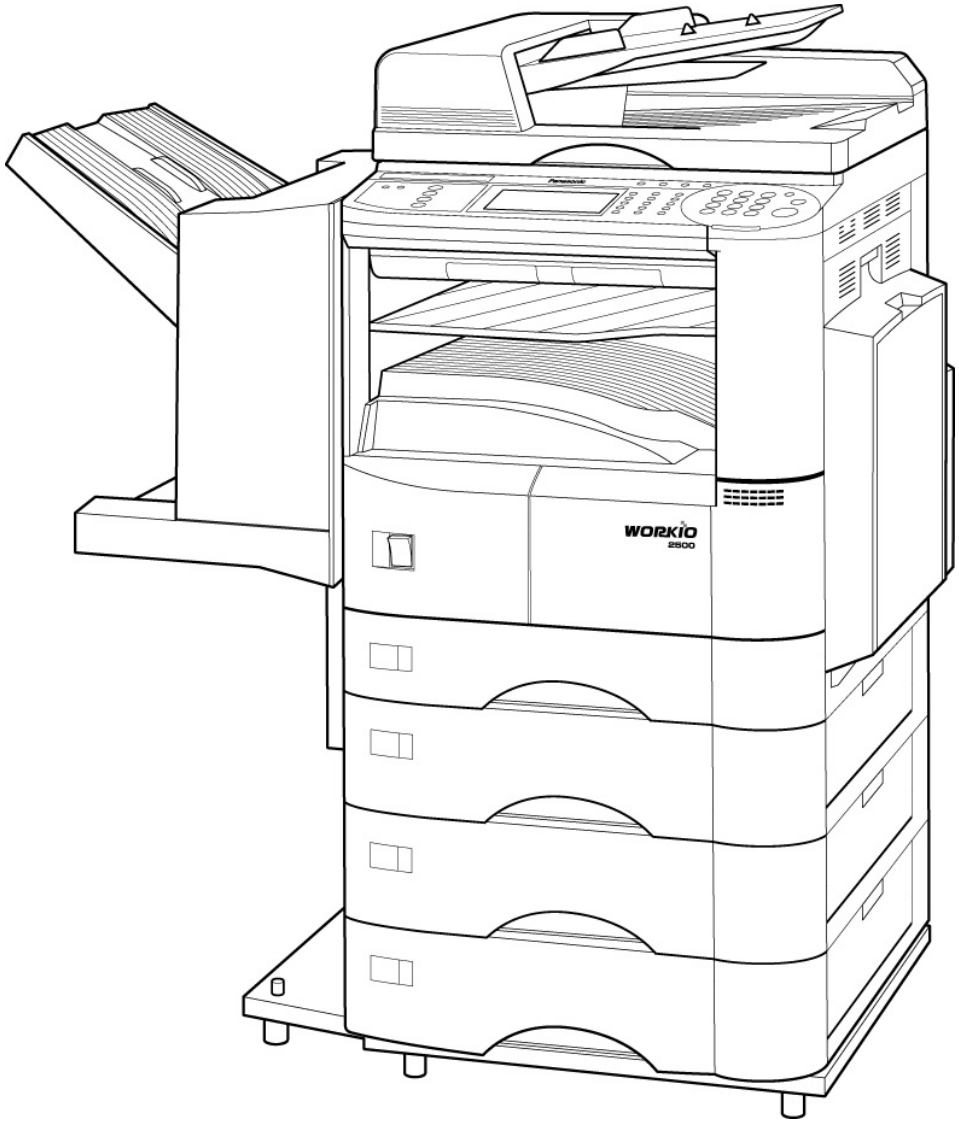
DP2000/2500

Network Printing

Setup Guide



Disclaimer

Whilst every care has been taken in producing this guide, however, it's accuracy cannot be guaranteed. If you do find any errors or omissions please email your comments to document.support@panasonic.co.uk.

Panasonic Business Systems do not accept any responsibility for any loss, disruption or damage to your data or your computer systems, which may occur by using this guide or programs, mentioned in it.

By using this guide you accept the above conditions.

If you are in any doubt concerning the contents of this guide please consult your network Administrator at once before proceeding.

Please read this guide thoroughly before proceeding with any installation.

Acknowledgements

Windows is a trademark of the Microsoft Corporation.

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Introduction

The network interface card in the DP series works only with the TCP/IP protocol (the same protocol used by the Internet). This protocol must be loaded on your desktop PC and/or Server for network printing to work.

If you are not currently running this protocol it can be added to your system from your Windows CD, please consult your Windows documentation for further information.

The DP series also requires a static TCP/IP address. If your Server is using DHCP you will need to give an address outside the DHCP scope or if it is within the scope a reservation must be added. Please consult your Network Administrator if you are unsure if your network uses DHCP or not.

The network interface card in the DP series has a RJ45 connection only. If you have any other type of connector please refer to your network administrator for assistance.

The network interface card also auto-detects your network speed, either 10 or 100 megabits per second.

Windows 95/98/Me

Peer to Peer Printing

You can print to your DP series unit from the above operating systems without the need of a Server. You can also use this method of printing even if you have a Server but would prefer to print directly to your DP unit.

Stage 1

What you will need

Your DP unit will need an TCP/IP address e.g. 192.168.10.1, a sub-net mask e.g. 255.255.255.0 and a gateway address e.g. 192.168.10.100. Your network administrator may need to give you these addresses.

Once you have these addresses you will need to input these into the DP unit. Follow these instructions to input these settings.

1. With the unit turned on press the "function" key located on the dashboard at the top towards the right.
2. Use the arrow button (DP2500) or the toggle button (DP2000) to select page 2 of the menu.
3. Scroll down to "Key operator code"
4. Input "000" then either OK or SET (if this code is incorrect consult your Dealer)
5. Scroll down until you see "TCP/IP Address"
6. Input the information as requested. Remember to use the full three digit number for the address e.g. if the address for one segment is "10" input "010". If you make a mistake, use the "clear" button to erase your entry. Repeat the above for the Sub-Net Mask and Gateway.
7. After you have entered the address remember to press the "set/OK" button to register your entry.
8. After entering all of the information press the "reset" button to get back to the main menu then switch the unit off and then back on for the changes to take effect.
9. You can check to see if your settings have been accepted by going back into the menu's previously mentioned.
10. In case of difficulty your Dealer can test the unit using an engineering mode, please ask them for assistance.

Stage 2

What Next?

Now you have programmed your DP unit you now need to install the printer driver on your PC.

Follow these instructions to add the DP unit as a printer. You will need the CD-ROM that came with your DP unit. This contains the printer driver and the program that's needed to enable peer to peer printing.

You can download the latest printer driver from our Web Site at the following link:

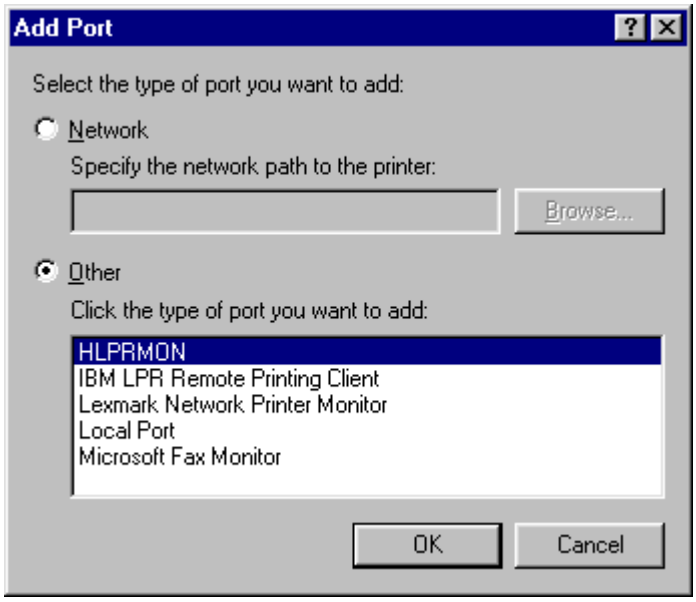
http://www.panasonic.co.jp/mgcs/download/index.html

1. Place the CD-ROM into your computer drive; the disk will auto run and display a menu, you can read the manual from here or simply close this window to proceed.
2. Open Windows Explorer and browse to the following folder:

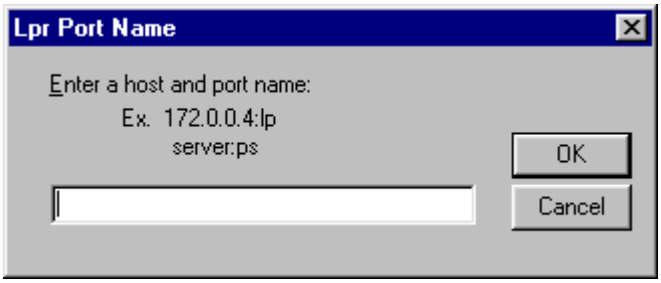
   E:\english\lpr (Where E: is the letter of your CD ROM drive)

3. Double click on the file "Setup.exe"
4. Follow the instructions on the screen to install this program. You will need to re-boot your system after this program has installed.
5. After re-booting your system, leave the CD-ROM in your drive and proceed as follows.
6. Click on "start" the "settings" then "printers"
7. Double click on "add printer"
8. Choose "next"
9. Click "local printer"
10. Then choose "have disk"
11. Browse your CD-ROM drive and scroll down to the printer driver folder which can be found **at e:\english\driver\win9x** (where "e:\" is the letter of your CD ROM drive).
12. Click "OK".
13. Click "OK".
14. Choose your DP unit model's number.
15. When you get the port menu choose "LPT1" – we will alter this later for network printing.
16. Windows will now install the driver files.
17. When finished you should end up with a printer icon in your printer's folder. Do a right hand mouse click and highlight "properties" this will then bring up a menu.

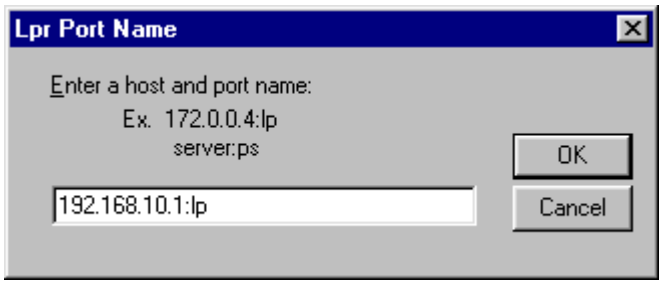
18. We now need to configure the driver to work with your DP unit. You will only need to do this once.
19. Click on "device options"
20. Select the accessories you have fitted to your DP unit.
21. Click on "paper/layout" and make sure the default is set to A4
22. Now go to the details tab
23. You will see here which port your copier is set to print to, we will now change this to a network port.
24. Click on "add port"
25. You should now get a menu that looks like this.



26. Click on "other" and select the top menu choice "HLPRMON", you should get a menu like this.



27. Enter the TCP/IP address of the copier then type a colon**:** and then **lp** (lowercase no spaces). Just like in the example shown below:



28. Now click on the "general" tab and choose "print a test page"
29. The DP unit should produce a standard test page confirming that everything has been set up. It will also display a list of the files used.

Stage 3

Operating Instructions

30. For comprehensive operating instructions, please refer to the manual, which can be found on the CD that came with your unit.

Problems?

No Network Connection

1. Check the obvious things; is the unit switched on and "on-line" (the on-line light should be on, if it isn't press the "Printer" key on the left side of the copier dashboard and then press "on-line". The copier should bleep to confirm.
2. Check the cable connections and if possible use a known good cable and network port.
3. Have you programmed the IP address of the copier, Sub-Net and Gateway correctly? Please refer to the start of the installation procedure to double-check this.
4. Even if you don't have a Gateway, an address must be inputted. Choose a spare IP address for the Gateway if required.
5. Have you properly configured the LPR port on your PC? Again, refer to the start of this guide to check this.
6. Where you plug the network cable into the back of the copier, do you have a green "link light" showing. If not try an alternative network port. If you do not get a green link light, please contact your Dealer for further assistance.

7. If you do have a green "link light", try to "ping" the network card in the copier by typing the following from a DOS prompt on your PC:

Ping 192.168.10.1

(Please substitute the IP address with the correct address you are using)

8. If you get a "reply" then you have a network connection. Double check numbers 1 through 5 and if necessary, re-install the LPR software and print driver.
9. If you do not get a "reply" contact your Dealer for further assistance.

Print Driver Issues

1. If the copier "bleeps" and doesn't print anything, check the defaults of the printer driver especially the default paper size. Make sure this is set to A4.
2. Have you got "security print" enabled? Again, double-check the defaults and make sure the driver is configured correctly.
3. If your unit picks paper from a different tray than selected, check within your application software for the correct page defaults and these will usually override the printer driver settings.
4. The latest printer drivers can be downloaded from the following Web Site.

http://www.panasonic.co.jp/mgcs/download/index.html

Windows NT4/2000

Peer to Peer Printing

You can print to your DP series unit from the above operating systems without the need of a Server. You can also use this method of printing even if you have a Server but would prefer to print directly to your DP unit. You may need to have Administrator access rights to perform the following operations, please consult with your Network Administrator if you are unsure.

Stage 1

What you will need

Your DP unit will need a TCP/IP address e.g. 192.168.10.1, a sub-net mask e.g. 255.255.255.0 and a gateway address e.g. 192.168.10.100. Your network administrator may need to give you these addresses. Your PC will also need to have TCP/IP printing services installed, this is built in to Windows 2000 but not in NT4 so you may need to load this from your Windows CD ROM. Please consult your Windows documentation for further information.

Once you have these addresses you will need to input these into the DP unit. Follow these instructions to input these settings.

1. With the unit turned on press the "function" key located on the dashboard at the top towards the right.
2. Use the arrow button (DP2500) or the toggle button (DP2000) to select page 2 of the menu.
3. Scroll down to "Key operator code"
4. Input "000" then either OK or SET (if this code is incorrect consult your Dealer)
5. Scroll down until you see "TCP/IP Address"
6. Input the information as requested. Remember to use the full three digit number for the address e.g. if the address for one segment is "10" input "010". If you make a mistake, use the "clear" button to erase your entry. Repeat the above and the Sub-Net Mask and Gateway.
7. After you have entered the address remember to press the "set" button to register your entry.
8. After entering all of the information press the "reset" button to get back to the main menu then switch the unit off and then on for the changes to take effect.
9. You can check to see if your settings have been accepted by going back into the menu's previously mentioned.

10. In case of difficulty your Dealer can test the unit using an engineering mode, please ask them for assistance.

Stage 2

What Next?

Now you have programmed your DP unit you now need to install the printer driver on your PC.

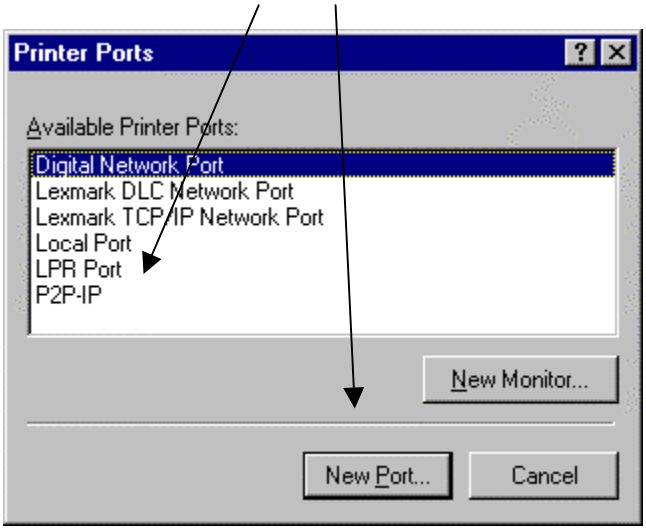
Follow these instructions to add the DP unit as a printer. You will need the CD-ROM that came with your DP unit.

You can download the latest printer driver from our Web site at the following link:

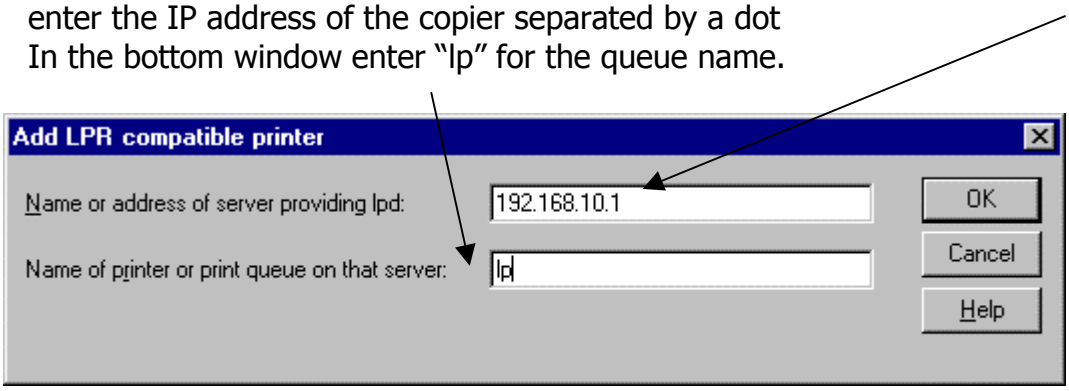
http://www.panasonic.co.jp/mgcs/download/index.html

Windows NT4 – For Windows 2000 skip to No 50

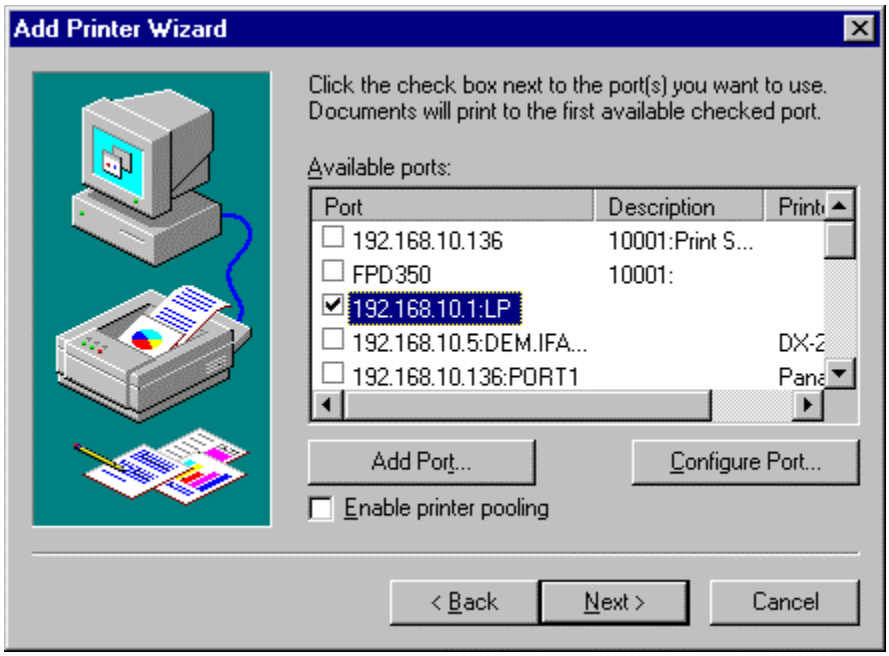
11. Place the CD-ROM into your computer drive; the disk will auto run and display a menu, you can read the manual from here or simply close this window.
12. Open up your Printers folder and click on "Add printer".
13. Make sure the radio button for "My Computer" is checked then click "next".
14. Now click on "Add port".
15. Now choose "LPR" port
16. Now choose "New port" as shown below.



17. In the top window where it says name or address of server providing LPD, enter the IP address of the copier separated by a dot
18. In the bottom window enter "lp" for the queue name.



19. Click "OK"
20. NT will now go and look for this port so make sure the copier is switched on and connected to the network.
21. Now escape out of this until you get back to the main screen where you should have a window that looks like this.

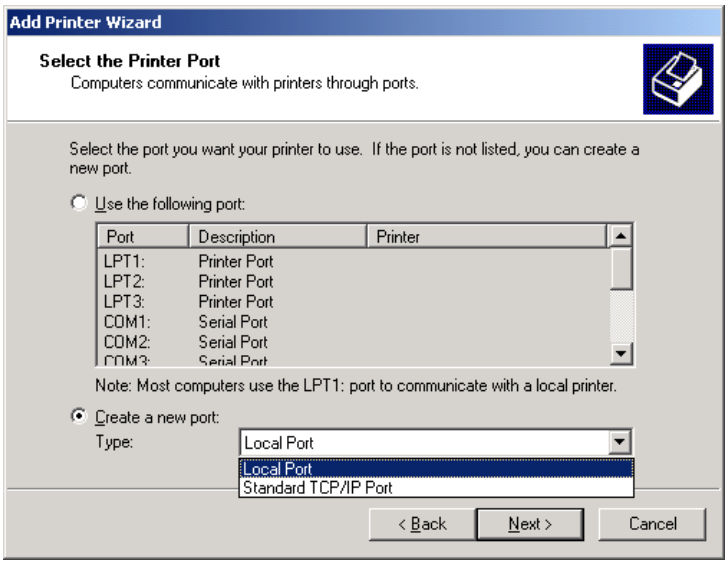


22. Now click "Next"
23. Now choose "Have disk"
24. Browse the CD-ROM to the driver folder, which can be found at **e:\english\driver\nt4** where "e:\" is the letter of your CD ROM drive.
25. Click "OK".
26. Then "Next" and give the printer a name.
27. Click "Next"

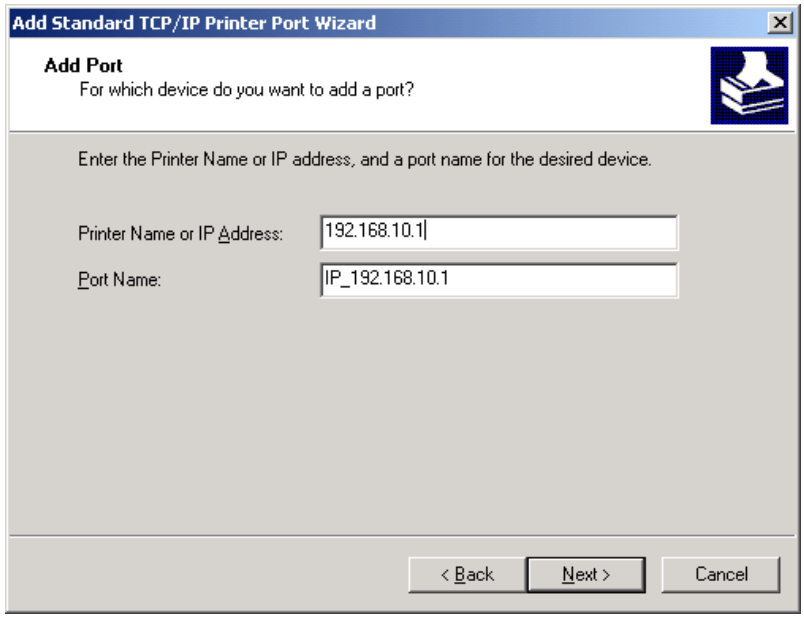
28. Now choose if you wish to share this printer with other users. We recommend that you do not share the printer; if other users wish to print to the copier, repeat this procedure for each PC.
29. Click "Next".
30. Click "Yes" to produce a test page.
31. Click "Finish".
32. A test page should now be printed out.
33. When finished you should end up with a printer icon in your printer's folder. Do a right hand mouse click and highlight "properties" this will then bring up a menu.
34. We now need to configure the driver to work with your DP unit. You will only need to do this once.
35. Click on "device options"
36. Select the accessories you have fitted to your DP unit.
37. Repeat this procedure and choose "document defaults" this time and make sure that the paper size is set to A4.
38. Click on "paper/layout" and make sure the default is set to A4
39. Click "OK" to finish.

Windows 2000

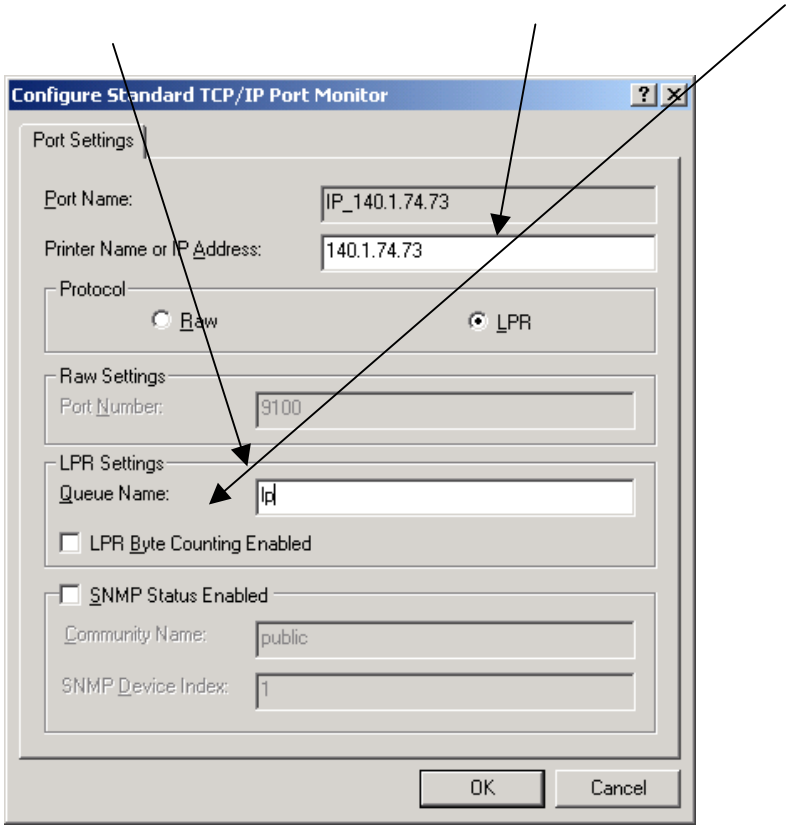
40. Place the CD-ROM into your computer drive; the disk will auto run and display a menu, you can read the manual from here or simply close this window.
41. Open up your Printers folder and click on "Add printer".
42. This will now start the printer wizard.
43. Click "Next"
44. Select "Local printer"
45. Select "Create new port"
46. Choose "Standard TCP/IP Port" from the pull-down menu as shown below.



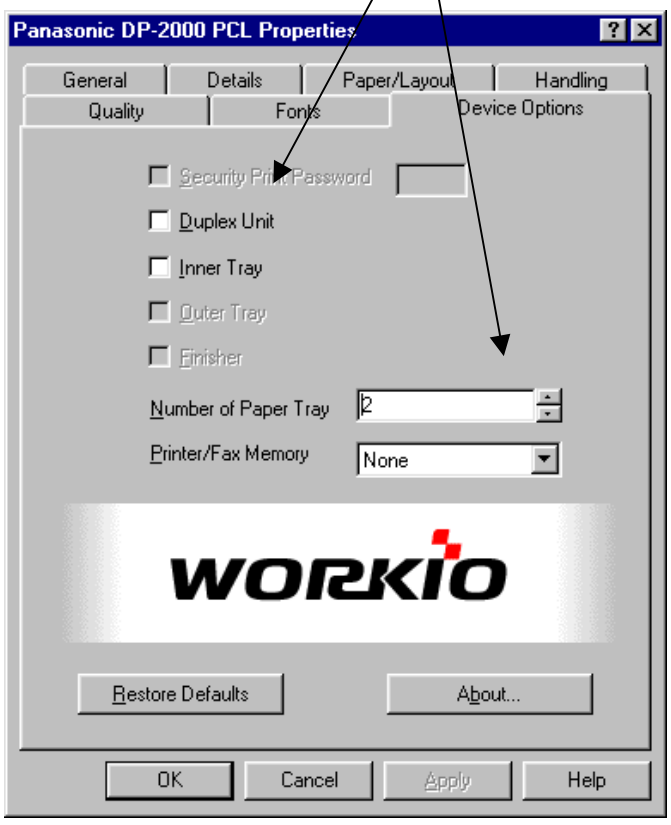
47. This now starts another wizard.
48. Click "Next"
49. Now enter the IP address of the copier separated by a dot.



50. Click "Next"
51. On the next menu choose "Custom" and click on "Settings"
52. On this menu make sure the protocol selected is "LPR" and the queue name should be set to "lp". Also tick the box that says "enable byte counting" then click OK.



53. Click “Next”
54. The wizard will now display your chosen settings, click “Finish” to save.
55. You should now have an icon in your printer folder, do a right hand mouse click over the icon and select “Printing preferences”.
56. Make sure the paper is set to A4.
57. You can alter other defaults using this menu if you wish.
58. Repeat this mouse click again and now choose “Properties”
59. Go to the tab “Device options”
60. Here you need to input what accessories etc you have on your unit. When you have finished click “Apply” then “OK”.



Stage 3

Operating Instructions

61. For comprehensive operating instructions, please refer to the manual, which can be found on the CD that came with your unit.

Problems?

No Network Connection

1. Check the obvious things; is the unit switched on and "on-line" (the on-line light should be on, if it isn't press the "Printer" key on the left side of the copier dashboard and then press "on-line". The copier should bleep to confirm.
2. Check the cable connections and if possible use a known good cable and network port.
3. Have you programmed the IP address of the copier, Sub-Net and Gateway correctly? Please refer to the start of the installation procedure to double-check this.
4. Even if you don't have a Gateway, an address must be inputted. Choose a spare IP address for the Gateway if required.
5. Have you properly configured the LPR port on your PC? Again, refer to the start of this guide to check this.
6. Where you plug the network cable into the back of the copier, do you have a green "link light" showing. If not try an alternative network port. If you do not get a green link light, please contact your Dealer for further assistance.
7. If you do have a green "link light", try to "ping" the network card in the copier by typing the following from a DOS prompt on your PC:

Ping 192.168.10.1

(Please substitute the IP address with the correct address you are using)

8. If you get a "reply" then you have a network connection. Double check numbers 1 through 5 and if necessary, re-install the LPR software and print driver.
9. If you do not get a "reply" contact your Dealer for further assistance.

Print Driver Issues

10. If the copier "bleeps" and doesn't print anything, check the defaults of the printer driver especially the default paper size. Make sure this is set to A4.
11. Have you got "security print" enabled? Again, double-check the defaults and make sure the driver is configured correctly.
12. If your unit picks paper from a different tray than selected, check within your application software for the correct page defaults and these will usually override the printer driver settings.
13. The latest printer drivers can be downloaded from the following Web Site.
14. If your DP unit prints only part pages, check that you have "enable byte counting" in the Port settings of your computer.

http://www.panasonic.co.jp/mgcs/download/index.html

Windows NT4/2000

Server Based Printing – Server Set-Up

Important Note

In order for you to proceed with this installation you will need "Administrator Rights" on the Server. Please consult with your Network Administrator if you need assistance.

Stage 1

What you will need

Your DP unit will need an TCP/IP address e.g. 192.168.10.1, a sub-net mask e.g. 255.255.255.0 and a gateway address e.g. 192.168.10.100. Your network administrator may need to give you these addresses. Your PC will also need to have TCP/IP printing services installed, this is built in to Windows 2000 but not in NT4 so you may need to load this from your Windows CD ROM. Please consult your Windows documentation for further information.

Once you have these addresses you will need to input these into the DP unit. Follow these instructions to input these settings.

1. With the unit turned on press the "function" key located on the dashboard at the top towards the right.
2. Use the arrow button (DP2500) or the toggle button (DP2000) to select page 2 of the menu.
3. Scroll down to "Key operator code". Input "000" then either OK or SET (if this code is incorrect consult your Dealer)
4. Scroll down until you see "TCP/IP Address"
5. Input the information as requested. Remember to use the full three digit number for the address e.g. if the address for one segment is "10" input "010". If you make a mistake, use the "clear" button to erase your entry. Repeat the above for the Sub-Net Mask and Gateway.
6. After you have entered the address remember to press the "set" button to register your entry.
7. After entering all of the information press the "reset" button to get back to the main menu then switch the unit off and then on for the changes to take effect.

8. You can check to see if your settings have been accepted by going back into the menu's previously mentioned.
9. In case of difficulty your Dealer can test the unit using an engineering mode, please ask them for assistance.

Stage 2

What Next?

Now you have programmed your DP unit you now need to install the printer driver on your PC.

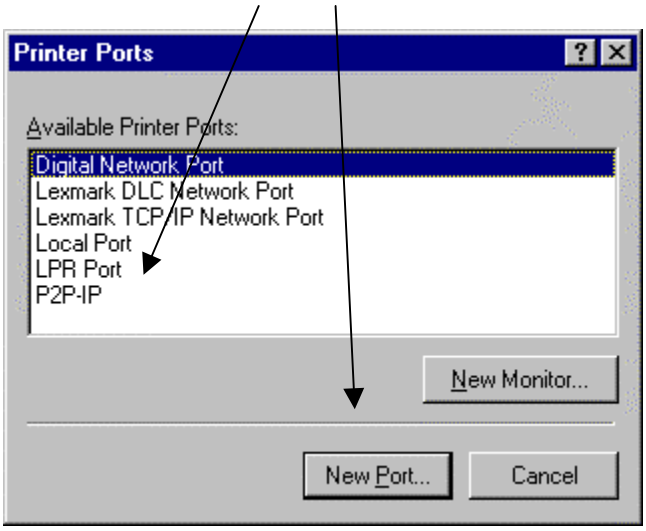
Follow these instructions to add the DP unit as a printer. You will need the CD-ROM that came with your DP unit.

You can download the latest printer driver from our Web site at the following link:

http://www.panasonic.co.jp/mgcs/download/index.html

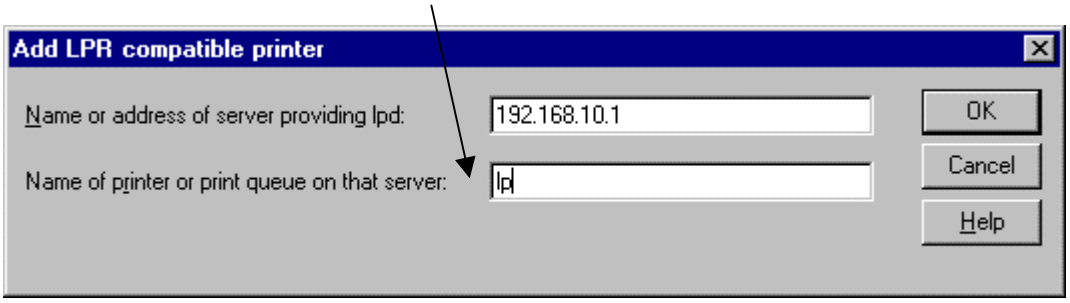
Windows NT4 – For Windows 2000 skip to No 34

1. Place the CD-ROM into your computer drive; the disk will auto run and display a menu, you can read the manual from here or simply close this window.
2. Open up your Printers folder and click on "Add printer".
3. Make sure the radio button for "My Computer" is checked then click "next".
4. Now click on "Add port".
5. Now choose "LPR" port
6. Now choose "New port" as shown below.

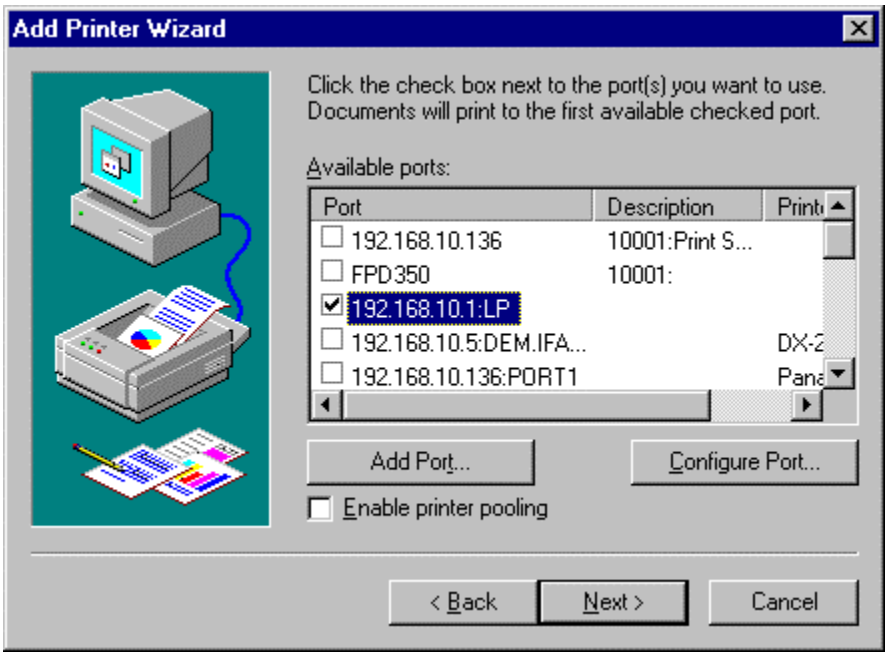


11. In the top window where is says name or address of server providing LPD, enter the IP address of the copier separated by a dot

12. In the bottom window enter "lp" for the queue name.



13. Click "OK"
14. NT will now go and look for this port so make sure the copier is switched on and connected to the network.
15. Now escape out of this until you get back to the main screen where you should have a window that looks like this.

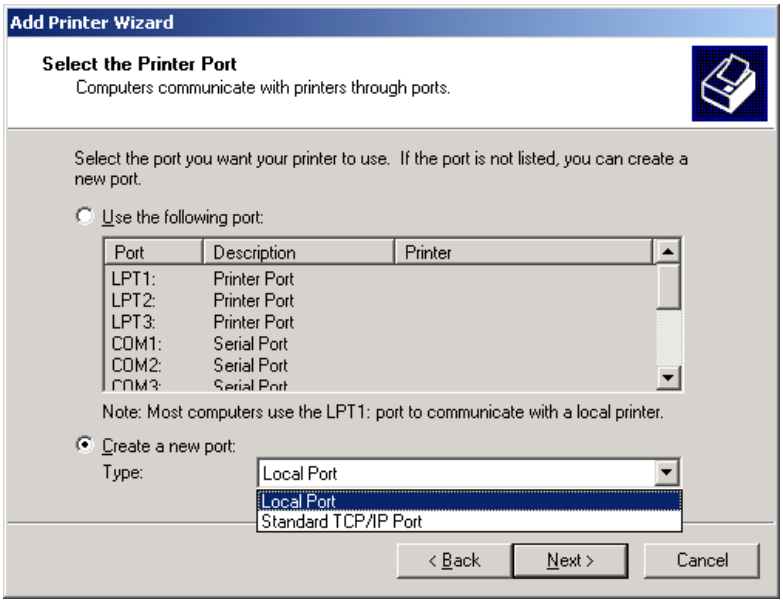


16. Now click "Next"
17. Now choose "Have disk"
18. Browse the CD-ROM to the driver folder which can be found at **e:\english\driver\nt4** where "e:\" is the letter of your CD-ROM drive.
19. Click "OK".
20. Then "Next" and give the printer a name.
21. Click "Next"

22. Choose to share this printer with other users and also highlight any other operating systems you wish to have drivers loaded for e.g. Windows 95. NT will prompt you for the location of the additional driver files at a later stage.
23. Click "Next".
24. Click "Yes" to produce a test page.
25. Click "Finish".
26. A test page should now be printed out.
27. When finished you should end up with a printer icon in your printer's folder. Do a right hand mouse click and highlight "properties" this will then bring up a menu.
28. We now need to configure the driver to work with your DP unit. You will only need to do this once.
29. Click on "device options"
30. Select the accessories you have fitted to your DP unit.
31. Repeat this procedure and choose "document defaults" this time and make sure that the paper size is set to A4.
32. Click on "paper/layout" and make sure the default is set to A4
33. Click "OK" to finish.

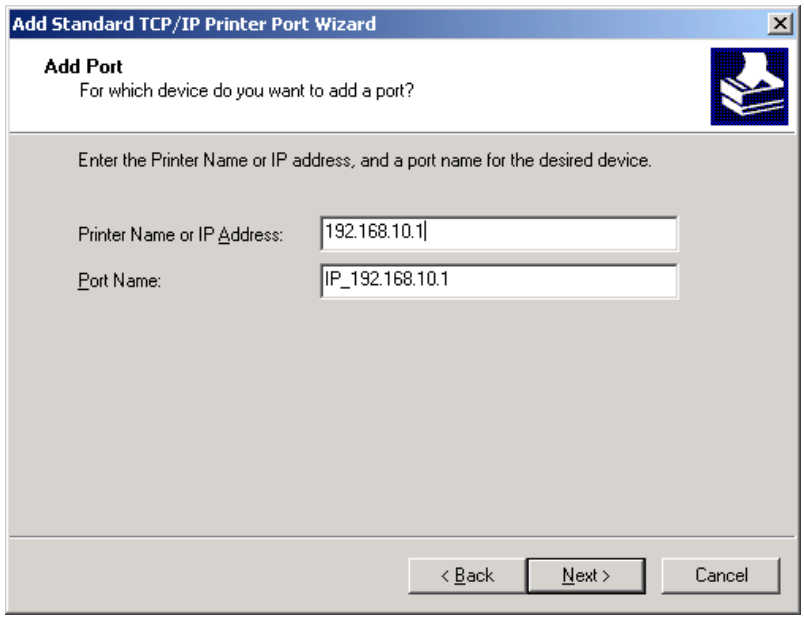
Windows 2000

34. Place the CD-ROM into your computer drive; the disk will auto run and display a menu, you can read the manual from here or simply close this window.
35. Open up your Printers folder and click on "Add printer".
36. This will now start the printer wizard.
37. Click "Next"
38. Select "Local printer"
39. Select "Create new port"
40. Choose "Standard TCP/IP Port" from the pull-down menu as shown below.

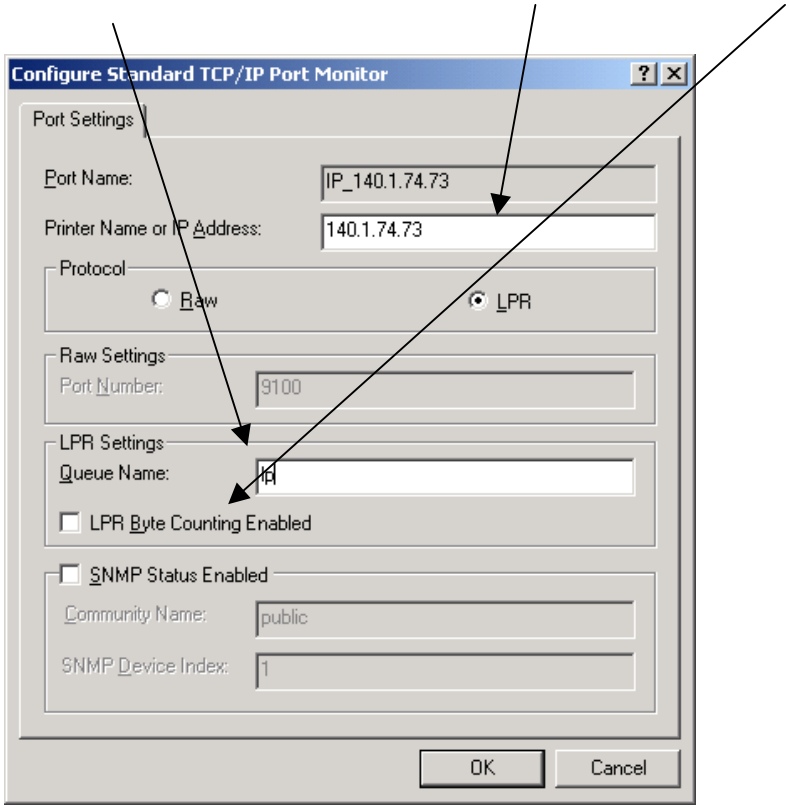


41. This now starts another wizard.

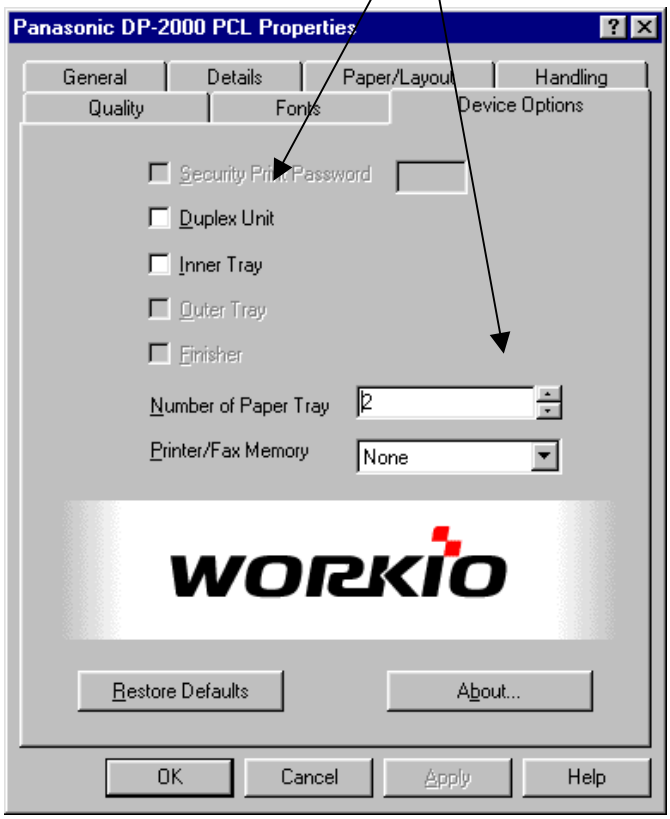
42. Click "Next"
43. Now enter the IP address of the copier separated by a dot.



44. Click "Next"
45. On the next menu choose "Custom" and click on "Settings"
46. On this menu make sure the protocol selected is "LPR" and the queue name should be set to "lp". Also tick the box that says "enable byte counting", then click OK.



47. Click “Next”
48. The wizard will now display your chosen settings, click “Finish” to save.
49. You should now have an icon in your printer folder, do a right hand mouse click over the icon and select “Printing preferences”.
50. Make sure the paper is set to A4.
51. You can alter other defaults using this menu if you wish.
52. Repeat this mouse click again and now choose “Properties”
53. Go to the tab “Device options”
54. Here you need to input what accessories etc you have on your unit. When you have finished click “Apply” then “OK”.



Stage 3

Operating Instructions

For comprehensive operating instructions, please refer to the manual, which can be found on the CD that came with your unit.

Problems?

No Network Connection

1. Check the obvious things; is the unit switched on and "on-line" (the on-line light should be on, if it isn't press the "Printer" key on the left side of the copier dashboard and then press "on-line". The copier should bleep to confirm.
2. Check the cable connections and if possible use a known good cable and network port.
3. Have you programmed the IP address of the copier, Sub-Net and Gateway correctly? Please refer to the start of the installation procedure to double-check this.
4. Even if you don't have a Gateway, an address must be inputted. Choose a spare IP address for the Gateway if required.
5. Have you properly configured the LPR port on your PC? Again, refer to the start of this guide to check this.
6. Where you plug the network cable into the back of the copier, do you have a green "link light" showing. If not try an alternative network port. If you do not get a green link light, please contact your Dealer for further assistance.
7. If you do have a green "link light", try to "ping" the network card in the copier by typing the following from a DOS prompt on your PC:

Ping 192.168.10.1

(Please substitute the IP address with the correct address you are using)

8. If you get a "reply" then you have a network connection. Double check numbers 1 through 5 and if necessary, re-install the LPR software and print driver.
9. If you do not get a "reply" contact your Dealer for further assistance.

Print Driver Issues

10. If the copier "bleeps" and doesn't print anything, check the defaults of the printer driver especially the default paper size. Make sure this is set to A4.
11. Have you got "security print" enabled? Again, double-check the defaults and make sure the driver is configured correctly.
12. If your unit picks paper from a different tray than selected, check within your application software for the correct page defaults and these will usually override the printer driver settings.
13. The latest printer drivers can be downloaded from the following Web Site.
14. If your DP unit prints part pages, make sure you have selected "enable byte counting" in the Port settings of your computer.

http://www.panasonic.co.jp/mgcs/download/index.html

Windows 95/98/Me/NT4/2000

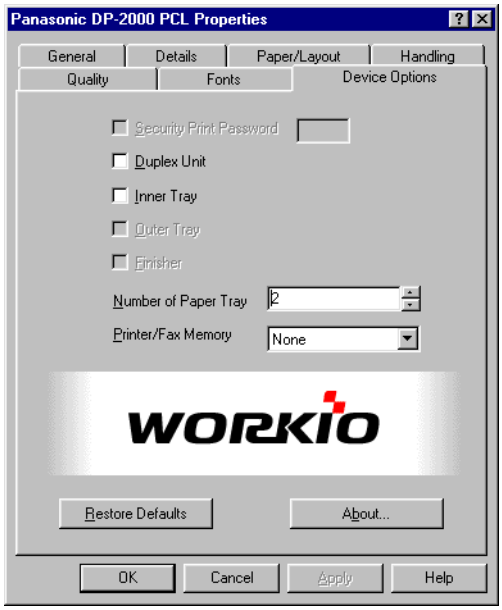
Server Based Printing – Client PC's

Important Note

Before proceeding, please make sure that the printer driver has been installed onto your Server. For instructions on how to do this, see the appropriate section for your Server operating system.

Stage 1

1. From your PC double click on "Network Neighbourhood"; this should give you a list of the computers currently on your network.
2. Locate the icon for your server and then double click on it.
3. You should be able to see a printer icon for the DP copier.
4. Double click on the icon, Windows will then ask you if you wish to use this resource and prompt you to install the relevant files.
5. Click on "Yes" and your Server will download the appropriate files to your PC.
6. Once you have done this open your Printers folder and you should see an icon for the DP unit.
7. Do a right hand mouse click and choose "Properties". Go to the tab "Device Options". Here you need to input what accessories etc you have on your unit. Make sure the paper size is set to A4. For NT4 and 2000 users see the note below regarding document defaults.
8. When you have finished click "Apply" then "OK".



NT4 and 2000 only

9. Repeat the right hand mouse click over the printer icon and go to "Document defaults" and make sure the paper size is set to A4 then click "OK". Also check the Port settings of your computer to make sure that "enable byte counting" is switched on..

Operating Instructions

10. For comprehensive operating instructions, please refer to the manual, which can be found on the CD that came with your unit.

Problems?

No Network Connection

1. Check the obvious things; is the unit switched on and "on-line" (the on-line light should be on, if it isn't press the "Printer" key on the left side of the copier dashboard and then press "on-line". The copier should bleep to confirm.
2. Check the cable connections and if possible use a known good cable and network port.
3. Have you programmed the IP address of the copier, Sub-Net and Gateway correctly? Please refer to the start of the installation procedure to double-check this.
4. Even if you don't have a Gateway, an address must be inputted. Choose a spare IP address for the Gateway if required.
5. Have you properly configured the LPR port on your PC? Again, refer to the start of this guide to check this.
6. Where you plug the network cable into the back of the copier, do you have a green "link light" showing. If not try an alternative network port. If you do not get a green link light, please contact your Dealer for further assistance.
7. If you do have a green "link light", try to "ping" the network card in the copier by typing the following from a DOS prompt on your PC:

Ping 192.168.10.1

(Please substitute the IP address with the correct address you are using)

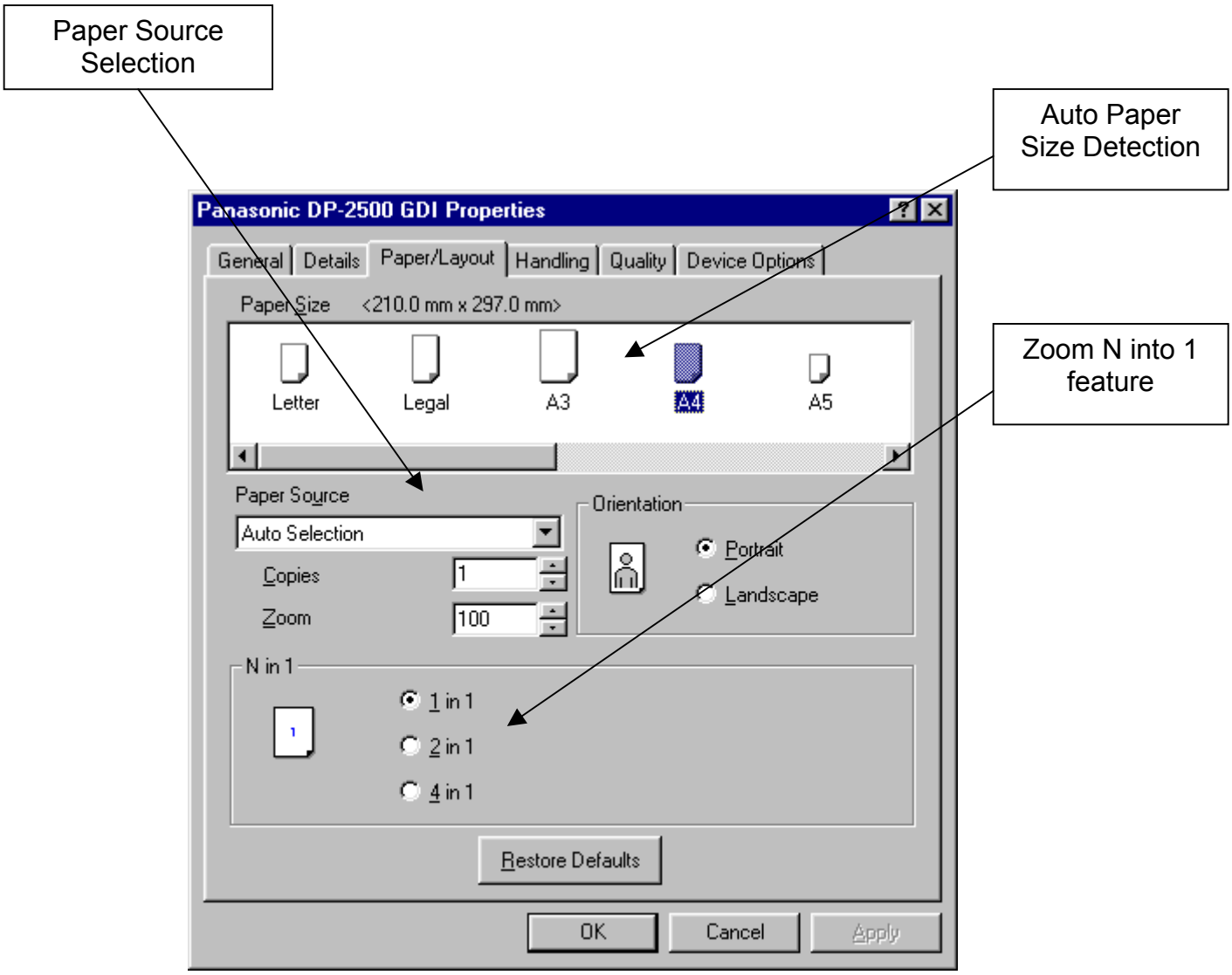
8. If you get a "reply" then you have a network connection. Double check numbers 1 through 5 and if necessary, re-install the LPR software and print driver.
9. If you do not get a "reply" contact your Dealer for further assistance.

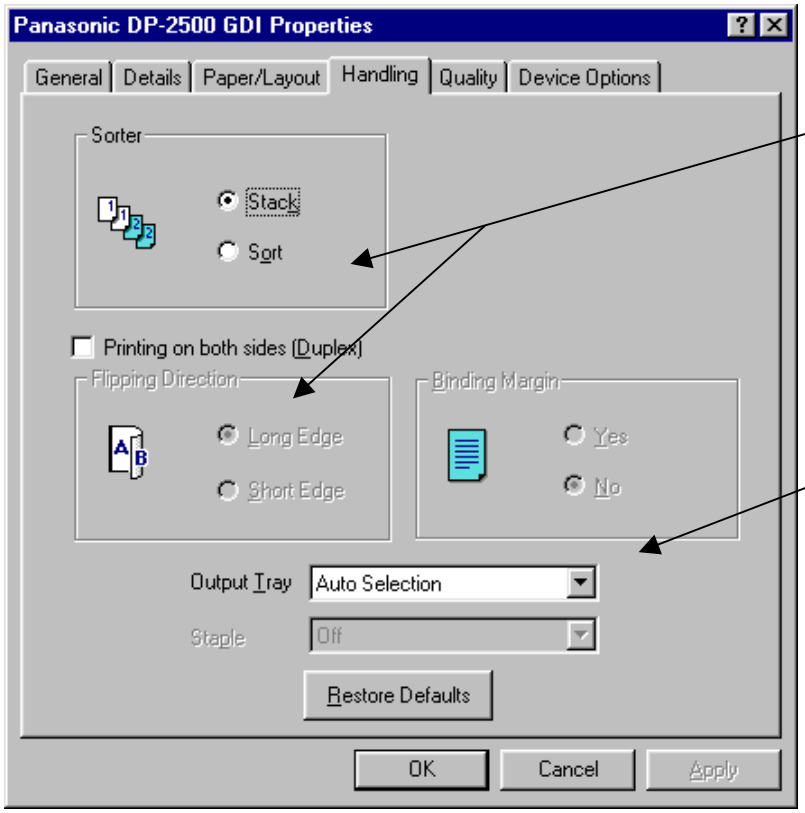
Print Driver Issues

10. If the copier "bleep's" and doesn't print anything, check the defaults of the printer driver especially the default paper size. Make sure this is set to A4.
11. Have you got "security print" enabled? Again, double-check the defaults and make sure the driver is configured correctly.
12. If your unit picks paper from a different tray than selected, check within your application software for the correct page defaults and these will usually override the printer driver settings.
13. The latest printer drivers can be downloaded from the following Web Site.
14. If your unit prints part pages, check to make sure that "enable byte counting" is switched on – this only applies to Windows 2000.

http://www.panasonic.co.jp/mgcs/download/index.html

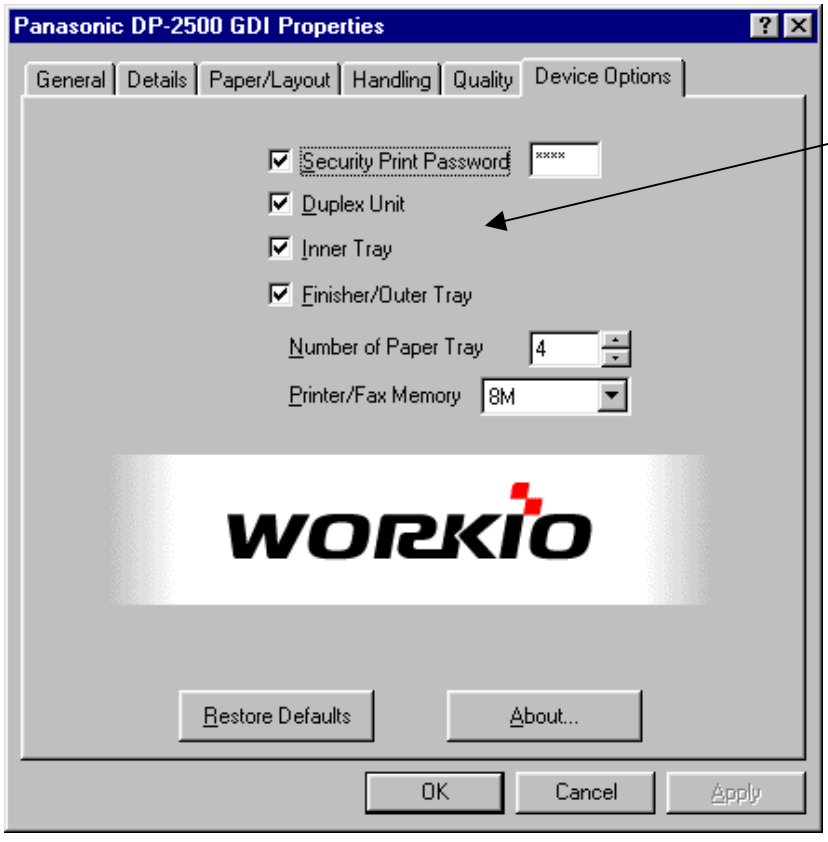
GDI Printer Driver Overview
Windows 95/98/Me/NT4/2000





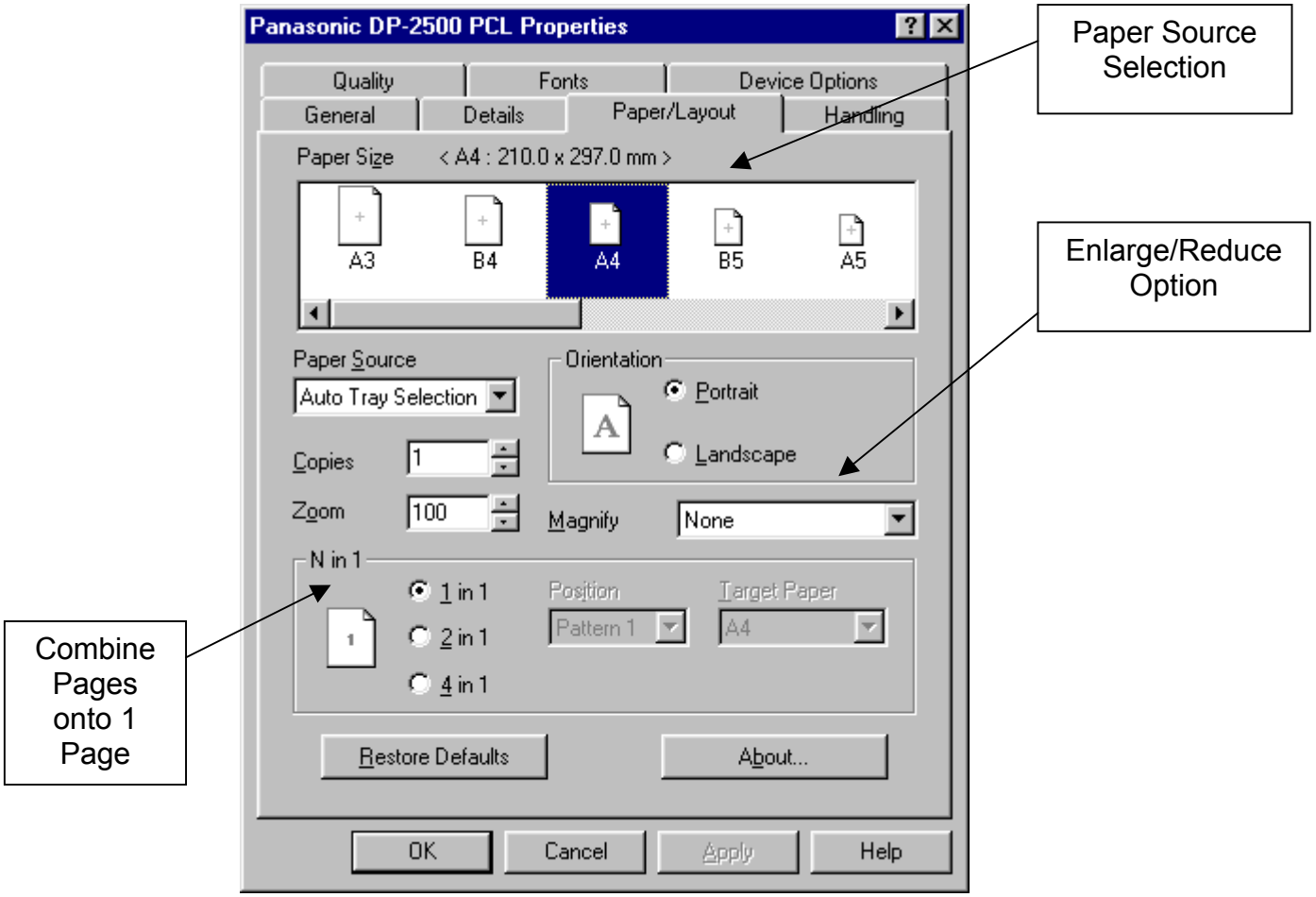
Sort and Duplex Menu's

Output Tray Selection



Security Print Option + Unit Configuration

PCL6 Printer Driver Overview
Windows 95/98/Me/NT4/2000



Output Tray Selection + Staple Feature (requires finisher)

Sort and Duplex Menu's

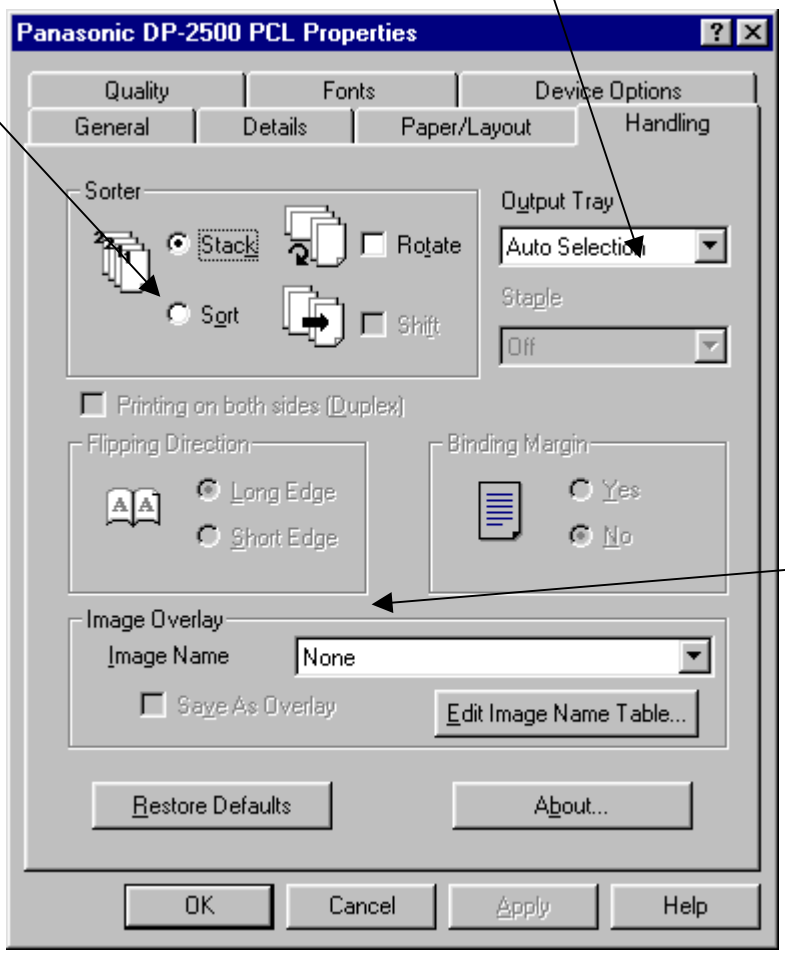


Image Overlay (10 per user)

Network Glossary

AC15:

A type of connection used to transmit data or voice across long distances, used to provide WAN connections from site to site.

BACKBONE:

A high capacity network linking networks of a lower capacity, like LAN's

BRIDGE:

A device linking 2 LANs or LAN segments passing traffic over a port to port connection. A bridge operates at the MAC (Media Access Control) level (see M) independently of the protocols used by each LAN

BROWSER:

These are software packages used for accessing HTML (Hypertext Mark-up Language) encoded documents from the Internet WWW (World Wide Web)

BUFFER:

A temporary data store used to compensate for the timing differences between sending and receiving machines.

BUS TOPOLOGY:

A type of network in which all the nodes (workstations, clients, printers etc.) are connected in line to a single cable with 2 distinct ends. Each node is aware of all the transactions on the network but will only respond to the instructions that carry the correct address for that node. See *TABLE 1*

CLIENT SERVER WORKING:

The division of an application in two parts, the FRONT END client, which could by a PC on a desk and the BACK END server which would be running the network operating systems and containing the data that is to be shared between all the users on the network.

CLOSED USER GROUP: (CUG)

A subgroup of users on a network who can connect and communicate with each other. One or more members of the CUG can have access to the wider network.

Co-Axial Cable aka co-ax:

This is a cable consisting of an inner core and an outer braid separated by a layer of insulation.

CODEC:

Short for ENCODER-DECODER. A device, which converts analogue signals to digital signals that, will be used on a digital network & visa versa.

DELTA TOPOLOGY:

A type of network that has no central site. See *TABLE 1*

DISTRIBUTED COMPUTING / WORKING:

An arrangement where the processing power of a network is distributed between all the PC's on a network, rather than being centralised in a server or main frame.

DISTRIBUTED PROCESSING:

The way that information is shared between the PC's on a network. In a way, the computers share the work between them.

DUPLEX CIRCUIT:

A *FULL DUPLEX CIRCUIT* can transmit and receive data at the same time, *A HALF DUPLEX* circuit, can only send or receive data in one direction at one time. Also see *SIMPLEX*

ENTERPRISE NETWORK:

A term used for a private network linking sites and individuals within 1 organisation. This can take the form of certain WAN's.

ETHERNET:

This is the most widely used form of LAN transmission. (IEEE 802.3 standard). It is based on a BUS TOPOLOGY and runs over twisted pair, co-ax or fibre-optics.
There are a number of variants to ETHERNET, common ones are:

nn BASE x, **where** *nn* **is the speed, in, Mbits/s and** *x* **is the medium used e.g.** *T* **for Un-Shielded twisted pair or** *F* **for Fibre-Optic etc. Therefore,** *100 BASE F* **network would indicate a** *100Mbits/s* **transimission using** *Fibre-Optic* **cable. See *TABLE 2***

FIBRE-OPTICS:

A medium to transmit encoded digital data as pulses of light.

FILE SERVER:

A computer connected to a network, which runs the operating system and contains the shared files that are to be accessed by members of the network.

FRONT END:

This term was originally used to define the 'client' part of a 'client-server' application, that requests service from the 'server' or 'BACK END'. Now, it is more often used to describe the user interface of an application or service.

GATEWAY:

An interface between two networks or systems.

GUI: (Graphical User Interface)

GDI: (Graphic Display Interface)

This is a term for the display of information on the users screen that gives access to operating systems such as windows.

HOST:

An intelligent device connected to a network.

HTML: (Hypertext Mark-up Language)

This is the common language for encoding documents for inclusion on the WWW (World Wide Web). HTML notation is interpreted by browser software in order to display the desired document.

HTTP: (Hypertext Transfer Protocol)

A form of communication language used by the sites on the WWW (World Wide Web).

HUB:

This is normally the centre of a network or cabling system using *STAR TOPOLOGY*.

HYBRID NETWORK:

This is a type of network that uses different topologies and access methods.

HYPERTEXT: (AKA Hypermedia)

This is a way of delivering documents so that non-sequential links can be set up between them.

IAP: (Internet Access Provider)

IP: (Internet Protocol)

The part of the TCP/IP that covers addressing information to allow the transportation of data across the Internet.

ISDN: (Integrated Services Digital Network)

This is a digital service, which will travel over various mediums. It allows simultaneous transmission of voice, data and video over a common network gateway or interface.

LAN: (Local Area Network)

A Computer network normally located within one building or site. The computers on the network are known as Clients or Workstations. Some applications may have a central unit used to control the workstations, this is often referred to as the Server. There are many types of network, descriptions of these can be found in this glossary.

MAC: (Media Access Control)

MESHED NEWTORK:

A network in which every node is connected to every other node.

MODEM: (Modulator - Demodulator)

A device which converts digital signals to analogue signals suitable for transmission onto an analogue network.

MULTIPLEXER:

A piece of equipment which enables the transmission of a number of channels at the same time over a single circuit. Most use data correction and compression.

NETWORK ARCHITECTURE:

The complete design of equipment, protocols, topology and transmission links of a network, and the way this design is implemented.

NETWORK TOPOLOGY:

This is the physical configuration of a network, how the nodes are arranged in relation to each other. Here are some examples:

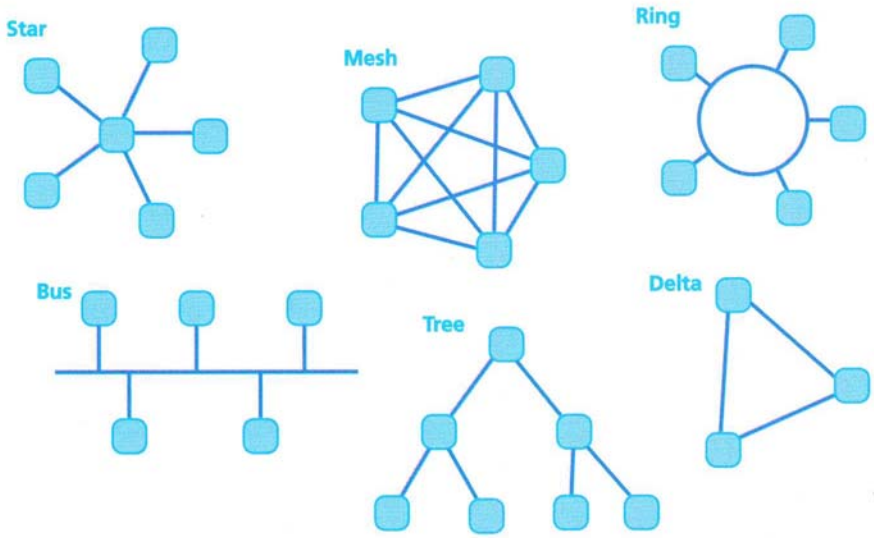


TABLE 1

NODE:

A node is any point on a network where the transmission paths are interconnected. On a LAN, a node will usually be a workstation or client, on a WAN, a node could be a whole site normally connected via routers and private connections.

NOS: (Network Operating System)

The operating system that runs on a server.

PAP: (Password Access Protocol)

This is a method of verifying a user on a network.

PARALLEL INTERFACE:

This is a common type of interface that connects computers and printers together, developed by CENTRONICS it uses a 36 pin connector.

PCMCIA: (Personal Computer Memory Card International Association)

This is the organisation, which sets out the standard for the interface cards used in computers, mobile phones etc. They are usually used to provide MODEM connections, Extra Memory and Network features.

PORT:

The interface on which other computers, equipment or network items are connected.

PROTOCOL:

A set of standards that apply to an application or service shared on a network.

RF:

Radio Frequency, a general term used for *'electrical noise'* that can be induced into data cables that can cause corruption in data traffic on a network, See *STP*

RAID: (Redundant Array of Inexpensive Disks)

This is a range of disks that run in parallel but appear to the user as 1 large disk. The data is spread across the disks.

REPEATER(S):

An amplifier that extends the standard length of cable in a transmission path, it compensates for distortion and signal attenuation.

RING TOPOLOGY:

A type of network where the workstations are connected, via repeaters in one single uni-directional loop. See *TABLE 1*

RIP: (Routing Information Protocol)

This is a protocol for routing traffic through LAN's. This is often used to connect colour copiers to networks.

ROUTER:

A router is a network connection device. Routers can support most protocols (As referred to in this document). The primary function is to find routes between networks and provide network management capability.

SERIAL INTERFACE:

This interface uses data which is sent bit by bit in a single path.

SERVER:

Is a computer on a network that runs the network operating system (NOS) and holds the files and resources that are to be shared between users on the network.

SESSION:

This is the term for a 'live' link between 2 or more devices. It is the link that is currently in use.

SIMPLEX CIRCUIT:

This circuit differs from the Full Duplex circuit, it will only send data in 1(one) direction at a time.

SQL: (Structured Query Language)

This is a language defined to give all the users on a system a standard way to read and write data to a database.

STAR TOPOLOGY:

A type of network in which all the nodes are connected to a central hub, which functions as a multiplexer and switching node. See TABLE 1

SWITCHED NETWORK:

This is a type of network that can be shared among many users, each of them being able to communicate with each other.

SYNCHRONIOUS TRANSMISSION:

Data transmission that has a timing pulse inserted on the transmission path. This allows digital signals to be transmitted without embedded timing bits, which increases the bandwidth available for traffic.

STP: (Shielded Twisted Pair)

A type of cable using, usually 8, coloured wires twisted in pairs and is shielded against RF noise.

TCP: (Transmission Control Protocol)

This is the 'Transport layer', connection orientated, end to end protocol that forms the first part of the TCP/IP suite (See below). The software that uses TCP is usually found in the operating system.

TCP/IP: (Transmission Control Protocol / Internet Protocol)

This is a collection of protocols based on the ones used by the US defence department and are now widely used in private networking and the Internet.

TELNET:

A protocol which governs the exchange of Character Orientated data, allowing a terminal to communicate with a remote host.

TERMINAL ADAPTOR:

A device which converts from one protocol to another, to allow a computer using one protocol to connect to a computer using a different protocol.

TOKEN PASSING:

This is a method of controlling access to a network using a special data packet called a TOKEN from node to node. When all the stations are idle, the TOKEN is labelled as '*free*'. A station wishing to transmit data waits for a '*free*' TOKEN, then changes the token to '*busy*' and transmits a data packet immediately behind it. When the station for which the information was for has removed it from the network, the TOKEN is then released.

With TOKEN PASSING, workstations or applications can be assigned priorities, either giving them preferential claim on a circulating TOKEN, or defining the amount of data they can transmit when they receive a TOKEN. (See *Token Ring*)

TOKEN RING:

A network type using a RING TOPOLOGY and TOKEN PASSING to control access.

TREE TOPOLOGY:

A network consisting of a branching cable with no closed loops. The TREE layout begins at a point known as the 'HEAD END' and continues to a series of POINT to POINT links. See *TABLE 1*

TWISTED PAIR:

Cable that is made up of 2(two) insulated copper wires arranged in a regular helix shape. Each wire pair acts as a single communication link. A typical cable consists of a
number of these pairs of wires. Basic Twisted Pair is sometimes known as Unshielded Twisted Pair (UTP).

UNI: (User Network Interface)

The demarcation point between a LAN and a public data network (WAN)

UNIX:

This is a powerful multitasking operating system for computers running complex applications.

UPS: (Uninterruptable Power Supply)

A device that will keep up a computer system or any other electrical device for a period of time in the event of a power failure.

UTP: (Unshielded Twisted Pair)

A type of cable using, usually 8, coloured wires twisted in pairs but has no shielding against RF noise.

WAN: (Wide Area Network)

A connection, or series of connections or other LAN's that are located in different locations, even different countries, but act as a single network. These are normally connected via modem or Private network links, AC15 for example.

TABLE 2

NETWORK TYPE	TRANSMISSION SPEED	MEDIA
10 BASE T	**10Mbits per second**	**Twisted Pair Cable**
10 BASE 2	**10Mbits per second**	**Co-Ax Thin Ethernet**
10 BASE 5	**10Mbits per second**	**Co-Ax Thick Ethernet**
100 BASE T	**100Mbits per second**	**Twisted Pair Cable**

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