



# HP 教育訓練中心課程簡介

Enterprise Linux Systems Administration (H7091S)

"本課程符合 **Linux Professional Institute (LPI) Level 1** 的標準"。專為具有**UNIX** 或**Linux**基礎經驗的使用者設計，介紹如何安裝設定以及管理**Red Hat** 和 **SUSE Linux** 系統。主題包括基本**Linux**系統管理、網路管理、使用者管理的介紹與設定、**Linux**開關機過程管理、**Linux** 權限觀念與實際運作。

建議一併搭配進階課程**Linux system administration II (H7092S)**學習，將可協助系統管理者準備**Linux** 認證，**Linux Professional Institute (LPI) Level 1**，**Red Hat (RHCE, RHCT)** 或 **SAIR**。

## 適合對象

- Linux系統及網路管理者 · 系統整合人員 · 支援工程師 · 技術顧問。

## 先修課程

- Fundamentals of the UNIX system, 51434S
- Linux Fundamental, U8583S
- Linux Fundamentals 課程 U8583S
- 具有 Linux 基礎之經驗者

## Supported Distributions

- Red Hat Enterprise Linux 7, SUSE Linux Enterprise 11

## 課程目標

At the conclusion of this course you should be able to:

- Successfully install, configure, and bring a Linux system online

## 課程效益

- Learn Linux system administration tasks
- Understand Linux user interfaces, file systems, and run states
- Acquire the techniques for recovering an unbootable system
- Gain knowledge of Linux disk space management options
- Effectively manage software packages

<b>Course title:</b>	Enterprise Linux Systems Administration
<b>HP product number:</b>	H7091S
<b>Category/Subcategory:</b>	Linux: RHEL7, SLES11
<b>Course length:</b>	5 days
<b>Level:</b>	Intermediate
<b>To order:</b>	To review course schedules and to register for a course, visit <a href="http://www.hp.com.tw/education">http://www.hp.com.tw/education</a>

## 為何選擇HP教育訓練中心?

- Recognized as an IDC MarketScape leader for IT education (IDC MarketScape: Worldwide IT Education and Training 2012 Vendor Analysis, doc #232870, February 2012)
- Unmatched technical expertise and support for HP products and technologies
- Top 20 training provider and content development
- More than 30 years of Education Consulting

- Global training with more than 90 training locations worldwide

## 進階課程

- Enterprise Linux Network Services (H7091S)

## 課程大綱

### Linux Kernel and Devices

- Hardware discovery tools
- Kernel hardware info – /sys/
- /sys/ structure and udev
- Managing Linux device files
- List block devices
- SCSI and USB devices and configuration
- Kernel modules
- Configuring kernel components and modules
- Handling module dependencies
- Configuring the kernel via /proc/
- Console, virtual terminals, and serial ports

### Boot Process and SysV Init

- systemd system and service manager
- systemd targets and using systemd
- Legacy support for SysV init
- Booting Linux on PCs
- GRUB2, GRUB2 configuration and security
- Boot parameters
- Initial RAM filesystem
- init
- System init styles overview
- Linux runlevels aliases
- Systemd local-fs.target and sysinit.target
- Systemd basic.target and multi-user.target
- Legacy local bootup script support
- System configuration files
- RHEL7 configuration utilities
- Shutdown and reboot

### Software Maintenance

- Managing software
- RPM features, architecture, and package files
- Working with RPMs
- Querying and verifying with RPM
- Updating the kernel RPM
- Dealing with RPM and Yum digest changes
- Yum plugins and RHN subscription manager
- Yum repositories and repository groups
- Compiling/installing from source
- Manually installed shared libraries

- Rebuilding source RPM package

### Local Storage Administration

- Partitioning disks with fdisk and parted
- Filesystem creation
- Persistent block devices
- Mounting and resizing filesystems
- Filesystem maintenance
- Managing an XFS filesystem
- Swap
- Filesystem structures
- Determining disk usage with df and du
- Configuring disk quotas
- Setting quotas
- Viewing and monitoring quotas
- Filesystem attributes

### LVM and RAID

- Logical volume management
- Implementing LVM
- Creating logical volumes
- Manipulating VGs and LVs
- Advanced LVM concepts
- gnome-disk-utility
- RAID concepts
- Array creation with mdadm
- Software RAID monitoring
- Software RAID control and display

### Remote Storage Administration

- Remote storage overview
- Remote filesystem protocols
- Remote block device protocols
- File sharing via NFS
- NFSv4+
- NFS clients and server configuration
- Implementing NFSv4
- AutoFS and AutoFS configuration
- Accessing windows/Samba shares from Linux
- SAN multipathing
- Multipath configuration and best practices
- iSCSI architecture
- Open-iSCSI initiator implementation
- iSCSI initiator discovery
- iSCSI initiator node administration
- Mounting iSCSI targets at boot
- iSCSI multipathing considerations

## User/Group Administration

- User and group concepts
- User administration
- Modifying accounts
- Group administration
- Password aging
- Default user files
- Controlling logins
- system-config-authentication
- System Security Services Daemon (SSSD)

## Pluggable Authentication Modules (PAM)

- PAM overview and module types
- PAM order of processing
- PAM control statements and modules
- pam\_unix and pam\_nologin.so
- pam\_limits.so, pam\_wheel.so, pam\_xauth.so

## Security Administration

- Security concepts
- Tightening default security
- Security advisories
- File access control lists
- Manipulating and viewing ACLs
- Backing up ACLs
- File creation permissions with umask
- User Private Group (UPG) scheme
- Alternatives to UPG
- SELinux security framework, modes, and commands
- Choosing an SELinux policy
- SELinux booleans and policy tools
- Permissive domains

## Basic Networking

- IPv4 and TCP/UDP fundamentals
- Linux network interfaces
- Ethernet hardware tools
- Network configuration with ip command
- Configuring routing tables
- IP to MAC address mapping with ARP
- Starting and stopping interfaces
- NetworkManager
- DNS and DHCP clients

- Network diagnostics
- Information from ss and netstat
- Hardware and system clock
- Managing network-wide time
- Continual time sync with NTP
- Configuring NTP clients
- Useful NTP commands

## Advanced Networking

- Multiple IP addresses
- Configuring a DHCP server
- Enabling IPv6
- Interface bonding and bridging
- 802.1q VLANs
- Tuning kernel network settings

## Log File Administration

- System logging
- Systemd journal
- gnome-system-log
- Rsyslog
- /etc/rsyslog.conf
- Log management and log anomaly detector

## Monitoring and Troubleshooting

- System status – memory, I/O, and CPU
- Performance trending with sar
- Determining service to process mapping
- Realtime monitoring of resources - cgroups
- Troubleshooting basics: Process and Tools
- strace and ltrace
- Common problems
- Troubleshooting incorrect file permissions
- Inability to boot
- Typos in configuration files
- Corrupt filesystems
- RHEL7 rescue environment

## 更多訊息

歡迎上網查詢HP教育訓練中心所有課程相關訊息及活動請造訪：  
<http://www.hp.com.tw/education>

