

ASEAN OSS Training Program 2005

Background

The popularity of Open Source Software (OSS) has grown at an astonishing rate such that governments, business, academy, R&D related organizations, and community groups have been expecting wider use of OSS.

The Center of the International Cooperation for Computerization (CICC) has been hosting Asia Open Source Software Symposiums twice a year from March 2003. Human Resource Development has been identified as one of the bottlenecks on the wider use of OSS.

The ASEAN OSS Training Program has been initiated by CICC Singapore office with the aim of creating a large number of OSS professionals to teach OSS in South East Asia. It will support wider use of Open Source systems in ten ASEAN member countries, namely Brunei Darussalam, Cambodia, Indonesia, Laos PDR, Malaysia, Myanmar, Philippines, Thailand, Singapore, and Vietnam.

1 Program

CICC will be conducting the LINUX (OSS) training program (pilot) with the Malaysian National Computer Confederation [MNCC] for 30 participants from ASEAN countries.

2 Tentative Date

March 14 to 19, 2005

3 Training Location:

KMDC (KDU Management Development Centre)
Level 19&20, Block 3A, Plaza Sentral, KL Sentral
50470 Kuala Lumpur

4 Training Program:

The Program will be made up of two components.

	Duration	Participants
OSS Basic Course	March 14 to 17, March 2005	15 Trainees
OSS Certification Course	March 14 to 19, March 2005	15 Trainees

4.1 OSS Basic Course

- ◆ Participants who successfully undergo this course program will be issued an OSS Basic Trainer Certificate by CICC

4.1.1 Pre-requisite for the Participants:

- ◆ Should be a teacher in a computer related school/college, trainer in computer training institution
- ◆ Interest to promote and teach OSS
- ◆ Basic knowledge of how to operate a computer, operating systems
- ◆ Oral and written proficiency in English language
- ◆ Knowledge in Linux or UNIX with some experience is preferable

4.2 OSS Certification Course

This 6 days program is designed for the Linux System Administrator and to prepare the participants for taking certification exams like the LPI 101 exam.

4.2.1 Pre-requisite for the Participants:

- ◆ Should be a teacher in a computer related school/college, trainer in computer training institution
- ◆ The participants should have more than 6 months of Unix or Linux related experience working as a Linux System Administrator
- ◆ Oral and written proficiency in English language

4.3 Trainers:

- ◆ Certified trainers who have extensive experience conducting similar training

5 Training Expenses:

- Organizers and Sponsors will bear the expenses for conducting the course.
- Accommodation will be provided for all overseas participants
- Participants are expected to:
 - Take care of their travel expenses to travel to and from Kuala Lumpur
 - Pay for their incidental expenses

6 What is expected from Trainees?

- ◆ Attend all the classes and complete the training successfully.
- ◆ Observe and adhere to the course curriculum strictly.
- ◆ Submit the course feedback form.
- ◆ The participants are also expected to give an undertaking to train more OSS trainers.
- ◆ Submit a short report explaining how lessons learnt during the training course will be used in their work and their future plan to teach Open Source Software courses in the next one year.

7 Course Outline:

7.1 OSS Basic Course

This four days training will be divided into two parts. For the first part (for the first two days) technical OSS topics will be covered. Additional Notes to enhance current OS capability, like plug and play, USB, Wifi etc. are also included.

For the second part (Day 3 and 4), the main focus will be on preparing the skills for the participants to set up and maintain the training environment, i.e. network, security, users management, backup/restore etc. tips on teaching open source topics. The participants' presentation skill evaluation is also included.

In addition to this, there will be five to six experience sharing session with experts covering topics such as:

- ◆ A Case Study in Open Source Business
- ◆ Using FOSS to teach IT security
- ◆ OSS: Difficult, but the best affordance for a Knowledge Society
- ◆ How to make it interesting to teach and learn Open Source Software
- ◆ Using Open Source Software for eLearning and eTraining
- ◆ Technology Applications in Open Source
- ◆ Knoppix: Practical Tips

7.1.1 Pre-requisite

Participants are required to have the following:

- ◆ Oral and written proficiency of the English language
- ◆ Experience in delivering IT or similar programs
- ◆ Able to use computers in a networked environment

Preferable but not compulsory:

- ◆ Knowledge of open source software and its issues
- ◆ Knowledge in installing and setting up Linux in a networked environment

7.1.2 Evaluation

The evaluation is not intended to penalize participants whose main delivery of the workshop in the future may not be in English language.

Participants' success in this program is evaluated with the following:

1. One practical installation and setup of a workshop environment (This may be done individually or in pairs)
2. One presentation on participant's choice of training topic. A five minutes presentation should have at least one of the following: a demonstration; or explaining a topic within course content.

The Presentation will be evaluated for

- ◆ Clarity on delivery of topic (clarity, flow);
- ◆ Use of presentation tools (design, visibility);

- ◆ Knowledge of subject (Q&A with trainer/participants); and
- ◆ Physical actions (personal appearance, gestures, voice).

7.1.3 Course Topics

Part A.

Section A. Getting to know the desktop

- ◆ What are desktops and available desktops on Linux
- ◆ Log on/off, shutdown, reboot
- ◆ Using the help system
- ◆ Switching desktop
- ◆ Using the KDE desktop
- ◆ Using Konqueror as file/internet browser
- ◆ Mounting floppy, CDROM

Section B. OpenOffice.org

- ◆ Basics of Writer
- ◆ Basics of Calc
- ◆ Basics of Impress
- ◆ Basics of Draw

Section C. Multimedia applications

- ◆ Using an audio player (XMMS)
- ◆ The standard audio formats on Linux
- ◆ Using a movie player (MPlayer)

Section D. Internet applications

- ◆ Using a web browser (Mozilla)
- ◆ Using an Email client (Ximian Evolution)
- ◆ Using an instant messaging (GAIM)

Part B.

Section A. Linux installation

- ◆ Hardware requirements
- ◆ Hardware issues (laptop and exotic devices)
- ◆ Installation methodologies
- ◆ Partition issues (in dual boot)
- ◆ Installing a Linux distribution (preferably dual boot)

Section B. Hardware configuration

- ◆ Configuring a modem with KPPP
- ◆ Setting up a printer
- ◆ Sound systems in Linux
- ◆ USB devices (flash disk)
- ◆ Networking device basics
- ◆ Connecting to another Linux share
- ◆ Connecting to another Window share

Section C. Installing/Removing applications

- ◆ What form applications come in (RPM, dpkg, sources)
- ◆ Installing from RPM (on CDROM)
- ◆ Installing from internet (MPlayer)
- ◆ What is Linux updates (Up2date, Yum, Apt-get)

Section D. System configuration

- ◆ User account management
- ◆ Using Control Center to customize desktop

Section E. Linux installation FAQ

- ◆ Getting help on the internet (websites, forums)
- ◆ Popular Linux distributions
- ◆ Common Linux migration issues

Part C. Setting the workshop

Section A. Hardware and software management

- ◆ Recognizing hardware requirements
- ◆ Recognizing software requirements
- ◆ Networking issues (DNS, proxy, fixed/DHCP IP)

- ◆ Lessons learned from previous workshops
- ◆ Practical installation of Linux for the workshop

Section B. More on system configuration

- ◆ X display issues
- ◆ The Linux file hierarchy system
- ◆ Basics on shell commands (SCP, shutdown, ifconfig)
- ◆ Basic configuration files (/etc/fstab, /etc/hosts)
- ◆ Using the log files

7.1.4 Training materials

The trainees will receive

- ◆ OSS Basic training Material CD
- ◆ OSS Basic Trainer's notes and Master CD (including the soft copy of training materials)

7.2 OSS Certification Course

This six days program is designed for the Linux System Administrators and to prepare the participants for taking certification exams like the LPI 101 exam.

In addition to regular technical topics discussed below, there will be five to six experience sharing session with experts covering topics such as:

- ◆ A Case Study in Open Source Business
- ◆ Using FOSS to teach IT security
- ◆ OSS: Difficult, but the best affordance for a Knowledge Society
- ◆ How to make it interesting to teach and learn Open Source Software
- ◆ Using Open Source Software for eLearning and eTraining
- ◆ Technology Applications in Open Source
- ◆ Knoppix: Practical Tips

7.2.1 Pre-requisite

Participants are required to have the following:

- ◆ Oral and written proficiency of the English language
- ◆ Have some knowledge of Operating System concepts and preferably, some experience installing and setting up Linux in a networked environment
- ◆ Have more than 6 months of Unix or Linux related experience working as a Linux System Administrator and comfortable with the command line

Preferable but not compulsory:

- ◆ Knowledge of open source software and its issues

7.2.2 Outline of topics

Module 1: Linux Fundamentals

- ◆ What is Linux?
- ◆ The Story of Linux
- ◆ The Free Software Model
- ◆ Linux Features
- ◆ Loadable Device Modules
- ◆ GUI Window Managers
- ◆ Programming Languages
- ◆ Linux Advantages
- ◆ GUI is Not Necessary
- ◆ Remote Administration is Easy
- ◆ Rebooting is Uncommon
- ◆ Viruses are Rare
- ◆ Linux Limitations
- ◆ Linux Distribution Mechanism
- ◆ Linux Standards
- ◆ FHS and LSB
- ◆ Linux Documentation
- ◆ The Linux Documentation Project
- ◆ System Administration

- ◆ Operational vs. Administrative

Module 2: Installing a Linux System

- ◆ Installation Options
- ◆ Getting Ready - System Type
- ◆ Types of Servers and Workstations
- ◆ Linux PRE-Installation
- ◆ Creating a Boot Floppy
- ◆ Drive Partitions
- ◆ Preparing Your System to Dual-Boot
- ◆ Partition the Drive
- ◆ Other Partitioning Methods
- ◆ Linux Boot Loaders
- ◆ X Window System Installation
- ◆ System Initialization
- ◆ Boot Sequence - init and /etc/inittab

Module 3: Linux Usage

- ◆ Command Line Basics
- ◆ Common Commands
- ◆ File System Basics
- ◆ The Linux File System

- ◆ Navigating the Directory Tree
- ◆ Permissions
- ◆ Copying, Moving & Removing Files
- ◆ Creating and Deleting Directories
- ◆ Interpreting Files
- ◆ Linux Text Editors
- ◆ Basic vi
- ◆ vi Modes
- ◆ The Linux Shell
- ◆ Profiles
- ◆ Environment
- ◆ Using the bash Shell
- ◆ Redirecting Input and Output
- ◆ Background Jobs
- ◆ bash Scripting

Module 4: Linux System Background

- ◆ Hardware and Architecture
- ◆ System Resources
- ◆ IRQ
- ◆ I/O Addresses
- ◆ DMA
- ◆ Devices and Drivers
- ◆ Hard Drives
- ◆ Network Interface Controllers
- ◆ Adding RAM
- ◆ Modems
- ◆ Audio Controllers
- ◆ The Linux File System
- ◆ Which File System is Best?
- ◆ File System Structure
- ◆ Directory Hierarchy
- ◆ File-related Commands
- ◆ Windows NT and Linux File Permissions
- ◆ Permissions and Ownership in a GUI
- ◆ Mounting File Systems
- ◆ Managing Shared Libraries
- ◆ Process Management
- ◆ The /proc File System

Module 5: Administration Utilities

- ◆ Online Documentation
- ◆ man Pages
- ◆ Manual Entries
- ◆ Linux Documentation Project
- ◆ System Information
- ◆ Identifying the System
- ◆ System Default Files
- ◆ Identifying and Communicating with Active Users
- ◆ Finding Files
- ◆ The Find Command
- ◆ The Locate Command
- ◆ Locating Commands
- ◆ Interpreting Files
- ◆ Text Processing
- ◆ The grep Family
- ◆ Regular Expressions
- ◆ Filters

- ◆ sed

Module 6: Files and Directories

- ◆ Standard Directories
- ◆ The Linux File System
- ◆ Long Directory Listing
- ◆ Access Control
- ◆ File and Directory Permission
- ◆ File Manipulation Permissions
- ◆ Set User and Group Ids
- ◆ The Sticky Bit
- ◆ File Permission Commands
- ◆ Links
- ◆ Hard Link
- ◆ Symbolic Link

Module 7: Processes

- ◆ Processes
- ◆ The Linux Kernel
- ◆ Programs and Processes
- ◆ Daemons and Zombies
- ◆ Key Attributes of a Process
- ◆ Running Processes
- ◆ Checking on Processes
- ◆ The /proc File System
- ◆ Signals
- ◆ Sending Signals
- ◆ Intercepting Signals
- ◆ Scheduling Processes
- ◆ The at Command
- ◆ Listing and Deleting at Jobs
- ◆ The crontab Command
- ◆ Administering at and crontab

Module 8: System Startup and Shutdown

- ◆ Standard Boot Process
- ◆ Typical lilo.conf
- ◆ Boot Problems
- ◆ Manual Boot
- ◆ Startup Flow Control
- ◆ Run Levels
- ◆ The init Control File: /etc/inittab
- ◆ Run Command Scripts (System V)
- ◆ rc Script Details (System V)
- ◆ Changing Run Levels
- ◆ Shutting Down
- ◆ Maintenance Mode

Module 9: Managing Users

- ◆ Creating New User Accounts
- ◆ New User Requirements
- ◆ Preparing Groups
- ◆ The /etc/passwd File
- ◆ Allocating User Ids
- ◆ Adding/Removing Users
- ◆ Changing User Attributes
- ◆ Changing Group Membership
- ◆ Security
- ◆ Setting Passwords
- ◆ Choosing Passwords
- ◆ The /etc/shadow File

- ◆ Account Security
- Module 10: User Environments**

- ◆ Login Shell
- ◆ Restricted root Access
- ◆ Environment Files
- ◆ Environment Definitions
- ◆ The unmask Command
- ◆ Security Issues
- ◆ Message of the Day (motd)
- ◆ Guest Accounts
- ◆ Shared Group Directories

Module 11: File Systems

- ◆ File System Structure
- ◆ File System Types
- ◆ Making a File System
- ◆ Mounting a File System
- ◆ Kernel File Cache
- ◆ The lost+found Directory
- ◆ Corrupt File Systems
- ◆ Identifying Lost Files
- ◆ File System Configuration File
- ◆ Utilities
- ◆ Free Disk
- ◆ Disk Usage
- ◆ Quota
- ◆ User Disk Quota
- ◆ Getting a Report on a User's Quota
- ◆ Status
- ◆ Turning on Quota at Boot Time
- ◆ Maintaining Quota

Module 12: Backup and Restore

- ◆ Why Perform Backups
- ◆ When to Backup
- ◆ Where to Store Backups
- ◆ What to Backup
- ◆ Backup Media
- ◆ Magnetic Tape
- ◆ Optical Disks
- ◆ Removable Disks
- ◆ Backup Utilities
- ◆ Linux Backup Terminology
- ◆ Tape Archive and Restore
- ◆ Copy to I/O
- ◆ Using cpio

- ◆ Direct Device Access
- ◆ Using dd to Identify a File Type
- ◆ Using Compression and dd
- ◆ Handling Tapes with mt
- ◆ Linux Tape Device Names
- ◆ Working with MS-DOS Diskettes
- ◆ Network Backups

Module 13: Security, Monitoring, and Troubleshooting

- ◆ Your Role in Security
- ◆ Physical Security
- ◆ Software Security
- ◆ Exploits
- ◆ Security Tools
- ◆ Basic NFS Security
- ◆ Security and NFS
- ◆ Client Security
- ◆ Server Security
- ◆ X Windows Security
- ◆ Monitoring System Performance
- ◆ What to Monitor
- ◆ CPU Process Reporter (top)
- ◆ Monitoring Memory Usage
- ◆ Virtual Memory Statistics (vmstat)
- ◆ /proc/meminfo
- ◆ Other Utilities
- ◆ Monitoring Log Files
- ◆ Inspecting Log Files
- ◆ Remote Logging
- ◆ Troubleshooting
- ◆ Preparing for Trouble
- ◆ Potential Installation Problems
- ◆ LILO Error Messages
- ◆ Printing Troubleshooting
- ◆ Repairing File Systems
- ◆ Mail System Maintenance
- ◆ Emergency Booting
- ◆ Hardware vs. IRQ Problems
- ◆ Problems with SCSI Controllers and Devices
- ◆ Setting Your System's Clock
- ◆ Troubleshooting Routing Issues

7.2.3 Training materials

The trainees will receive

- ◆ OSS Certification Training Material and Installation CD

7.2.4 Certification Exam

- ◆ A Post-Test consists of 50% MCQ (multiple choice questions) and 50% practical session to reinforce newly gained knowledge.
- ◆ Successful participants who have gone through the above rigorous program will have learned all the key core elements of the Linux operating system - installation, file system, RPMs, network configuration, X Window, basic file system navigation, application management. The participants will be more prepared to take up responsibility of Linux System Administration or Technical Support.
- ◆ They will also be in a position to take any certification exam like LPI 101. Linux Professional Institute (LPI) is a non-profit organization involved only in setting standards for professional certification. LPI

Certification Level 1 consist of passing LPI 101 and LPI 102 papers. Arrangements have been made for participants to take LPI 101 exam after the course.