Tytuł szkolenia: Linux Shell Scripting (GL375)

Kod szkolenia: H2UW2S

Wprowadzenie

This course is designed to provide the skills necessary to automate tasks on a Unix or Linux system. Systems administrators and developers alike can avoid errors and save time and money by replacing repetitive work patterns with shell scripts. Care has been taken to present this course in a format that benefits all students, with or without previous programming experience. Many believe that the best way to learn shell scripting is writing shell scripts. For this reason, lab time is emphasized. Early labs present the scripting process step-by-step, while later labs are presented in a challenge format. While official solutions to each lab task are provided, students are encouraged to create their own before examining the solution. In this way, more experienced students are challenged without overwhelming the less experienced.

Adresaci szkolenia

Prerequisites

Solid understanding of Unix-based systems and proficiency on the Unix or Linux command line.

Cel szkolenia

Czas i forma szkolenia

- 14 godzin (2 dni x 7 godzin), w tym wykłady i warsztaty praktyczne.

Plan szkolenia

Module 1: Introduction to the Shell

• Shell Script Strengths and Weaknesses
• Shells
• Switching User Contexts
• Example Shell Script
• Shell and Environment Variables
• Key Environment Variables
• Which and Type
• General Quoting Rules
• Nesting Commands
• Help from Commands and Documentation
• whereis
• Getting Help within the Graphical Desktop
• Getting Help with man & info

Lab Tasks

• Shell Variables
• Shell Meta-Characters
• Command Substitution

Module 2: Shell Scripting Basics

• Positional Parameters
• Input & Output
• printf

- alias
- Functions
- Colors in Scripts
- Custom Bash Prompts

Lab Tasks

- Aliases
- Bash Login Scripts
- Create “userinfo” and “sysinfo” functions

Module 3: Working with Files

- Communication Channels
- File Redirection
- Piping Commands Together
- Doing Math
- Filesystem Structures
- Determining Disk Usage with df and du
- cron
- The crontab Command
- crontab Format
- /etc/cron.*/ Directories
- Sending Email with mailx

Lab Tasks

- Disk and Filesystem Usage
- Redirection and Pipes

Module 4: Regular Expressions

- Searching Inside Files
- Regular Expression Overview
- Regular Expressions
- RE Character Classes
- Regex Quantifiers
- RE Parenthesis
- The Streaming Editor

Lab Tasks

- Pattern Matching with Regular Expressions
- Extended Regular Expressions
- Using Regular Expressions with sed

Module 5: Branching and Looping

- Exit Status
- Comparisons with test
- Conditional Statements
- Flow Control: case
- Flow Control: while and until Loops
- The borne for-Loop
- Flow Control: select
- Lab Tasks
- Reporting User Statistics
- Monitoring Filesystem Usage}

Module 6: Data Munging

- Text Processing with Awk
- Text Sorting
- Duplicate Removal Utility
- Extracting Columns of Text

Lab Tasks

- Create “rmhost” function
- Create “showenv”function
- Parsing Mail Server Logs
- Fixing Incorrect Files

Module 7: Security, Whitespace, and Other Gotchas

- Gotcha: Quoting Variables
- Gotcha: Locales
- Gotchas: Maximum Command Length
- Gotcha: Whitespace in for Loops
- Reading Files with while
- Gotcha: $IFS
- Gotcha: Printing in .bashrc
- Gotcha: Aliases

Lab Tasks

- Renaming MP3 Files
- Split and Display $PATH
- A tar-based Backup

Appendix A: Challenge

- Apache Configuration Files
- httpd.conf – VirtualHost Configuration

Lab Tasks

- Automated Virtual Host Provisioning

Appendix B: Emacs

- Emacs
- The Emacs Interface
- Basic Emacs
- More Emacs Commands

Lab Tasks

- Text Editing with Emacs

Appendix C: The Secure Shell (SSH)

- OpenSSH Client & Server Configuration
- Accessing Remote Shells
- Transferring Files
- SSH Key Management