



Operating System Fundamentals

Module 10:

Operating System Scripts

- Batch Files
- Windows Script Host
- PowerShell

Agenda

- Generally used in command-line scenarios
- Convenient way to “alias” commands
- Automate
 - Sequence of operations
 - Configuration
 - Mapping drives, connecting to printers, modify environment variables, etc.
 - Login/startup actions/commands
 - Starting and stopping services
 - Etc.

Scripting – Why?

- MS-DOS
 - Batch Files
- Windows 98
 - Windows Script Host
- Windows Vista/Server 2003
 - PowerShell

(Scripting in Linux will be covered in the System Programming course next semester)

Windows Scripting

- Requirements
 - File must contain ASCII only
 - File name must end in “.bat”
 - File name cannot be the name of an “internal” MS-DOS command (i.e. copy, type, dir, etc.)
 - Each line must be separated by a carriage return

Batch Files

- Execute batch file by executing batch file name at command prompt
- Each line is executed, one at a time
- Any line you can enter at a command prompt can be used in batch file
- Simple loop and branch construct available
- To end a batch file, use CTRL-BREAK

Batch Files

- Passing parameters from command line
 - Inside batch file, parameters are referenced as %0, %1, %2, %3, %4, %5, %6, %7, %8 and %9
 - %0 is the command (batch file name), and the rest are assigned in the order on the line

Batch Files

- Some useful batch file features
 - ECHO (writes text to standard output)
 - GOTO (transfers batch file execution to a label)
 - : (colon - prefix for label)
 - IF (Boolean test)
 - EXIST (test for existence)
 - NOT (Boolean inverse)
 - FOR (apply a command to a set of files)
 - ERRORLEVEL (provides access to return value from previous program)
- For complete set of commands, see the Command-line reference for Windows XP:
<http://technet.microsoft.com/en-us/library/bb490890.aspx>

Batch Files

- Considerations
 - Always test thoroughly before deploying
 - Relatively slow – interpreted at command level
 - No compilation (unless you use a third party product)
 - Security issues are common

Batch Files

- Demo

Batch File - Examples

- Administration tool
- Environment for hosting (running) scripts
- Manages security
- Useful for
 - Logon scripting
 - Administrative scripting
 - Machine automation
- Object oriented

Windows Script Host

- File types
 - .vbs (VBScript)
 - .js (JScript)
 - .wsf (Allows mixing VBScript and JScript)
- Fully supports scripting language
- Additional features in Windows Script Host objects

Windows Script Host

- Object Model
 - Consists of 14 objects
- See MSDN for details:
 - <http://msdn.microsoft.com/en-us/library/a74hyyw0.aspx>

Windows Script Host

- Demo
 - Create Shortcut
 - <http://msdn.microsoft.com/en-us/library/aew9yb99.aspx>
 - Tip: Use VBA to test it out
 - Be aware of differences between VBA and VBScript

Windows Script Host

- Based on .NET
 - Version 3.0 - .NET 4.0 and 4.5
 - Version 2.0 - .NET 2.0
- Better shell than cmd.exe
- Processes objects – not text
- Native: cmdlet (“command-let”) is command
 - Format: *Verb-Noun* [*topic*] [-detailed]
 - i.e. Get-Help get-item –detailed
- Runs all Windows (MS-DOS-style) commands

PowerShell

- Introduction
 - <http://technet.microsoft.com/en-us/library/hh857337.aspx>
- As your understanding of .NET increases, you will be able to use the PowerShell more effectively

PowerShell

- Batch Files
 - <http://technet.microsoft.com/en-us/library/cc750056.aspx>
- Command Line Reference
 - <http://technet.microsoft.com/en-us/library/bb490890.aspx>
- Windows Script Host
 - <http://msdn.microsoft.com/en-us/library/9bbdkx3k.aspx>
 - [http://msdn.microsoft.com/en-us/library/shzd7dy4\(v=VS.84\).aspx](http://msdn.microsoft.com/en-us/library/shzd7dy4(v=VS.84).aspx)
- PowerShell Introduction
 - <http://technet.microsoft.com/en-us/library/bb978526.aspx>

References
