PRINTERS
• Printer
• Multi-Function Device
• Laser Printer
  • Components
  • Process
• Ink Jet Printer
  • Components
  • Process
• Thermal Printer
• Impact Printer
• Printer Media
• Printer Installation
• Windows 7 Add Printer
• Windows XP Add Printer
• Printer Sharing
• Printer Configuration
• Printer Maintenance
• A computer peripheral that produces text and images on a physical medium (commonly paper) from electronic files and images on a computer
• Some printers can print from memory cards or digital cameras
• A computer peripheral that can perform a number of functions including:
  • Printing
  • Scanning documents
  • Operating as a fax machine
  • Copier
• AKA All in One
• Can be small (SOHO use) or large (enterprise use)
- Uses a laser beam to form images and text, then transfers toner to a physical medium
- Printing speed is generally faster than other printing technologies
- Images and text are usually clear, crisp, and high quality
Laser Printer Components

- Toner cartridge – replaceable unit that contains toner
- Laser scanner
- High voltage power supply
- Paper transport mechanisms – pickup roller, transfer roller, transfer belt
Laser Printer Components

- Imaging drum – carries electrical charge that attracts the toner
- Transfer corona assembly – charges paper and drum
- Fuser assembly – applies pressure and heat to attach toner to the paper
- Duplexer – allows images to be printed on both sides of the paper
Laser Printer Process

- Cleaning/Erasing – Image drum is cleared of toner and charges
- Charging – Corona wire or charge roller apply a negative charge to the image drum (600 V)
- Exposing – Laser writes to the image drum making portions of the drum less negatively charged
• Developing – Toner is attracted to areas of the image drum hit by the laser
• Transferring – Pickup rollers feed positively charged paper towards the drum attracting the negatively charged toner onto the paper
• Fusing – Fusing rollers use heat and pressure to affix toner to paper
Laser Printer Process
• 1) Image drum photoconductor, with an electrically chargeable coating.

• 2) Charge roller with high negative charge. Transfers the load evenly over the image drum.

• 3) Laser diode with a focusing lens. The laser beam neutralizes the charge on the photoconductive drum.

• 4) A rotating polygon mirror that directs the laser beam line by line over the image drum unit.

• 5) Irregular georme lens. Linearity correction of the laser movement.

• 6) Mixing plant in the container with the toner. Spreads the toner evenly on the drum.
7) Negatively charged drum. The toner moves from here to the discharged areas of the drum.
8) Toner transfer paper. The positively charged transfer roller attracts the negatively charged toner.
9) Scraper. Wipes excess toner from the drum and neutralizes the charge remaining.
10) Waste toner container.
11) Fuser. Hot rollers melt the toner and press it onto the paper.
Ink Jet Printer Components

• Ink cartridge – black or colored
• Print head – portion of cartridge that ejects ink
• Roller – moves paper
• Duplex assembly – allows printing on both sides of paper

Ink cartridge- black and colored
Ink jet printer head (black)
• Forms images by spraying ink from a cartridge onto paper
• Inexpensive
• Can print on a variety of paper types: inexpensive, bright, photo, transparencies, labels, card stock, envelopes
• Black/white and color models
• Duplexing
• Speed is generally slower than laser
• Preparation – move paper into the printing area and move the print head across the paper
• Ink dispersion/deposit – heat or vibration forces ink from cartridge to paper, the print head moves back and forth across the paper
• Paper advance – paper is advanced by roller to allow printing on the next section
Ink Jet Printer Process
• Use a heating element to create images
• Thermal dye transfer – uses heat to diffuse ink onto special paper, producing high quality colors
• Thermal wax transfer – melts wax ink onto paper
• Direct thermal printer – heated pin to form image on special thermal paper (cash register, fax machine), does not run out of ink
- Strike directly against an ink ribbon to form alpha numeric characters or dots
- Dot Matrix – uses pins to create various combinations of dots that form alpha numeric characters or images
- Formed Character/Daisy Wheel – formed alpha numeric characters arranged in a ball
- Line printer – prints a full line of text at a time
• Paper
• Toner
• Ink Jet Cartridge
• Ink ribbon
• Printer memory – may need to upgrade
• Printer driver – obtained from manufacturer or supplied by the operating system
• Printer firmware – obtained from the manufacturer and use specialized software to install
• Printer connections –
  • Wired: parallel, USB, RJ-45/Twisted Pair
  • Wireless: Wifi, USB, IR
• Obtain/download printer driver/software
• Power on and connect printer
  • Wired: to specific connection
  • Wireless/network: connect to wireless network/device
• Install printer driver/software
• Start → Control Panel → Hardware and Sound → View Devices and Printers → Add a printer
• Select “local”
  • Choose proper port
• Select “network, wireless, Bluetooth”
  • Allow search to find printers or enter printer name/location/IP address
  • Select proper driver
Windows 7 Add Printer

What type of printer do you want to install?

- Add a local printer
  Use this option only if you don’t have a USB printer. (Windows automatically installs USB printers when you plug them in.)

- Add a network, wireless or Bluetooth printer
  Make sure that your computer is connected to the network, or that your Bluetooth or wireless printer is turned on.
Choose a printer port

A printer port is a type of connection that allows your computer to exchange information with a printer.

- **Use an existing port:** LPT1: (Printer Port)
- **Create a new port:** Local Port

[Next] [Cancel]
Searching for available printers...

<table>
<thead>
<tr>
<th>Printer Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officejet_Pro_8600_fax on ASUS-G74SX</td>
<td>\ASUS-G74SX\Officejet_Pro_8600_fax</td>
</tr>
<tr>
<td>Officejet_J4680 on ASUS-G74SX</td>
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<td>Officejet_6700_fax on ASUS-G74SX</td>
<td>\ASUS-G74SX\Officejet_6700_fax</td>
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<tr>
<td>Officejet_6700 on ASUS-G74SX</td>
<td>\ASUS-G74SX\Officejet_6700</td>
</tr>
</tbody>
</table>

→ The printer that I want isn't listed
• Start → Control Panel → Printers and Faxes → Add a printer
• Select “Local printer attached to this computer”
  • Choose proper port
• Select “A network printer, or a printer attached to another computer”
  • Browse to find printers or enter printer name/location/IP address
  • Select proper driver
Add Printer Wizard

Select a Printer Port
Computers communicate with printers through ports.

Select the port you want your printer to use. If the port is not listed, you can create a new port.

- **Use the following port:** LPT1: (Recommended Printer Port)

Note: Most computers use the LPT1: port to communicate with a local printer. The connector for this port should look something like this:

- **Create a new port:**
  - Type of port: Local Port

< Back  Next >  Cancel
Add Printer Wizard

Specify a Printer

If you don’t know the name or address of the printer, you can search for a printer that meets your needs.

What printer do you want to connect to?

- **Browse for a printer**

- **Connect to this printer** (or to browse for a printer, select this option and click Next):
  - Name:
  - Example: `\server\printer`

- **Connect to a printer on the Internet or on a home or office network**:
  - URL:
  - Example: `http://server/printers/myprinter/printer`

< Back  Next >  Cancel
• Wired
• Wireless – Wifi, Bluetooth, IR
• Print Server
• Shared Network
• Calibration
• Tray Assignment
• Tray switching
• Print spool settings
• Availability
• Color
• Ports
• Inkjet – use often, run cleaning, run nozzle test
• Impact – clean paper path, replace print head ribbon as needed, avoid overheating
• Laser – replace toner cartridge, clean excess toner, keep well ventilated (ozone)
• Thermal – replace paper, clean heating element, remove debris from printer
THANK YOU