Windows NT Tips and Tricks

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List of Topics

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The NT Command Prompt

- Where is it?
  `c:\winnt\system32\cmd.exe`
- Isn't it really just DOS?
  - Similar in some way, but not quite the same…

Redirection

- Normal < and > for input and output
  ```
  dir /s > allfiles.lst
  ```
- | for piping (real pipes, not temp. files)
  ```
  dir /s /b | sort > allfiles.srt
  ```
- >> to append to a file

Environment Variables

- Use `set` to set them, `%name%` to access
  ```
  set td=\noth\cse573\
  cd %td%
  ```
- `path` special
  - Semicolon-delimited list of directories
  - Use `path` command to inspect/change, or `set`
    ```
    path q:\goodstuff\bin\;%path%
    ```
  - Note use of `%path%` to preserve old path

Wildcards and Globbing

- Much more UNIX-like than DOS
- Wildcards are:
  - `*` to match anything (or nothing) until end of name or other symbol
  - `?` to match one character
  - `.` to match the `.` character (or end of name)
- Examples:
  - `*` matches all files
  - `?n*` matches all files with at least 2 letters in name and an `n` as the second one

The `start` Command

- From the command line, `start` invokes another process:
  `start /min gzip -9 fullbackup.tar`
- Many other options
  - Type `help start |more` to see them

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Long vs. Short Filenames

- Old DOS 8.3 length limitation gone
- Spaces allowed in filenames
  - Enclose name in double-quotes to access:
    `cd "\program files"`
- Case-insensitive

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Problems with LFNs

- Many older applications can't handle them
  - Mangled 8.3 version of name is used instead
  - Messy scheme used to rename
  - Use `dir /x` to see exactly what it is:

```
                                   Short       Long
10/18/97  02:59p               100 SAVES-~1  .saves-63-PML9~
08/30/97  03:07p    <DIR>              apps
08/30/97  03:30p    <DIR>          MULTIM~1  Multimedia Files
10/16/97  03:14p        78,643,200            pagefile.sys
10/16/97  02:55p    <DIR>          PROGRA~1  Program Files
10/20/97  03:31p    <DIR>                    TEMP
```

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Command History

- Up- and Down-arrows to access previous commands
- Left- and Right-arrows to move cursor
- Default edit mode is overstrike
  - Hit Insert to enable insert mode

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UNIX-like Utilities

- Editors
  - NT-aware GNU `emacs` already available
  - `vim` (`vi`) in UNS
- Tools
  - `Perl` in UNS
  - Cygwin32 collection
    - `http://www.cygnus.com/misc/gnu-win32/`

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About Cygwin32

- Port of UNIX tools to Win32 platform
- UNIX-like API to facilitate porting
- Interoperability with Win32 API as well
- Full ports of:
  - `gcc`, `g++`, `gdb`, `make`, `bash`, `awk`, etc…
  - Usually pretty easy to port other apps
- Free, with restrictions on commercial use
- Installed on `\\ifilesrv1\\UNS` in `CSEPCLAB` domain

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Using Cygwin32

- Mount `\\ifilesrv1\UNS` as drive K
- Create environment variables:

```
GCC_EXEC_PREFIX =
  k:\gnuwin32\b18\H-i386-cygwin32\lib\gcc-lib\
```

  - Note the trailing slash

```
TCL_LIBRARY =
  k:/gnuwin32/b18/tcl/lib/tcl7.6
GDBTK_LIBRARY =
  k:/gnuwin32/b18/share/gdbtcl
```

  - Note the **forward** slashes

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Using Cygwin32 (2)

- Add the following to your `PATH`:

```
k:\gnuwin32\b18\H-i386-cygwin32\bin;
k:\gnuwin32\b18\tcl\bin
```

- Use the control panel to set variables so they stay set across command prompts

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X-Windows and NT

- Displaying X-Windows application on your NT box
  - `XWin32`
- Running and displaying Windows NT applications on your UNIX box/X-terminal
  - `WinDD`

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X on NT: `XWin32`

- Lets you display X-Win apps on an NT box
- To start, run `X-Win32` from `Start` menu
  - It minimizes itself automatically; right-click on it and choose `Sessions` to start a session.
- To configure a session, use `X-Util`
  - Create a new session
  - Option 1: Use XDMCP as the connect mode with broadcast mode to use your NT box like an X-Terminal
    - Pick a machine to log into, and do so normally

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X on NT: `XWin32` (2)

- Option 2: Choose `rsh` as the connect mode
  - Choose a machine to log into
    - Need to be authorized in the `.rhosts` file there
    - Use login ID for account on that machine
  - Choose a command to execute
    - Fully-qualified pathname
    - Display variable needs to be your NT box's name/IP address, followed by `:0.0`
    - Example to start an `xterm` on a Linux box, displayed on my machine:

```
/usr/X11R6/bin/xterm -display ikura:0.0
```

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Single vs. Multiple Windows

- `X-Win32` has two main modes
  - Single-window mode
    - One window for all X-applications
    - Can run an X-Windows manager in that window
  - Multiple-window mode
    - One window for each X-application
    - Windows managed by WinNT

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Choosing Window Mode

- Use `X-Util`, under `Options->Window Mode` selection to choose which to use
  - Single-window mode may be more palatable if used to X-Windows
  - Multiple-window mode if used to NT
- To avoid annoying warning dialog every time an X app is started:
  - Use `X-Util`, under `Options->Xhost`…
  - Add name of remote machine to the list

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NT on an X-Display: WinDD

- `WinDD` lets you run some Windows NT applications on the `WinDD` server, and display on an X-Display
  - Your Linux box
  - An X-Terminal
- For full details and all necessary instructions, please see:
  `www.cs.washington.edu/lab/sw/rwindd.html`

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File Sharing

- Several different types of file sharing
  - Mounting directories from other NT machines
  - Mounting UNIX directories on NT box
  - Accessing NT directories from UNIX
  - Granting access to others to a directory on an NT machine

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Mounting Other NT Directories

- Right-click on the "My Computer" icon
- Choose `Map Network Drive`…
- Choose a drive letter
  - This drive letter will be the one through which your NT box accesses the remote directory
  - Usually doesn't matter, except for some apps that have been configured to only run from one
    - UNS must be mounted as K:

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Mounting NT Directories (2)

- Enter the remote path to connect to
  - Type it in directly, if known:
    `\\ifilesrv1\uns`
    - Note two \'s at start of name
  - Or, use the selection window
    - Double-click on a machine to expand hierarchy
    - Pay attention to which domain you're in (`CSEPCLAB` or `CSERESEARCH`)
  - Check `Reconnect at login` to reconnect to the remote directory upon logging in

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Mounting UNIX Directories

- To mount a remote UNIX directory:
  - Proceed as before for mounting a network drive
  - For the path, enter a machine name:
    `\\sanjuan.cs.washington.edu\`
    `\\june.cs.washington.edu\`
  - Rest of path should be your user ID on machine
  - Will need to enter login ID/password
  - Not many (any?) directories beside home directories are mountable this way

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Accessing NT Dirs from UNIX

- No direct mounting facilities
- Use Samba client for ftp-like access
  `smbclient '\\rfilesrv1\students' -W cseresearch`
- Only available on Linux boxes
- See `smbclient` man page for more information

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Sharing Directories Under NT

- To share a folder (directory) with others:
  - Right-click on folder, choose `Properties`…
  - Choose the `Security` tab, then the `Permissions`… button
  - Can specify access levels for groups or individual users
    - Use the `Show Users` button to list everyone who has an account

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User Profiles and Configuration

- The user profile stores most configuration information
- Roaming vs Local Profiles
  - Roaming profiles are copied to whichever machine you log into
  - Local are machine-specific
  - `CSEPCLAB` profiles are roaming, `CSERESEARCH` domain profiles are local

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Useful Configuration Options

- Create shortcuts to commonly-used applications on your desktop
  - Right-click on the desktop, then `New->Shortcut`
  - Use the `Browse`… button to help finding the location of an executable
  - Right-click on a shortcut, then `Properties` item, then `Shortcut` tab for more details
    - Can add command-line parameters to `Target` field

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Configuring the Display

- Use the `Display` icon in the `Control Panel`
  - `Settings` tab to change resolution, color depth, monitor refresh rate
  - `Background` tab for background image
  - `Appearance` tab for color schemes
  - `Plus!` tab for misc. settings
    - Smooth edges of screen fonts a good one

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Persistent Environment Variables

- Useful to set environment variables that are persistent and shared by all cmd prompts
- Select `System` icon from `Control Panel`
  - Pick the `Environment` tab
  - Type in new variables and values, then `Set`
  - Click on existing variable, then modify it
- Use `%path%` variable when changing path:
  `%path%;k:\gnuwin32\b18\H-i386-cygwin32\bin`
- Changes apply to all future prompts

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Other Control Panel Icons

- `Mouse` icon to configure the mouse speed, sensitivity, etc.
- `Keyboard` to change repeat delay/rate
- `Console` icon to configure the command prompt settings
  - Useful setting: Increase `Screen Buffer Size` under `Layout` tab to 200, for a 200-line window with scrollbar

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Adding/Selecting Printers

- Use `Printer` icon in `Control Panel` (or `Start->Settings->Printers`) for currently-installed printers
- Use `Add Printer` to install a new printer
  - Choose `Network Printer Server`, and look under `RFILESRV1` for `CSERESEARCH` domain printers (`ps2ES`, etc.)
- Right-click on installed printer, then choose `Set as Default` to use as default printer

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Configuring Printers

- Most WinNT applications have a printer selection drop-down box that is accessed before printing
  - Click `Properties…` button for configuration options
  - Configure printing single/double-sided, paper tray, resolution, etc.

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Taskbar Configuration

- `Start->Settings->Taskbar…` to configure taskbar options
  - `Show Small Icons` saves visual space
  - `Auto-Hide` can do so as well
    - Taskbar will hide when not in use
    - Move mouse to bottom of screen to get it back
  - `Start Menu Contents` useful for adding items
  - Can clear the list of last-used documents
- Taskbar can be dragged to any screen edge

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Application Tips

- Spend time becoming familiar with MS Office
  - `Powerpoint` is very handy for presentations
  - `Excel` is good for grades and charts
  - Waste hours of time playing with the animated help assistants

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File Viewers

- `GSView` for viewing/printing `PostScript` files
- Adobe Acrobat for `.pdf` files
- Microsoft Photo Editor for many common image file formats
- Netscape or Internet Explorer for the web
- Notepad (`notepad.exe`) for simple text editing/viewing

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Parting Advice

- Experiment with different configurations, options, applications, and see what you like
  - Minor changes can have enormous benefits!
- Use the right tool for the job
  - `Notepad` vs `Emacs` vs `Word`
- Enormous amount of software and information on the web
  - Many Win95 programs work just fine under NT

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