this means that PCL values are used in many different ways. The [IPDS Mappings] page allows you to map paper sources requested by the host to paper sources available on the target printer; and to map output bins requested by the host to output bins available on the target printer. See [page 97](#).

Our print servers are delivered with two alternative font sets whose use depends on the emulation you use. The final chapter in the IPDS section describes these font sets and tells you how to manage their use. See [page 103](#).

8.2. Practical Matters

8.2.1. Enabling IPDS Printing

Enabling IPDS printing without a *License Key* opens the printing feature in test mode only, and a "DEMO MODE" banner will appear on each printed page. Production printing is enabled by entering a *License Key*. Consult the Print Server Administration Manual for information on how to do this.

8.2.2. Upgrades and Print Server Differences

G22 (Intermate100)

If you are upgrading from a main firmware version without IPDS functionality (G22_0131 or older), you will have to copy the font file font300.ffs or font240.ffs (F09-8481 or F08-8481) via FTP to the "IPDSFONT" directory in the print server. See [page 104](#).

G32 (Intermate101)

The product was first publically released in January 2002. There are no special update considerations.

K92 (Intermate LAN FS3): Upgrades

If you want to update main firmware (K92), you must be sure that your boot firmware is K91_1071 (February 2001) or higher before upgrading the main code. If you fail to do this, the special IPDS component (K65) in this print server will be deleted and will have to load it manually.

Intermate LAN FS3 (K92): Special Printer Requirements

IPDS printing can be enabled in the following monochrome printers:

FS-600, -680, -800, -1000, -1200, -1700+, -1750, -1800, -3700+, -3750, -3800, -6700, -6900, -7000, -7000+, -9000.

Use the newest available firmware. The printer will stall unless it has 12-16 MB RAM **before** you install the Intermate LAN FS3.

8.3. Status Information and Troubleshooting

Always check settings before beginning to print.

You can do this easily by printing the *Main Status Pages* as described in the *Print Server Administration Manual*.

You should also check the country-specific settings, “[IPDS Codepage](#)” [page 73].

IPDS error messages in the *System Log* have the keyword IPDS in them and usually concern fonts. For products based on G22 or K92, but not G32, there is also a *Trace Function* which can be used in connection with problem localisation. It is typically used on request from technical support personnel. See [page 111](#).

9. IPDS Host Side

9.1. Introduction

Your print server enables IPDS printing directly from IBM MVS mainframes. Software requirements for the MVS are as follows.

- PSF/MVS Version 2 Release 2.0 with APAR OW15599, OW15018 and OW16442
- MVS Scheduler APAR OW12236 to support two new PRINTDEV keywords: IPADDR and PORTNO
- TCP/IP Version 3 Release 1, or higher installed and configured on MVS

Please refer to the following IBM publications for installation descriptions.

Publication name	Publication number
<i>Print Service Facility/MVS: Update Guide - Version 2, Release 2, Modification 0</i>	G544-3984-01
<i>Print Services Facility/MVS: System Programming Guide - Version 2, Release 2, Modification 0</i>	S544-3672-03
<i>PSF V3R1 for OS/390: Customization</i>	S544-5622-00
<i>PSF V3R1 for OS/390: Licensed Program Specifications</i>	G544-5626-00
<i>PSF V3R1 for OS/390: Messages and Codes</i>	G544-5627-00
<i>PSF V3R1 for OS/390: User's Guide</i>	S544-5630-00

The publications can be ordered from your local IBM office or found on the internet. See for example <http://www-1.ibm.com/servers/eserver/zseries/> . Use the *Publication number* as search object

9.2. Creating a New Printer

To create a new printer

1 Define the printer to VTAM.

```
PSFLIMA1 MODEENT LOGMODE=PSFLIMA1,
FMPROF='13',TSPROF='07',PRIPROT='B0',
SECPROT='B0',COMPROT='D0B1',RUSIZES='87F8'
PSERVIC='0602000000000000002000'
PSNDPAC='02,SRVCPAC='02',SSNDPAC='00'
```

2 Define the printer to a JES printer.

Example for JES2

```
FSS(FSS1) PROC=PSFPROC,HASPFSSM=HASPFSSM
PRT7 FSS=FSS1,MODE=FSS,
PRMODE=(LINE,PAGE,SOSI1),
CLASS=C,UCS=0,SEP,NOSEPDS,CKPTPAGE=100,
DRAIN,MARK,TRKCELL=YES
```

Example for JES3

```
FFSDEF,TYPE=WTR,FSSNAME=FSS3,PNAME=SAMPLE01,
SYSTEM=SYS1,TERM=NO,
DEVICE,DTYPE=PRTAFP1,NAME=PRT7,
JUNIT=(,SYS1,OFF),FSSNAME=FSS3, MODE=FSS,
PM=(LINE,PAGE,SOSI1),CHARS=(YES,GT12),
CARRIAGE=(YES,A868),CKPNTGP=100,
HEADER=YES,WC=(C)
```

3 Add the printer to the PSF STARTUP PROC.

```
//PRT7 CNTL
//PRT7 PRINTDEV FONTDD=*.FONT01,          /* FONT */
//OVLYDD=*.OLAY01,                        /* OVERLAY */
//PSEGDD=*.PSEG02,                        /* SEGMENT */
//PDEFDD=*.PDEF01,                        /* PAGEDDEF */
//FDEFDD=*.FDEF01,                        /* FORMDEF */
//JOBHDR=*.JOBHDR,                        /* JOB HEADER */
//JOBTRLR=*.JOBTLR,                       /* JOB TRAILER */
//DSHDR=*.DSHDR,                          /* DATA SET HEADER */
//FORMDEF=A10110,                          /* FORMDEF */
//PMSG=(YES,16),                           /* MESSAGES */
//DATAACK=BLOCK,                           /* BLOCK DATA CHECKS */
//TRACE=NO,                                /* INTERNAL TRACE */
//MGMTMODE=OUTAVAIL,                       /* OUTPUT AVAILABLE */
//DISCINT=15,                              /* TIMEOUT=15 SECONDS */
//TIMEOUT=REDRIVE,
//FAILURE=WCONNECT,                       /* ATTEMPT RECONNECT */
//IPADDR=192.168.1.235,
//PORTNO=5001,
//PRT7 ENDCNTL
```

See below for an explanation of the printer sharing parameters.

9.3. Printer Sharing Parameters

To enable the printer to start other print jobs from another protocol, interface or server the following parameters on the `PRINTDEV` statement have to be coded in the PSF STARTUP PROC.

```
MGMTMODE=OUTAVAIL
DISCINTV=15
TIMEOUT=REDRIVE
FAILURE=WCONNECT
IPADDR=192.168.1.235
PORTNO=5001
```

The value `15` for `DISCINTV` specifies the time in seconds after which the PSF ends the printer session when no output is available. The valid range is from 0 to 8160 seconds. The default value is `0`. If `DISCINTV=0`, the PSF does not end the printer session when no output is available.

For activation timeout errors, set the connect timer or activation timer in the PSF settings to 30 seconds or greater.

9.4. Sample PSF STARTUP PROC (JCL and PRINTDEV)

```

//SAMPLE PROC
//*
//STEP01 EXEC PGM=APSPPIEP,REGION=4096K,TIME=1440
//STEPLIB DD DSN=PSF.LINKLIB,DISP=SHR
//JOBHDR OUTPUT PAGEDEF=V06483, /* JOB HEADER */
// FORMDEF=A10110,CHARS=GT12 /* */
//JOBTLR OUTPUT PAGEDEF=V06483, /* JOB TRAILER */
// FORMDEF=A10110,CHARS=GT12 /* FORMDEF */
//MSGDS OUTPUT PAGEDEF=A08682 /* MESSAGE */
// FORMDEF=A10110,CHARS=GT15 /* */
//*
//FONT01 DD DSN=SYS1.FONTLIB,DISP=SHR /* SYSTEM FONTS */
// DD DSN=INST.FONTLIB,DISP=SHR /* USER FONTS */
//*
//PSEG02 DD DSN=INST.PSEGLIB,DISP=SHR /* PAGE SEGMENTS */
//*
//OLAY01 DD DSN=INST.OVERLIB,DISP=SHR /* OVERLAYS */
//*
//PDEF01 DD DSN=SYS1.PDEFLIB,DISP=SHR /* SYSTEM PAGE DEFS*/
// DD DSN=INST.PDEFLIB,DISP=SHR /* PAGE DEFS */
//*
//FDEF01 DD DSN=INST.FDEFLIB,DISP=SHR /*SYSTEMFORMDEFS*/
DD DSN=INST.FDEFLIB,DISP=SHR /* FORM DEFS */
//*
//PRT7 CNTL
//PRT7 PRINTDEV FONTDD=* .FONT01, /* FONT */
// OVLYDD=* .OLAY01, /* OVERLAY */
// PSEGDD=* .PSEF02, /* SEGMENT */
// PDEFDD=* .PDEF01, /* PAGEDEF */
// FDEFDD=* .FDEF01, /* FORMDEF */
// JOBHDR=* .JOBHDR, /* JOB HEADER */
// JOBTRLR=* .JOBTLR, /* JOB TRAILER */
// DSHDR=* .DSHDR, /* DATA SET HEADER*/
// FORMDEF=A10110, /* FORMDEF */
// PIMSG=(YES,16), /* MESSAGES */
// DATAACK=BLOCK, /* BLOCK DATA CHECKS */
// TRACE=NO, /* INTERNAL TRACE */
// MGMTMODE=OUTAVAIL, /* OUTPUT AVAILABLE */
// DISCINTV=15, /* TIMEOUT = 15 SECONDS */
// TIMEOUT=REDRIVE, /* */
// FAILURE=WCONNECT, /* ATTEMPT RECONNECT */
// IPADDR=192.168.1.235, /* IP ADDRESS */
// PORTNO=5001, /* PORT NUMBER */
//PRT7 ENDCNTL

```

10. [IPDS] Basic Configuration Page

An asterisk in " * " indicates the factory default setting.

The parameters are presented in the same order as they appear on the HTTP-menu.

10.1. Enable IPDS Printing and Select TCP Port

10.1.1. Enable IPDS Printing

If an IPDS *License Key* has been entered, IPDS is enabled in production printing mode. Otherwise it is enabled in test mode, which means the banner text "DEMO MODE" is printed on each IPDS page.

Value	Comments
Yes	Enable IPDS printing.
No *	Disable IPDS printing. Note concerning the Intermate LAN FS3: This means that no API code is downloaded to the printer.

See the *Print Server Administration Manual* for information on license keys.

10.1.2. IPDS TCP Port

This parameter selects the TCP port used for IPDS printing on the target printer.

Value	Comments
5001 * [1024..65500]	Other commonly used port numbers are 3700 and 9600.

10.1.3. Secure Print (ISPP)

Value	Comments
Yes	Requires the use of LRS software on the host (see page 3)

Value	Comments
No *	Default

10.2. IPDS Timeout and IPDS Emulation

10.2.1. IPDS Timeout

This parameter prevents the print server from activating another logical port on the target printer during host printing. The setting value indicates the time in seconds from the latest host data is received until the first pending job is printed.

Troubleshooting tip:

If bits of job language commands (for example PCL or Postscript commands, or on Kyocera printers Prescrib L) appear in the middle of a host print, you should increase the setting of this parameter.

Value	Comments
30 * [30..255]	The time is measured in seconds.

10.2.2. IPDS Emulation

This parameter selects the IBM printer emulation to be used by the print server.

Value	Comments
3812	IBM 3812/3816 (240 dpi only). The 3812 and 3816 replies are identical. If for instance duplex is enabled, then this is reported to the host independently of the emulation.
3916 *	IBM 3912/16; 3112/16 (300 dpi only)
4028	IBM 4028 (300 dpi only)

If an emulation which uses another font resolution than the current is selected, another font file must be downloaded via FTP, because the print server only has room for one font file (the procedures are described in [“IPDS Font Management”](#) [page 103]).

10.3. IPDS Codepage

This parameter controls what code page is used. See also “[IPDS Codepage ver.](#)” [page 75].

Code Page	Value	Comments
500 *	IntSet5	International Set 5 (multinational)
37	USA/Can	USA/Canada
256	IntSet1	International Set 1
259	SymSet7	Symbol Set 7
260	Can French	Canadian French
273	Aus/Ger	Austria/Germany
274	Belgian	Belgium
275	Brazil	Brazil
277	Den/Nor	Denmark/Norway
278	Fin/Swe	Finland/Sweden
280	Italy	Italy
281	Japan Eng	Japan-English
282	Portugal	Portugal
284	Spain Spk	Spanish Speaking
285	UK	United Kingdom
286	Aus/Ger Alt	Austria/Germany (alternate)
287	Den/Nor Alt	Denmark/Norway (alternate)
288	Fin/Swe Alt	Finland/Sweden (alternate)
289	Spain Alt	Spain (alternate)
290	Japan Kat	Japan-Katakana
293	APL	APL
297	France	France
500	-	Reserved 340 OCR

Code Page	Value	Comments
361	Int Typo	International Typographic
437	PC	Personal Computer
37	Portugal Alt	Portugal (alternate)
871	Iceland	Iceland
892	OCRA	OCR-A
893	OCRB	OCR-B
37	Can Bil	Canadian Bilingual
500	Swiss Bil	Swiss Bilingual
284	Spain	Spanish
1026	Turk1	Turkey
905	Turk2	Turkey
423	Greek1	Greece
875	Greek2	Greece
Code pages with Euro Support are shown below this line		
1140	USA EU	USA/Canada
1141	Aus/Ger EU	Austria/Germany
1142	Den/Nor EU	Denmark/Norway
1143	Fin/Swe EU	Finland/Sweden
1144	Italy EU	Italy
1145	Spain Spk EU	Spain
1146	UK EU	United Kingdom
1147	France EU	France
1148	Multi Lang EU	Multinational
1149	Iceland EU	Iceland

10.4. IPDS Codepage ver.

This parameter controls which code page version is used.

Note:

The code pages differ on a few special characters. Refer to the *IBM font reference manual* for details.

Value	Comments
Ver. 0	Use old code page version 0.
Ver. 1 *	Use standard code page version 1 for code pages close to 37 or 500 (non typographic standard code pages).

10.5. Exception Override and Enable IR Reply

10.5.1. Exception Override (= Exception Suppression)

This parameter overrides/ suppresses the error reporting known as Exception Handling Control (EHC) in the IPDS data stream.

It is often practical to suppress exception reporting on undefined characters and on position errors (printing outside the valid printable area).

Value	Comments
None *	No suppression of exceptions.
Position	Exception reporting for position errors (outside VPA) is suppressed.
Undefined	Exception reporting, when an undefined character is found, is suppressed.
Both	Both position errors and undefined character exceptions are suppressed.

10.5.2. Enable IR Reply

This parameter allows you to enable or disable "intervention required" reporting to the PSF when paper out, paper jam or other incidents needing user intervention occur.

Value	Comments
Yes *	Interventions are reported.
No	Interventions are NOT reported.

10.6. Page Count Update

This parameter controls when the page counter for the target printer is updated.

Value	Comments
Early*	Update the page counter after pages have been <i>processed</i> . This usually gives the maximum print speed.. If the printer does not support bidirectional printing, the fall-back setting on external servers will be Trans.
Trans	External servers only (G22, G32): Update the page counter after pages have been <i>transferred</i> or sent to the printer. This setting will be forced if the target printer does not support bidirectional printing.
Late	Update the page counter after pages have been <i>printed</i> . External servers only (G22, G32): Do not use this setting if you are printing to a local printer working in "Compatible Mode" — set in [Local Printer Parallel Port], "Parallel Port IEEE P1284 Negotiation Mode".

Troubleshooting tip:

If the host doesn't receive a message when an IPDS job is finished printing, check the "Page Count Update" parameter. The setting will probably be "Late", and if so, the solution to the problem is to change the setting to "Early" and then reboot.

10.7. Resource Memory

This parameter controls the allocation of memory between the IPDS resource memory and the output buffer used for pages ready for print.

Increasing resource memory can be a good idea if you are printing large IPDS jobs with many downloaded fonts, page segments and overlays.

Value	Comments
Normal *	Normal memory allocation.
Less	Allocate less memory for resource memory but more for output buffer.
More	Allocate more memory for resource memory but less for output buffer.

10.8. Printable Area

This parameter controls reporting of printable area and logical corners, which is reported in the IPDS Obtained Printer Characteristics reply on the 4028 emulation .

Value	Comments
3816	Normal. Printable area and paper size is the same.
4028 *	4028 <i>compatible</i> . Printable area is smaller than the paper size, thereby allowing the host to compensate for the reduced printable area of the printer.
Page	4028 <i>Print Page</i> . The upper left corner (0,0) of the Logical Page is forced inside the 4028 Printable Area.

10.9. Enable MICR Reply

This parameter allows you to enable or disable magnetic ink printing being reported to the host.

Value	Comments
Yes	Magnetic ink is supported.
No *	Magnetic ink is NOT supported.

10.10. Enable Output Jogging

This parameter tells the IPDS emulation if jogging should be performed. Refer also to [IPDS Mappings] > “Output Mappings” [page 101]. .

Value	Before release level 2171 Comments
Yes	Enable the use of the JOG command.
No *	Disable the use of the JOG command. The print server continues to report to the host that it is capable of jogging. Note: This setting does NOT disable the use of a stacker.

Value	Starting with release level 2171 Comments
Disabled *	The IPDS Jog command is ignored. This setting does NOT disable the use of a stacker. The print server continues to report to the host that it is capable of jogging. This is the equivalent of No in earlier releases.
Normal Jog PCL	This setting will jog all following pages until the next job command is received, so whole sets are jogged. This is equivalent to Yes in earlier releases.
Single Page Only PCL	This setting will jog only the first page after receiving a jog command.
Normal Job UEL/PJL	The UEL <esc>%-12345X is used to make a job separation equivalent to Normal Job PCL.
Single Page Only UEL/PJL	The UEL <esc>%-12345X is used to make a job separation equivalent to Single Page Only PCL.

10.11. Skip Blank Pages

This parameter allows you to choose whether or not to skip the printing of valid blank pages.

Value	Comments
Yes	Skip printing of valid blank pages.
No *	Print valid blank pages.

10.12. Rotate Simplex Pages

This parameter allows you to rotate simplex pages 180 degrees relative to duplex pages.

The option is intended for use with mixed printing of simplex and duplex jobs or letterhead paper on printers feeding the paper on the long edge.

Value	Comments
Yes	Rotate the paper 180 degrees.
No *	Do NOT rotate the paper.

10.13. Cass Select On All Pages

Note: This option is only for use on certain older Kyocera printers (for example the FS-3750 printer when using printer firmware version 56.08). The option was provided as a work-around to paper being taken randomly from wrong cassettes when printing certain kinds of single page IPDS jobs.

This parameter allows you to enable cassette selection on each page.

Value	Comments
Yes	Force cassette selection on each page instead of only when switching between different cassettes. This decreases print speed.
No *	Disable cassette selection on each page.

10.14. Cass Linking

This setting works together with the printer's automatic linking setting, enabling automatic switching between the printer's input cassettes when one cassette runs out of paper.

The printer's linking setting is set up using the printer's control language.

The printer's linking parameter and the setting for the print server's "Cass Linking" parameter must have the same setting in order for the linking to function properly.

The tables below show the possible settings from within the print server.

Value	Comments
No_Link *	Do NOT link any cassettes, i.e. do not switch cassette when the current cassette runs out of paper.
1, 2	Link cassettes 1 and 2. When the current cassette is reported empty, paper is fed from the alternative cassette. If the current cassette is no. 1, cassette no. 2 is used when this is empty or vice versa.
3, 4	Link cassettes no. 3 and 4 in the same manner as described for "1,2."
5, 6	Link cassettes no. 5 and 6 in the same manner as described for "1,2"
1 to 4	Link cassettes 1, 2, 3 and 4. When the current cassette is reported empty, paper is fed from the alternative cassettes, starting from the bottom. If printing is done from cassette no. 1, cassette no. 4 is used when cassette no. 1 runs out of paper. If cassette no. 4 also is empty, cassette no. 3 is used and so on.
3 to 6	Link cassettes 3, 4, 5 and 6 in the samme manner as described for "1 to 4".
1, 2, 5, 6	Link cassettes no. 1, 2, 5 and 6 in the samme manner as described for "1 to 4".
1 to 6	Link cassettes no. 1, 2, 3, 4, 5 and 6 in the samme manner as described for "1 to 4".

Refer to your printer documentation for details about your printer's language and how to send commands to the printer.

10.15. Duplex Printing

This parameter controls the reporting of duplex printing capabilities to the host.

Note:

G22 and K92: Before release level 1071, the default was auto detect. Because the product can now support network printers as well as a local printer, the auto detect has been removed. If you have used an earlier version and set "Duplex Printing" to "Auto", the setting will change to the new default "Simplex" when you do the firmware upgrade.

Value	Comments
Simplex *	Do NOT report duplex capabilities to the host, even if the duplex unit is physically present. All pages are printed in simplex.
Duplex	Force duplex capabilities to be reported to the host. If duplex support is missing duplex pages are printed in simplex.

10.16. Paper Types (LAN FS3 - K92 only)

The [IPDS] configuration page for this print server includes the parameters for setting paper types. Paper types for the other print servers are set on the [IPDS Mappings] configuration page (see [“Paper Types \(External Print Servers Gxx\)” \[page 100\]](#) because of a very close association between paper type and input cassette.

You can set paper types for the following 8 trays, depending, of course, on what is how many cassettes are installed on the target printer.

- MP Tray (MP = Manual Paper)
- Cass1
- Cass2
- Cass3
- Cass4
- Cass5
- Cass6
- Manual Feed (or Envelope Feed)

Paper Types for the LAN FS3 (K92)	
Value	Comments
NONE	No paper type reported to the host.
AUTO *	Auto detect (equal to the paper type in the auto-cassette)
MONARCH	Monarch envelope (4.125 x 7.5 inch)
BUSINESS	Business envelope (4.125 x 9.5 inch)
DL	DL envelope (11 x 22 cm)
C5	C5 envelope (16.2 x 22.9 cm)
EXEC	Executive (7.25 x 10.5 inch)

Paper Types for the LAN FS3 (K92)	
Value	Comments
LETTER	US letter (8.5 x 11 inch)
LEGAL	US legal (8.5 x 14 inch)
A4	A4 (21 x 29.7 cm)
JIS B5	JIS B5 (18.2 x 25.7 cm)
A3	A3 (29.7 x 42 cm)
B4	B4 (25.7 x 36.4 cm)
LEDGER	US ledger (11 x 17 inch)
A5	A5 (14.8 x 21 cm)
A6	A6 (10.5 x 14.8 cm)
JIS B6	JIS B6 (12.8 x 18.2 cm)
COMM_9	Commercial envelope no. 9 (3.875 x 8.875 inch)
COMM_6	Commercial no. 6 (3.625 x 6.5 inch)
ISO B5	ISO B5 envelope (17.6 x 25 cm)
CUSTOM	Custom (11.7 x 17.7 inch)
C4	C4 (22.9 x 32.4 cm)
HAGAKI	Hagaki (10 x 14.8 cm)
OFUKU HAGAKI	Ofuku-Hagaki (14.8 x 20 cm)

10.17. Output To—or "Use Logical Printer"/Output To

For users of K92-based print servers and older products based on a G-component, this parameter sets the logical printer which will be used for SCS jobs. If the Network Destination Option (NDO) is enabled, the logical printer definition is the only medium through which a network printer (Netw#) can be chosen.

On print servers based on G22 or G32, the "Output To" parameter replaces "Use Logical Printer". "Output To" defines the target printer which will be used for SCS jobs, either directly indirectly through choosing a logical printer.

G22 release levels lower than 2111 and all K92 products "Use Logical Printer"	G32/G34 and G22 release levels at 2111 or higher "Output To"	Comments
PR0*	Logical Printer 0	No manipulation of data. Users of the Network Destination Option (NDO) please note: The target printer will be the printer designated as "System Target Printer" on the [General] configuration page in the "Configurations > Basic" sub-group.
PR1, PR2, PR3, PR4 PR5, PR6, PR7, PR8	Logical Printer 1 Logical Printer 2 Logical Printer 3 Logical Printer 4 Logical Printer 5 Logical Printer 6 Logical Printer 7 Logical Printer 8	Select one of these queues to have data manipulated by a logical printer definition. Users of the Network Destination Option (NDO) please note: The definition of the logical printer includes choice of target printer. An NDO Load Balancing Pool can only be chosen through a logical printer.
not available	Local Printer Network Destination 1 Network Destination 2 Network Destination 3 Network Destination 4	Direct selection of single target printer for users of the Network Destination Option (NDO)

If you need help in understanding what logical printers are and how they are used, please refer to the Print Server Administration Manual.

10.18. Enable Adaptive Compression

Value	Comments Feature added in release level 1391
Yes*	<p>Improves processing speed.</p> <p>The PCL full page graphics image generated for each IPDS page is compressed according to the Adaptive Compression Method 5 as specified in the PCL5 Technical Reference Manual, first edition (1992). This method is supported on HPIIIP- and HP4-compatible printers and later models.</p>
No	<p>Must be chosen if the printer does not support PCL 5e.</p> <p>The PCL full page graphics image generated for each IPDS page is compressed according to the TIFF 4.0 Encoding Method 2 as specified in the PCL5 Technical Reference Manual first edition (1992). This method is supported by HPIII-, HPIIID- and HPIIISI-compatible printers and later models.</p>

10.19. Reserved Option

This option is reserved for future use.

Option Value	Comments
0 *	

11. [IPDS Margins]

11.1. What This Configuration Page Contains

This configuration page has two main groupings:

- 1 Margin adjustments (offsets) to be applied to Front Page Top, Front Page Left, Back Page Top, and Back Page Left.

Within this main grouping, there are nine groups (seven in the LAN FS3 (K92)).

- a "All Mappings"
(for LAN FS3 (K92) the label is "All Cass")
- b ## Mapping, meaning 1st Mapping, 2nd Mapping ... 8th Mapping
(for LAN FS3 (K92) the label is ##Cass, meaning 1st Cass, 2nd Cass ... 6th Cass).

The settings for "1st...", "2nd...", etc. are added to the settings in "All".

- 2 Envelope margins adjustments. You can configure Envelope Top Margin and Envelope Left Margin.

11.2. All Mappings / All Cass

The unit is always 1/300 of an inch. Negative values will make a margin smaller/narrower than the job would do itself, while positive values make the margin larger/broader.

11.2.1. Front Page Top Margin (Front Page = Front Side)

This parameter is used to adjust the top margin for all mappings/cassettes. If the job is duplex, it affects the front side of the page.

Value	Comments
0 * [-128..+127]	-

11.2.2. Front Page Left Margin (Front Page = Front Side)

This parameter is used to adjust the left margin for all mappings/cassettes. If the job is duplex, it affects the front side of the page.

Value	Comments
0 * [-128..+127]	The print server interprets "left" as the left of a printed page according to its orientation, which is either portrait or landscape. In other words, the result is not dependent on which edge of the paper is the physical leading edge.

11.2.3. Back Page Top Margin (Back Side in Duplex)

This parameter is used only with duplex printing. It is used to adjust the top margin for all mappings/cassettes.

Value	Comments
0 * [-128..+127]	-

11.2.4. Back Page Left Margin (Back Side in Duplex)

This parameter is used only with duplex printing. It is used to adjust the left margin for all mappings/cassettes.

Value	Comments
0 * [-128..+127]	The print server interprets "left" as the left of a printed page according to its orientation, which is either portrait or landscape. In other words, the result is not dependent on which edge of the paper is the physical leading edge.

11.3. ## Mapping / ## Cassette

For each tray/cassette you can adjust Front Page Top Margin, Back Page Top Margin, Front Page Left Margin, and Back Page Left Margin. The definitions of these margin types is the same as indicated above in connection with All Mappings / All Cassettes.

The unit is always 1/300 of an inch. Negative values will make a margin smaller/narrower than the job would do itself, while positive values make the margin larger/broader..

The setting for any given given tray / cassette is always added to the settings specified in All Mappings / All Cassettes.

11.4. Envelope Margins

The unit is always 1/300 of an inch. Negative values will make a margin smaller/narrower than the job would do itself, while positive values make the margin larger/broader.

11.4.1. Envelope Top Margin

This parameter controls the top margin for envelopes.

Value	Comments
0 * [-128..+127]	-

11.4.2. Envelope Left Margin

This parameter controls the left margin for envelopes.

Value	Comments
0 * [-128..+127]	The left margin is always located at the edge of the paper to the left of the leading edge.

12. [IPDS Mappings] for Input and Output Sources

12.1. Introduction

These parameters control

- how the host's IPDS requests for input sources are mapped to an input source in the target printer
- how the host's IPDS requests for output sources are mapped to an output source in the target printer.

Any host source can be mapped to any printer source. Thus, a mapping always consists of two values: an IBM ID and a value identifying the source in the target printer.

The [Input Mappings] page for external print servers (G22, G32) also includes a third field containing a definition of paper type because of a very close association between paper type and input cassette. The available values are listed in "[Paper Types \(External Print Servers Gxx\)](#)" [page 100].

(Paper type definitions for the LAN FS3 (K92) are found on the [IPDS] page—see "[Paper Types \(LAN FS3 - K92 only\)](#)" [page 87]).

12.2. Input Mappings

The configuration page allows you to make up to 8 input mappings on external print servers and 6 on internal (LAN FS3 - K92). Each pair is labeled as follows:

1st Cass IBM ID = IPDS Input Number

1st Cass PCL Value (LAN FS3 (K92): 1st Cass Input Drawer)

....

nth Cass IBM ID = IPDS Input Number

nth Cass PCL Value (LAN FS3 (K92): 1st Cass Input Drawer)

The IPDS input number is reported to the host by the print server. It has a value between 0 and 255, both included.

The Cassette number selects the physical tray in the printer. How it is set depends on which type of print server and which type of target printer is being used.

A single IPDS input number can be mapped to only one input tray (PCL Value / Input Drawer number). Said in another way, each IPDS input number can only be stored once in the print server, while a single physical input tray can be mapped to several IPDS input numbers, thus linking them to that tray.

The example below sets the first mapping to its default setting.

External Print Servers:

1st Cass IBM ID = 0

1st Cass PCL Value = 1

LAN FS3 (K92):

1st Cass IBM ID = 0

1st Cass Input Drawer = Cass1

This pair of settings says: For IPDS input number "0", select the physical input tray number 1.

The factory default tray mapping setup is shown below.

Mapping no.	IBM ID = IPDS Input Number	External print servers (G-components) Cassette number	LAN FS3 Input Drawer (see note*)
1st	0	1	Cass1
2nd	1	4	Cass2
3rd	2	5	Cass3
4th	3	20	Cass4
5th	4	21	Cass5
6th	72	6	Envelope
7th	99	2	MP Tray
8th	7	0	Disabled

Note: On the LAN FS3 (K92) you must choose the value from a pull-down list.

- Disabled
- Cass1
- Cass2
- Cass3
- Cass4
- Cass5
- Cass6
- Envelope
- MP Tray

12.3. Paper Types (External Print Servers Gxx)

Your choice of paper type is mapped together with the mappings between IBM ID and PCL Value.

The paper type for each cassette is reported to the host, which will format the print job according to the setting for Paper Type. So you must be sure that the chosen Paper Type corresponds to the physical tray associate by the Cass PCL value in the mapping. Refer to the technical reference guide for your printer for information on the association between PCL values and the physical paper trays.

Note, however, that the manual association between the Cass PCL value and the Paper Type option can also be used deliberately to make the host format a print job according to a certain paper type but have it printed on another paper type available in the printer.

The default paper type for the 1st through the 7th mappings is A4. The default paper type for the 8th mapping is "Disabled". Note that the value AUTO (Auto detect = the paper type in the auto-cassette), which was default before G22_1071, is no longer used because of inconsistency in different printer manufacturers' way of handling the relation between the PCL "tray select" value and the tray information retrieved by PJI. If you used the AUTO setting from an older firmware version, it will be forced to A4.

The available paper types are shown below.

12.4. Output Mappings

Scroll down the [IPDS Mappings] Configuration Page to find the parameters for controlling how the host's IPDS requests for physical output bins are mapped.

The configuration page allows you to make up to 11 output mappings. Each pair is labeled as follows:

1st Output Bin IBM ID = IPDS Output Number

1st Output Bin PCL Value

(LAN FS3 (K92): 1st Bin Output Drawer)

....

11th Output Bin IBM ID = IPDS Output Numb

11th Output Bin PCL Value

(LAN FS3 (K92): 1st Bin Output Drawer)

Any host IPDS output bin can be mapped to any output bin in the printer.

The IPDS input number is reported to the host. It has a value between 1 and 255, both included. If the IPDS Output Number is set to 0, this means disable mapping.

An IPDS output number can be mapped to only one output bin. Said in another way, each IPDS output number can only be stored once in the print server, while an output bin can be mapped to several IPDS output numbers, thus linking them to the same physical printer input tray.

See also ["Enable Output Jogging" \[page 81\]](#).

The example below sets the first mapping to its default setting.

External Print Servers:

1st Output Bin IBM ID = 1

1st Output Bin PCL Value = 1

LAN FS3 (K92):

1st Output Bin IBM ID = 0

1st Output Drawer = Cass1

Each pair of settings says: For IPDS output number "1", select the physical output bin number 1 (External print servers) or the physical output drawer number BIN0 (LAN FS3 (K92)).

The factory default output bin mapping setup is shown below.

Mapping no.	IBM Output Bin ID = IPDS Output Number	External print servers (G-components) Output Bin PCL Number	LAN FS/3 Output Drawer (see note*)
1st	1	1	Bin0
2nd	2	2	Bin0F
3rd	0	0	Bin1
4th	0	0	Bin0
5th	0	0	Bin0
6th	0	0	Bin0
7th	0	0	Bin0
8th	0	0	Bin0
9th	0	0	Bin0
10th	0	0	Bin0
11th	0	0	Bin0

Note:

On the LAN FS3 you must choose the value from a pull-down list.

- Bin0 - Bin 10 (11 separate values) These values will send the printout face down to the output bins 0 - 10. Use of these bins requires that a sorter (eg SO-30) is installed. If a stacker (eg DF-30 or ST-30) is installed output bins cannot be selected individually. Refer to your printer documentation for details.
- Bin0F - Bin 10F (11 separate values). These values will send the printout face up to the output bins 0 - 10. These bins also require that a sorter or stacker is installed. Only a sorter can be used to direct the printout to individual output bins.

13. IPDS Font Management

13.1. General Information

There are two sets of bitmap fonts available (240 dpi and 300 dpi). Choice of font type depends on the emulation you work with

File Name	File included	Latest version as of the date of this Guide; Comments
F08-xxxx.zip	font240.ffs	F08-8481 (publically released in March 1999) This font file contains 240dpi IPDS fonts, and is equivalent to the resident fonts of the IBM 3812 and IBM 3816 printers.
F09-xxxx.zip	font300.ffs	F09-1421 (publically released in January 2002, released as Beta in October 2001). This font file contains 240dpi IPDS fonts, and is equivalent to the resident fonts of the IBM 4028 and IBM 3916 printers. The print server is delivered with this font set.

A summary description of both font sets is found at the end of this chapter.

13.1.1. About the Euro Symbol

All fonts except OCR and APL were updated with the Euro symbol in both sets effective March 1999. At the same time, the IPDS main code was updated to ensure support of code pages using the Euro symbol.

13.2. Why to Replace a Font File

- 1 If you switch emulations, you may need to switch sets between 300 dpi and 240 dpi because there is only room for one set of IPDS fonts. On delivery the unit contains the 300 dpi set.
- 2 You may want to load an updated version or load the fonts for the first time after upgrading from very old firmware.
- 3 You may want to replace the font set currently loaded because of an error message in the *System Log /* on the *Main Status Pages*.

Possible error messages are:

- a "Missing IPDS Font. Please FTP the Font File".
- b "Missing IPDS Font dir."
- c "Can't open IPDS Font file"
- d "Can't read IPDS Font"

Message <a> tells you to load a font file as explained below ([page 105](#)).

If you get one of the other messages, try to correct the problem by loading a fresh font file. If this does not work, please contact your point of purchase

13.3. How to "FTP a Font File"

- 1 When you extract the "ffs" file from F0x-xxxx.zip to an accessible drive (for example C:\Fontupdates), you will also notice a "dl" file, which is not used in connection with LAN-based print servers (you are free to delete it from the drive)
- 2 Start an FTP session on the print server (sample IP address; the precise FTP syntax may vary):
`ftp 192.168.0.227`
- 3 Give the user name (admin) and password (case-sensitive) for the print server.
- 4 Change to the correct library
for print servers based on G22 or K92
`cd IPDSFONT`
for print servers based on G32
`cd Misc`
`cd IPDSFont`
- 5 List the library (directory) contents
`dir`
- 6 Delete the unwanted file (the file name you type in must match the case you see in the directory list)
`del font300.ffs`
- 7 Choose binary mode
`binary`
- 8 Download the file from your PC to the print server. The syntax is: `put <source> <target>`. In order to avoid making typographical errors in the file name, leave out <target>. Example:
`put C:\Fontupdates\font240.ffs`
- 9 End the FTP session
`bye`

If these instructions are not sufficient, or if you want to do bulk upgrades, consult the chapters on Maintenance in the Print Server Administration Manual.

13.4. IBM 3812 Emulation 240 dpi Fonts

"Subs/Bold ID": b = created by bolding algorithm: s = simulated by substitution			
No.	IBM font ID	Subs/Bold ID	Equivalent IBM font
1	3		OCR-B
2	5		Orator 10
3	11		Courier 10
	12	s 11	Prestige 10
	13	s 11	Artisan 10
4	18		Courier Italic 10
5	19		OCR-A
	20	s 12	Pica 10
	26	s 40	Matrix Gothic 10
	30	s 11	Math-symbol 10
	38	b 5	Orator bold 10
	39	b 40	Gothic-text bold 10
6	40		Gothic-text 10
	41	s 40	Roman-text 10
	42	s 40	Serif-text 10
	43	s 68	Serif-text Italic 10
7	44		Katakana-gothic 10
8	45		APL 10
	46	b 11	Courier bold 10
	60	b 12	Prestige bold 10
9	66		Gothic-text 12
10	68		Gothic-text Italic 12
	69	b 66	Gothic-text bold 12

"Subs/Bold ID": b = created by bolding algorithm: s = simulated by substitution			
No.	IBM font ID	Subs/Bold ID	Equivalent IBM font
	70	s 66	Serif-text 12
	71	s 68	Serif-text Italic 12
	72	s 69	Serif-text bold 12
	80	s 86	Math-symbol 12
11	84		Script 12
12	85		Courier 12
13	86		Prestige 12
14	87		Letter-gothic 12
	91	s 112	Light-Italic 12
	107	s 85	12 Pitch
	108	b 85	Courier bold 12
	110	b 87	Letter-gothic bold 12
	111	b 86	Prestige bold 12
15	112		Prestige Italic 12
16	155		Boldface Italic
	158	s 175	Modern
	159	b 175	Boldface
17	160		Essay
18	162		Essay Italic
	163	b 160	Essay bold
19	173		Essay light
20	175		Document
	176	s 159	Boldface
	177	s 155	Boldface Italic

"Subs/Bold ID": b = created by bolding algorithm: s = simulated by substitution			
No.	IBM font ID	Subs/Bold ID	Equivalent IBM font
21	204		Gothic-text 13
	221	s 230	Prestige 15
	222	s 230	Gothic 15
	223	s 230	Courier 15
	225	s 86	Math-symbol 15
	229	s 230	Serif 15
22	230		Gothic-text 15
23	244		Courier 5
	245	b 244	Courier bold 5
24	252		Courier 17
	253	b 252	Courier bold 17
25	254		Courier 17ss
26	280		APL 20
27	281		Gothic-text 20
28	290		Gothic-text 27
29	751(4407/54)		Sonoran serif 8pt
30	1051(4407/66)		Sonoran serif 10pt
31	1053(4427/66)		Sonoran serif bold 10pt
32	1056(4535/66)		Sonoran serif Italic 10pt
33	1351(4407/78)		Sonoran serif 12pt
34	1653(4427/108)		Sonoran serif bold 16pt
35	2103(4427/162)		Sonoran serif bold 24pt

13.5. IBM 4028 (3916) Emulation 300 dpi Fonts

About the columns for "CPI" and "Point Size"

For fonts with fixed pitch, figures for point size are shown as a secondary information (in parentheses).

In the "CPI" column:

PS = Proportional Spaced Typeface

Typo = Typographical Typeface (not fixed pitch).

Our IPDS Font	IBM font ID	CPI	Point Size	Equivalent IBM font
OCR-B	3	10	(12)	OCR-B
Courier 10	11	10	(12)	Courier
Prestige Pica	12	10	(12)	Prestige Pica
Courier Italic 10	18	10	(12)	Courier Italic
OCR-A	19	10	(12)	OCR-A
Courier Bold 10	46	10	(12)	Courier Bold
APL 12	76	12	(10)	APL
Courier 12	85	12	(10)	Courier
Prestige Elite	86	12	(10)	Prestige Elite
Courier Italic 12	92	12	(10)	Courier Italic
Prestige Elite Bold	111	12	(10)	Prestige Elite Bold
Prestige Elite Italic	112	12	(10)	Prestige Elite Italic
Boldface	159	PS	12	Boldface
Prestige PS	164	PS	12	Prestige
Gothic-text 13	203	13.3	(9)	Gothic Text (311x)
Prestige	221	15	(9)	Prestige
Courier 15	223	15	(9)	Courier
Courier 17	254	17.1	(8.5)	Courier

Our IPDS Font	IBM font ID	CPI	Point Size	Equivalent IBM font
Prestige	256	17.1	(8.5)	Prestige
Letter Gothic 20	281	20	(7.5)	LetterGothic
Gothic-text 20	283	20	(6)	Gothic Text (311x)
Gothic-text 27	290	26.7	(5)	Gothic Text (311x)
Nimbus Roman	5687	Typo	6	Times Roman
Nimbus Roman	5687	Typo	8	Times Roman
Nimbus Roman	5687	Typo	10	Times Roman
Nimbus Roman	5687	Typo	12	Times Roman
Nimbus Roman Bold	5707	Typo	10	Times Roman Bold
Nimbus Roman Bold	5707	Typo	12	Times Roman Bold
Nimbus Roman Bold	5707	Typo	14	Times Roman Bold
Nimbus Roman Bold	5707	Typo	18	Times Roman Bold
Nimbus Roman Bold	5707	Typo	24	Times Roman Bold
Nimbus Roman Italic	5815	Typo	10	Times Roman Italic
Nimbus Roman Italic	5815	Typo	12	Times Roman Italic
Nimbus Roman Bold Italic	5835	Typo	10	Times Roman Bold Italic
Nimbus Roman Bold Italic	5835	Typo	12	Times Roman Bold Italic

Nimbus Roman is a functional equivalent of *Times Roman*.
Times Roman is a registered trademark of Linotype AG and/or its subsidiaries.

14. HPO Trace Function (SCS and IPDS)

14.1. Availability

The trace function is only available in products built on G22 and K92.

In order to trace SCS or IPDS data, the corresponding protocol has to be enabled in the print server. After enabling and rebooting, the HTTP menu will display "Stop IPDS Trace" and/or "Stop SCS Trace."

The *Trace Function* is not affected by whether or not a *License Key* has been entered.

14.2. How to Trace

The actual tracing of data is started from a FTP session and stopped by using the "Stop xxxx Trace" item in the "Actions" group on the HTTP menu. The "Stop xxxx Trace" item only appears after you have activated the HPO option concerned. Activation includes not only "enabling" but also including identifying information (IP address, host name, and so on) for the particular session.

Trace data	FTP directory	File to retrieve
SCS (TN3270E)	SCS3270TRACE	SCS3270TRACE
SCS (TN5250E)	SCS5250TRACE	SCS5250TRACE
IPDS	IPDSTRACE	IPDSTRACE

When the trace is running, the FTP session must NOT be stopped, as the traced data otherwise will be lost. After the trace is stopped and saved, the FTP session can be closed. Refer to the procedure below.

- 1 Start anFTP session on theprint server.
ftp 192.168.0.227

- 2 Give your user name and password (case sensitive).
- 3 Set the FTP client to binary transfer mode.
binary
- 4 Begin the trace with the following command; the examples assume that you want the output written to a file called `trace.tmp` located in the root of your C-drive.
Example - Starting an SCS5250 trace

```
get /scs5250trace/scs5250trace c:\trace.tmp
```

Example - Starting an SCS3270 trace

```
get /scs3270trace/scs3270trace c:\trace.tmp
```

Example - Starting an IPDS trace

```
get /ipdstrace/ipdstrace c:\trace.tmp
```
- 5 Send a print job from the host.
- 6 Wait for the print job to complete.
- 7 Log in to the print server with a web browser.
- 8 Stop the trace by clicking the [Stop XXX Trace] link found under the "Actions". This saves the trace automatically to the file and location specified in step 4.
- 9 End the FTP session.
bye
- 10 Log out of the print server by closing the web browser window.

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