



# Drucken im Büro

DECUS Symposium 2003

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## Agenda



- DCPS Update
- DCPS V2.2
- DCPS V2.3
- DCPS Future Enhancements and Directions
- HP Printers
- Problems and Solutions
- Tips and Tricks

## DCPS Update – DCPS V2.1



- Shipped August 2002
- Added support for 21 new printer models
  - HP LaserJet 2200, 4100, 9000
  - HP Color LaserJet 4600
  - Genicom cL160, mL402, mL450, LN45
  - IBM InfoPrint 21, 32, 40
  - Lexmark C720, C910
  - Lexmark T520, T522, T620, T622
  - Lexmark W820
  - Xerox DocuPrint N24, N32, N40

## DCPS Update – DCPS V2.1



- New support for punching
- Stapling support for more HP printers
- Installed DCPS version displayed in **DCPS\$VERSION** logical name
- Minor bug fixes

## DCPS Update - DCPS V2.2



- Shipped in February 2003
- Adds support for 9 new printer models
  - HP Color LaserJet 2500, 5500
  - HP LaserJet 4200, 4300, 5100
  - HP LaserJet 4100mfp, 9000mfp
  - Genicom Intelliprint mL260
  - Lexmark C750
- Most HP LaserJet printers, past and present, are now supported

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## DCPS V2.2



- New “Generic HP” class of printer
  - HP setup modules now in DCPS\$DEVCTL.TLB
    - LPS\$\$HPGENERIC\_INITPSDEVICE
    - LPS\$\$HPGENERIC\_SETINPUTTRAY
    - LPS\$\$HPGENERIC\_SETOUTPUTTRAY
- Contains: paper sizes, tray names, commands, features and PCL native mode known to work with other HP printers
- OPCOM message similar to this will be seen:

```
%%%% OPCOM 6-MAR-2003 14:18:25.22 %%%%  
Message from user System on Munich  
Queue New_Printer: %DCPS-W-HPGENERIC, Product name hp  
LaserJet 9999 not recognized; assuming HP Generic
```

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## DCPS V2.2



- Autostart queues supported
  - Specify AUTOSTART\_ON in P2 parameter of an execution queue in DCPS\$startup.com

```
AUTOSTART_ON=(Mun01, Mun02) :: "IP_rawTCP/HPprint.fkr.dec.com" ! P2
```

- Details:
  - Same protocol and device must be used on all nodes
  - The printer device must be available on all nodes
  - DCPS must be installed and configured on all nodes
  - Node names must be spelled correctly – no check made

## DCPS V2.2



- Faster “setup” mode for startup
  - DCPS\$STARTUP can run in shortened setup mode
  - Can be used with autostart queues
  - Necessary logicals are defined but no queues are created, modified or started
- How to use setup mode
  - Copy the new dcps\$startup.template to dcps\$startup.com
  - Add site specific info
  - In P1 use @sys\$startup:dcps\$startup setup
  - DCPS creates DCPS\$STARTUP\_SETUP.COM
  - This is used when DCPS\$STARTUP.COM is run

## DCPS V2.2



- Port number is now optional
    - In P2 of DCPS\$startup.com, if no port is given, 9100 is assumed
- ```
AUTOSTART_ON=(Mun01, Mun02) :: "IP_rawTCP/HPprint.fkr.dec.com" ! P2
```
- Bug fix:
    - Output Tray SIDE now works for HP LaserJet 8000, 8100, 8150
  - Restrictions:
    - The DCPS\$*queuename\_no\_sync* true is mandatory for HP LaserJets 2500, 5500, 4200, 4300
    - The HP LaserJet 2500 cannot detect the size of paper in its trays:  
Not possible to select media by paper size

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## DCPS V2.2



### Problems found since V2.2 was released:

- Requesting stapled output on HP LaserJet 8000, 8100, 8150 and 9000 resulted in an error
  - %DCPS-W-UNDEF, undefined: Name not known - offending command is kaka
- Running the startup procedure in setup mode, when DCPS\$STARTUP.COM has been changed since the last time a setup file was created, results in running startup in setup mode. No message indicating this condition is displayed.
- Contact CSSC for 2 updated files to fix these problems

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## DCPS V2.3



- Scheduled to ship Q3 or Q4 2003
- Adds support for new printers
  - HP Color LaserJet 9500, LaserJet 2300
  - Two new HP copier/printer MFP's
- LPR support
  - Generic support for uni-directional printers
- Support for Non-HP multi-function devices
- First step in reducing DCPS dependence on hard-coded data and bi-directionality
- More features possible in future releases
- IPV6?
- Itanium?

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## Future DCPS Enhancements



- LPR enhancements
  - Tray selection
  - Other printer-specific features
- PPD parser
  - Eliminate or reduce need for new DCPS release to support new printers
  - Need for PPD parser reduced by cooperation between DCPS Engineering and IPG in Boise
  - Use of PPD parser no substitute for actual testing

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## Future DCPS Enhancements



- DCPS\$STARTUP.COM alternative
  - Syntax too complex and error-prone (especially P2)
  - Data file could store queue information
- IPP (Internet Printing Protocol)
  - No plans to implement
  - Not being enhanced by IPG
  - No plans to implement
  - Not strategic to HP or Microsoft
  - No plans to implement

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## Future DCPS Directions



- New types of printers?
  - Today's supported printers are mostly networked lasers
  - Future supported printers could be inkjet or USB
- New user features?
  - Selection by media type
    - e.g. PARAMETER=MEDIA\_TYPE=colored
- New system management features?
  - Defining queue characteristics with another printer model
    - e.g. /PRINTER\_MODEL=hp1j4300

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## HP and DCPS: Questions from Engineering



- Customer expectations
  - What do customers (you!) expect now that OpenVMS and IPG are both HP?
- How can OpenVMS help?
  - How can OpenVMS/DCPS help with your printing solutions?
- Is OpenVMS still important for your printing needs?
  - Are other operating systems pushed for printing solutions?
  - Should OpenVMS be mentioned in printer marketing and/or literature?



## HP LaserJet Printers



## HP LaserJet Model Designations



- - = base unit (LaserJet 2300)
- -D = base unit + duplexer (LaserJet 2300D)
- -DT = base unit + duplexer + extra paper tray (LaserJet 2300DT)
- -DN = base unit + duplexer + NIC (LaserJet 2300DN)
- -DTN = base unit + duplexer + extra paper tray + NIC (LaserJet 2300DTN)
- -S = + stacker
- -sL = + stacker/stapler
- -H = + hard disk

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## HP LaserJet 2300 Series



- Newest Laserjet printer
- 24 ppm
- 1200 x 1200 dpi
- 1st page prints after 10 sec.
- 48MB memory
  - upgrade to 304MB
- PCL 5e, PCL 6, PostScript Level 3 emulation
- Duplex
- 1 x 250 sheet tray, 1 x 100 sheet multi-purpose tray
  - 250 and 500 sheet trays optional
  - 850 sheets maximum

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## HP LaserJet 2300 Series



- Embedded Web Server
- Parallel port, USB port, NIC
- 50.000 Pages/month duty cycle
- 6000 Pages per toner cassette
- Models: 2300, 2300D, 2300N, 2300DN, 2300DTN

## HP LaserJet 4200/4300 Series



- 33 ppm / 43 ppm
- 1200 x 1200 dpi
- 1st page in under 8.5 seconds
- 48 MB / 64 MB memory  
416 MB maximum
- PCL 5e, PCL6, PostScript Level 3,  
HP-GL/2
- Duplex
- ALL-in-one print unit contains toner,  
drum and developer
- Paper trays 600 sheets standard,  
up to 2,600 sheets
- Stapler and LCOT optional

## HP LaserJet 4200/4300 Series



- 10 GB hard disk optional
- Parallel port, NIC
- 150.000 pages/month LJ 4200
- 200.000 pages/month LJ 4300
- Models: -N, -TN, -DTN, -DTNSL

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## HP LaserJet 5100



- 22 ppm with A4 format
- 11 ppm with A3 format
- 1200 x 1200 dpi
- Instant-On-Technology
- 32 MB memory, 192 MB maximum
- PCL 5e, PCL 6, PostScript Level 3
- Duplex
- 250 sheet tray + 100 sheet multifunction tray standard
  - Optional 250 and 500 sheet trays
  - Maximum 1100 sheets
- Parallel port , NIC
- 65.000 pages/month duty cycle
- Models: 5100, 5100TN, 5100DTN

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## HP Color LaseJet 2500



- 4 ppm color, 16ppm b/w
- Instant-On-Technology
- 600 x 600 dpi
- 64 MB memory, 256 MB maximum
- No duplex (manual possible)
- Parallel port, USB port, NIC
- PCL 5, PCL 6 and PostScript Level 3
- 125 sheet multipurpose tray
  - 250 sheet tray, 500 sheet tray
- 30.000 pages/month duty cycle
- Models: 2500, 2500N, 2500TN

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## HP Color LaserJet 5500



- 22 ppm color and black & white
- A4 and A3 paper
- 600 x 600 dpi
- 96 MB memory, 416 MB maximum
- PCL 5c, PCL 6, PostScript Level III
- Duplex
- Parallel port, NIC
- 1 x 500 sheet tray, 1 x 100 sheet tray
  - 500 sheet optional tray
  - Maximum 1600 sheets
- 120.000 pages/month duty cycle
- Models: 5500, 5500N, 5500DN, 5500DTN, 5500HDN

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## Multi-Function Printers



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## HP Multifunction Printers



- Functionality:
  - Printing
  - Copying
  - Color and black & white scanning
  - Digital sending of documents
    - Convert to JPEG, TIFF or PDF file
    - Send per e-mail
  - Print and send simultaneously
  - Control panel with keyboard for local operation

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## HP LaserJet 4100 MFP



- 24 ppm A4 printing and copying
- 1200 x 1200 dpi
- 64 MB memory standard
  - 256 MB maximum
- 10 GB hard disk standard
- Duplex optional
- PCL 5e, PCL6, PostScript Level 3
- Standard 600 sheet input tray
  - 500 sheet optional trays
  - 1600 sheets maximum
- Bidirectional parallel port, NIC
- 150.000 pages/month duty cycle
- 10.000 pages per toner cassette

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## HP LaserJet 9000 MFP



- 50 ppm A4 print and copy
- 28 ppm A3 print and copy
- 600 x 600 dpi
- 128 MB memory, 384 MB maximum
- 5 GB hard disk
- Duplex: printing, copying, scanning
- 4 paper trays – 3,100 sheets
- Bidirectional parallel port, NIC
- Stacker/stapler optional
- 300.000 pages/month duty cycle

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## Problems and Solutions Tips and Tricks

## DCPS V2.2

- Undocumented logical new to DCPS V2.2
  - `Def/sys/exec DCPS$queuename_HPGENERIC true`
  - Can be used with unsupported printers
  - DCPS uses the HP Generic library modules instead of the unrecognized modules
  - Good if your printer is „baugleich“ with HP's. The unrecognized modules do not have to be modified

## Windows 2000 LPD Printing



- Problem:  
LPR print job spools in endless loop or jobs hang.
- Solution:  
Check the printer and NIC **idle timeout** and **ps wait timeout**. The default is usually between 15 and 90 seconds. Set the timeout in the printer **and** the NIC to 300 seconds.

Note: Check user printer driver properties and ensure that the same timeout values are set there, too!

## Windows 2000 Printing Problems: General Troubleshooting



- Error messages caused by Local Port Monitor problems:
  - **Spoolsv.exe failed to start** when rebooting the computer
  - **Out of Resources Error** on opening the printer's properties
  - **Access Violation** (with Dr. Watson) when printing and the spooler stops
  - **The instruction at address referenced memory at address. The memory could not be read** when printing and the spooler stops
- These problems occur if the default local port monitor has been changed by an application.



## Port Monitor continued



- Fix the problems by editing the registry
  - HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\Print\Monitors\LocalPort
    - Double click Driver subkey and change the string value to LocalSpl.dll (if it has been changed)
  - Check for any non-default monitors in:
    - HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Control\Print\Monitors
    - Default monitors are: AppleTalk Printing Devices
      - BJ Language Monitor
      - Local Port
      - PJL Language Monitor
      - Standard TCP/IP Port
      - USB Monitor
      - Fax Monitor
  - Delete non-standard monitors

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## Windows 2000 Printing



- Dr. Watson greets you when you try to start the spooler:
  - An application error has occurred and an application error log is being generated.  
Spoolss.exeException: access violation (0xC0000005),Address:  
or
  - Application exception occurred:App:spoolss.dbg (pid=)  
Exception number: c0000005 (access violation)
- This is usually caused by a corrupted spool file.
- Solution is to delete any .shd and .spl files in the spool directory.  
Delete any related .tmp files in the Temp folder.

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## Windows 2000 Printing



- Problem: Jobs often reprint  
Finished spool file is not deleted
- Caused when some program or user has set the *read-only* attribute on the spool file at %Systemroot%\System32\Spool\Printers
- Solution:  
Right click the spool file, select *Properties*, and clear the *read-only* attribute.

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## Windows Printing



- Error:  
Event ID 2510 – The server service was unable to map error code 1722.
- This is often caused by a corrupt JetAdmin port monitor.
- Solution is to delete JetAdmin and either download the latest version or reinstall the current version.

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## Windows LPD Printing



- How to configure Windows 2000 for LPR with an HP JetDirect Card:
  - In Control Panel, Network Connections add Print Services for Unix
  - Add New Printer
    - Local Printer (Not a Network Printer!)
    - Create New Port
    - LPR Port
    - Type in the IP address under: Name or address of server providing LPD
    - Under: Name of printer or print queue on that server type **raw**, **raw1**, **raw2**, or **raw3** depending on the port

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## Windows 2000 Drivers



- How to add a network printer managed by NT 4.0 to a Windows 2000 computer:
  - On the Windows 2000 copmuter, install the printer locally on LPT1. This installs the driver.
  - Click Start, Settings, Printers
  - Right-click the printer and click Properties
  - On the Ports tab, click LPT1
  - Click Add Port
  - Double-click Local Ports
  - Type \\servername\printshare
  - Click OK

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## Windows 2000 Print Server



- How to disable broadcasting available printers on a print server.

- Edit the following in the registry:

HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Control\Print

Add Value of type REG\_DWORD  
with a value name of DisableServerThread  
and set the data value to 1

## Printing Images



- MSPAINT and other images do not print in the correct size; either too large or too small.
- This is because the image is not adjusted for video resolution
- My tip: paste the image into a Wordpad document. Here you can properly resize the image, and then print the document.

- Any questions?



## Backup slides

## HP LaserJet 2200 Series



- 18 ppm
- 1<sup>st</sup> page prints after only 15 seconds –Instant-On-Technology
- 8 MB memory standard, upgrade to 72MB
- 1200 x 1200 dpi
- PCL 5e, PCL 6
- PostScript Level 2 emulation
- 1 x 250 sheet tray, 1 x 100 sheet multi-purpose tray
  - 250 and 500 sheet trays optional

## HP LaserJet 2200 Series



- Parallel port, USB port,  
Fast Infrared port are standard  
–NIC optional
- Duplex
- 40.000 Pages/month duty cycle,
- 5000 Pages/Toner Cassette
- Models: 2200, 2200D, 2200DT,  
2200DN, 2200DTN