

Hands-on course , 3  
day(s)  
Ref : SHL

## Participants

UNIX/Linux administrator performing system administration duties including installation, maintenance and integration or developer of text processing software.

## Pre-requisites

Basic UNIX/Linux skills. Knowledge of any programming language is added advantage.

## Next sessions

# Writing Shell Scripts

## OBJECTIVES

*The UNIX Shell is both an interactive interface to the UNIX system and a powerful scripting language. This training session will present detailed functionalities to help you understanding shell programming. You will acquire Shell programming skills in concrete domains like survey, task automatization, software installation, file processing...).*

### 1) Overview of the UNIX Shell

### 2) Interfacing UNIX with the interactive Shell

### 3) An introduction to Shell scripting

### 4) Advanced Shell programming and the Korn Shell

### 5) Other UNIX powerful scripting tools

## 1) Overview of the UNIX Shell

- History of the UNIX Shell. UNIX fork/exec system calls.
- Arguments and environment of a UNIX program.
- How the Shell reads the command line.
- Differences between Bourne, Korn and Bourne Again Shells.

## 2) Interfacing UNIX with the interactive Shell

- Starting an interactive Shell. Initialization of the Shell.
- Line editing, vi and emacs Ksh modes. Line editing with Bash.
- Name completion. Shell options and the set built-in.
- Customizing the environment. The command search path.
- Shell commands and scripts.
- Sourcing Shell commands. Execution of a Shell script. UNIX execution of a Shell script, the she-bang.
- Creation and use of Shell variables. Passing arguments to a Shell script.
- Differences between exec, background and sub-shells. Using pipelines and lists.

## 3) An introduction to Shell scripting

- Basic Shell programming.
- Shell variables and compound variables. Strings operators.
- Command substitution, braces expansion, tilde substitution.
- Initialization of a script, positional parameters, shift and parameters substitution.
- Flow Control.
- If/else, for, case, select, while and until. Functions. The set and eval built-ins.

## 4) Advanced Shell programming and the Korn Shell

- Typed variables. Arrays, indexed and associative arrays. Typeset, indirect variable references.
- Input/Output. I/O redirections, the IFS. Reading from the standard input.
- Process handling. Job control signals and traps. Co-routines and co-process substitution de process.
- Optimization of the Korn Shell. Function libraries. Development of new Shell built-in
- Korn Shell debugging. Special debug traps. Using setters and getters.

## 5) Other UNIX powerful scripting tools

- Frequently used tools associated with the Shell.
- Shar, stty, lockfile, tput, grep, find, cut, sort and xargs AST tree walk and coshell. UNIX regular expressions.
- Analysing text with SED. The command line. Scripting with sed.
- Overview of the AWK interpreter. Internal variables.
- Text and database processing.