HP-UX System and Network Administration Development Path

hp invent

Fundamentals of the UNIX System (51434S)

HP-UX System and Network Administration I (H3064S)

HP-UX System and Network Administration II (H3065S)

Exam 3H0-002

certified IT professional **hp invent**

Network Specialist | Operations Specialist | High Availability Specialist | Performance Specialist

HP-UX System and Network Administration III (H3045S)

(Security)	Network Specialist	Operations Specialist	High Availability Specialist	Performance Specialist
Practical UNIX and Network Security H3541S (5 days)	Network Fundamentals Implementation H1929S (5 days)	Hands On w/ LVM, MirrorDisk/UX & JFS H6285S (3 days)	Hands On w/ LVM, MirrorDisk/UX & JFS H6285S (3 days)	Inside the HP-UX Operating System H5081S (5 days)
Internet Security H7076S (3 days)	Advanced UNIX Networking H1690S (5 days)	HP-UX System and Network Troubleshooting H4264S (5 days)	HP MC/ServiceGuard I H6487S (5 days)	HP-UX Performance and Tuning H4262S (5 days)
	Managing DNS & BIND H3540S (2 days)	Managing Software with Ignite-UX H1978S (3 days)	HP MC/ServiceGuard II H4310S (3 days)	HP OpenView PerfView/MeasureWare B5136S (3 days)
	Managing NIS & NIS+ H3066S (3 days)		Managing the HP Surestore E Disk Arrays XP H6773S (5 days)	
	Customizing Your Apache Web Server on HP-UX H4291S (5 days)	POSIX Shell or Perl Programming H4322S (5 days) H4311S (4 days)		
HP-UX Security Practical Exam H6703S (2 days)	HP-UX Networking Practical Exam H6700S (2 days)	HP-UX Operations Practical Exam H6701S (2 days)	HP-UX High Availability Practical Exam H6704S (2 days)	HP-UX Performance Practical Exam H6702S (2 days)
certified advanced IT professional **hp**	certified advanced IT professional **hp**	certified advanced IT professional **hp**	certified advanced IT professional **hp**	certified advanced IT professional **hp**

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**Security
Specialist**

Do You Find Yourself Asking Questions Like ...

1) What are the three primary areas that should be addressed in a security plan?
2) Legally, what files should be used to warn against unauthorized use of a HP-UX system?
3) What permissions for security purposes should the following configuration files have:
/etc/passwd /etc/inittab /etc/profile?
4) Does the fact that all logins have passwords ensure the integrity of a system?
5) How can you protect a file from being modified or deleted using standard permissions?
6) Can a UNIX user override the default umask permissions set by the administrator?
7) What is the difference between the files /etc/hosts.equiv and $HOME/.rhosts?
8) How do you control what remote systems can NFS mount your local file systems?
9) From a security standpoint, what is more secure telnet or rlogin?
10) What network security file grants the ability to allow or disallow specific network services?

Security Curriculum

H3541S Practical UNIX and Network Security
> *This course describes the various security loopholes in a typical UNIX system and methods for defending against these security breaches. The course covers the system, network, and internet from the 'hacker's' perspective, and provides practical recommendations for monitoring and uncovering operating system vulnerabilities, network-based attacks, and Web-server penetrations. (5 days)*

H7076S Internet Security
> *This course introduces students to other security aspects beyond local networks using some existing and potentially new products. (3 days)*

H6703S HP Certified Advanced IT Professional: HP-UX Security Practical Exam

Other Security Related Course:
H3045S HP-UX System and Network Administration III

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Security Books

Practical UNIX & Internet Security
Simson Garfinkel & Gene Spafford
ISBN 1-56592-148-8

Computer Security Basics
Deborah Russell & G.T. Gangemi, Sr.
ISBN 0-937175-71-4

Unix System Security : A Guide for Users
and System Administrators
David A. Curry
ISBN 0-20156-327-4

Unix Installation Security and Integrity
Prentice Hall
ISBN: 0-13-015389-3

Unix System Security Essentials
Christoph Braun & Siemens Nixdorf
ISBN: 0-20142-775-3

Secure Unix
Samuel Samalin
ISBN: 0-07054-554-5

Practical Unix & Internet Security
Garfinkel, Spafford
ISBN: 1-56592-148-8

Security Internet Web Sites

Data and System Security

  http://www.isecure.com/index.html

Securing X Windows

  http://ciac.llnl.gov/ciac/documents/ciac2316.html

Unix Security Topics

  http://www.alw.nih.gov/Security/first-papers.html#Unix

Security Mailing Lists

  http://www.vtcif.telstra.com.au/info/security/email.html

NSCS documents Order Forms

  http://csrc.nist.gov/secpubs/rainbow/nsaorder.txt

Computer Security Checklist

  ftp://ftp.auscert.org.au/pub/auscert/papers/unix_security_checklist

Computer Incident Advisory Capability Notes

  http://ciac.llnl.gov/cgi-bin/cnotes

Security in a Public World: A Survey

  http://www.stanford.edu/group/DCE/Gaurav/sec_doc.html

Network Specialist

Do You Find Yourself Asking Questions Like ...

1) How do you view and set an IP address on an HP-UX system?
2) How do you configure routing to allow machines to communicate with each other?
3) How do you configure telnet and ftp services?
4) How do you configure your machine to share files across the network with NFS?
5) How do you centralize user account administration across a LAN with NIS?
6) How do you configure a machine to resolve hostnames using DNS?
7) How do you monitor network traffic on your LAN and identify bottlenecks?
8) How do you configure the sendmail daemon to send and receive email?
9) How do you configure a machine as a central software distribution server?
10) How do you configure HP-UX to spool print requests to an NT server on your LAN?

Network Curriculum

H1929S Network Fundamentals and Implementation
Optimize network technology decisions by learning about networking fundamentals and how to implement various networking tools and theories. (5 days)

H1690S Advanced UNIX System Networking
Designed for experienced HP-UX Network Administrators and concentrates on practical problems encountered in the everyday administration of complex networks. (5 days)

H3540S Managing DNS and BIND
Provides in-depth coverage (configuration, administration and troubleshooting) of the Domain Name System (DNS) using the Berkeley Internet Name Domain (BIND) implementation. (2 days)

H3066S Managing NIS and NIS+
Provides in-depth coverage of NIS and NIS+ administration. The two standards are compared, and the procedures and tools are covered for the conversion of NIS sites to NIS+. (3 days)

H4291S Customizing Your Apache Web Server on HP-UX
This course provides hands-on experience in setting up, configuring, managing, monitoring, and customizing an Apache web server on HP-UX. It includes the downloading, installing and configuring of the primary services required by a 'dotcom' company to run it's business over the web. (5 days)

H6700S HP Certified Advanced IT Professional: HP-UX Network Practical Exam

Other Networking Related Courses:
H3045S HP-UX System and Network Administration III
B4743S HP OV Network Node Manager I
B4756S HP OV Network Node Manager II
B3713S HP OpenView IT/Operations I
H2915S HP OpenView IT/Operations II
H1978S Managing Software with Ignite-UX
H6552S UNIX/Windows NT Integration

Network Books/Magazines

TCP/IP Network Administration
Craig Hunt
ISBN 0-937175-82-X

Managing Internet Information Services
Liu, Peek, Jones, Buus, & Nye
ISBN 1-56592-062-7

DNS & BIND (3rd Edition)
Paul Albitz & Cricket Liu
ISBN 1-56592-512-2

LANTimes
PO Box 652
Highstown, NJ 08520

Managing NFS & NIS
Hal Stern
ISBN 0-937175-75-7

Info World
PO Box 1164
Skokie, IL 60076-8164

All About Administering NIS+
Rick Ramsey
ISBN 0-13-309576-2

Unix Review
PO Box 1280
Skokie, IL 60076-9430

Sendmail (2nd Edition)
Bryan Costales & Eric Allman
ISBN 1-56592-222-0

Internet Week
PO Box 1281
Skokie, IL 60076-9432

Network Internet Web Sites

HP's HP-UX Support Center

http://us-support.external.hp.com

HP's Software Download Center

http://www.software.hp.com

InterNic: Organization responsible for assigning domain names

http://rs.internic.net/

HP-UX News Group

comp.sys.hp.hpux

HP OpenView Users' Group

http://www.ovforum.org

HP-UX Users' Group

http://www.interex.org

HP's OpenView Web Site

http://www.openview.hp.com

American Registry of Internet Numbers

http://www.arin.net

DNS Resources Directory

http://www.dns.net/dnsrd

Operations Specialist

<u>Do You Find Yourself Asking Questions Like ...</u>

1) What are the costs of using LVM to manage disk space?
2) How would you implement striping/mirroring using Logical Volume Manager?
3) What are the factors that affect LVM performance?
4) How do you create menu-driven scripts to automate system administration tasks?
5) How can you use awk/sed to quickly identify and correct problem areas in system datafiles?
6) If two of three disks in a volume group crash, what can you do to recover your data and LVM structures?
7) What trouble shooting tools are available from your support media? How do you use them?
8) Your inode table is corrupted.   How do you access your data?
9) How do you create a recovery image of your boot disk?
10) Performance has bogged down, what can you do to identify processes hogging the CPU?

<u>Operations Curriculum</u>

H6285S Hands On with Logical Volume Manager, MirrorDisk/UX, and JFS
> *Gives System Administrators an overview of the concepts of LVM, MirrorDisk environments, and Journaled File System (JFS). (3 days)*

H4264S HP-UX System and Network Troubleshooting
> *Learn general techniques and tools of troubleshooting, including: use of recovery tools and online verifiers, resolution of incidents related to startup, loss of data integrity, kernel regeneration, etc. (5 days)*

H1978S Managing Software with Ignite-UX
> *Learn how to quickly and easily upgrade, redeploy, or install HP-UX on multiple systems using the Ignite-UX product. (3 days)*

H4322S POSIX Shell Programming
> *Provides HP-UX users and administrators with the knowledge and tools necessary to automate complex tasks and increase productivity. Also provides an introduction to regular expressions, sed, and awk. (5 days)*

H4311S PERL Programming

Provides HP-UX users and administrators with the basics of Perl programming including variable types, control structures, file input/output and the use of system variables. (4 days)

H6701S HP Certified Advanced IT Professional: HP-UX Operations Practical Exam

Other Operations Related Courses:
H3045S HP-UX System and Network Administration III
H6874S HP OpenView OmniBack II
B3305S HP OV Network Node Manager Fundamentals for Network Operators
H1663S HP OpenView IT/Operations Fundamentals for Operators

Operations Books

Disk and File Management Tasks on HP-UX
Tom Madell
ISBN 0-13-518861–X

Unix Shell Programming (Revised Edition)
Stephen G. Kochan and Patrick H. Wood
ISBN 0-672-48448-X

Unix Power Tools
Jerry Peek, Tim O'Reilly, and Mike Loukides
ISBN 0-679-79073-X

SED and AWK
Dale Dougherty
ISBN 0-937175-59-5

HP-UX 10.X System Administration
      "How To Book"
Marty Poniatowski
ISBN 0-13-125873-7

POSIX Programmer's Guide
      "Writing Portable UNIX Programs"
O'Reilly & Associates, Inc.
ISBN0-937175-73-0

Operations Internet Web Sites

HP's Customer Support Center:

http://us-support.external.hp.com

HP's Software Download Center:

http://www.software.hp.com

HP-UX User's Group:

http://www.interex.org

USENET newsgroup:

comp.sys.hp.hpux

Performance Specialist

Do You Find Yourself Asking Questions Like ...

1) What are the factors that affect system performance?
2) Why does performance analysis involve both performance monitoring and problem diagnosis?
3) What is pipelining?
4) What are the symptoms of a CPU bottleneck?
5) What are the symptoms of a memory bottleneck?
6) What factors affect disk I/O capacity?
7) What tools can be used for measuring network performance problems and how are they used?
8) How does database performance affect overall system performance?
9) What are some common bottlenecks for the UNIX kernel?
10) How can you optimize an LVM configuration?

Performance Curriculum

H4262S HP-UX Performance and Tuning
Provides information on how to define, analyze, and tune performance problems on an HP-UX system using Unix system tools such as sar, netstat, vmstat, and HP GlancePlus. (5 days)

B5136S HP PerfView/MeasureWare
Learn to install, configure, and customize HP PerfView software. The course includes troubleshooting methods, defining HP PerfView alarms, DSI works, and integration with OpenView applications. (3 days)

H6703S HP Certified Advanced IT Professional: HP-UX Performance Practical Exam

H5081S Inside the HP-UX Operating System
Provides detailed exposure to the HP-UX operating system by introducing major system tables, data structures, and overviews of major kernel routines. (5 days)

Other Performance Related Courses:
H3045S HP-UX System and Network Administration III

Performance Books

System Performance Tuning
Loukides, Mike
O'Reilly and Associates

Optimizing UNIX for Performance
Majidimehr, Amir H.
Prentice Hall PTR

HP White Paper:
Choosing the Right Disk Technology in a
High Availability Environment
Bob Sauers

PA-RISC 2.0 Architecture
Kane, Gary
ISBN 0-13-182734-0

Threadtime
Norton, Scott J. &
Dipasquale, Mark D.
Prentice Hall PTR

The RAIDBook, Fifth Edition
The RAID Advisory Board

Design of the UNIX Operating System
Bach, Maurice
Prentice Hall PTR

UNIX Systems for Modern Architectures
Schimmel, Curt
Addison-Wesley

The Design and Implementation of the 4.4
BSD Operating System
McKusik, Bostic, Karels, & Quarterman
Addison Wesley

The Magic Garden Explained: The
Internals of UNIX System V, Release 4
Goodheart, Berny and Cox, James
Prentice Hall PTR

Performance Internet Web Sites

HP-UX Support and Technical Information

http://www.itrc.hp.com/

HP-UX Topics and White Papers

http://www.interex.org/topic/9000/9000.html

NFS Performance and Tuning Issues

http://www.interex.org/topic/9000/tech/nfstune

HP-UX topics and white papers

http://www.interex.org/topic/9000/9000.html

HP-UX System Admin Mailing List:

majordomo@cv.ruu.nl
In main body place: subscribe hpux-admin your-email-address

USENET newsgroup:

comp.sys.hp.hpux

Do You Find Yourself Asking Questions Like ...

1) What does it mean to be available 99.9% of the time?
2) What does mirroring protect against?
3) When is a cluster lock disk used?
4) What command is used to create a cluster template file?
5) What command is used to create a package template file?
6) Name three resources required for a package to execute correctly?
7) What is the purpose of the heartbeat?
8) Name one common network SPOF?
9) How do you view the status of a cluster?
10) What is the MC/ServiceGuard toolkit used for?

High Availability Curriculum

H6285S Hands On with Logical Volume Manager, MirrorDisk/UX, and JFS
*Gives System Administrators an overview of the concepts of LVM, MirrorDisk environments, and
Journaled File System (JFS). (3 days)*

H6487S HP MC/ServiceGuard I
*Describes basic concepts of high availability and fault tolerance, and discusses hardware solutions
(MC/ServiceGuard) to achieve availability. (5 days)*

H4310S HP MC/ServiceGuard II
*Provides system administrators who manage existing MC/ServiceGuard clusters with the knowledge
and skills needed to extend their clusters and increase the functionality of their packages. Topics include
growing a cluster to 4 nodes, using Process Resource Manager (PRM) to manage package performance
in failover situations and using Event Monitoring Service (EMS) to manage package dependencies. (3
days)*

H6773S Managing the HP XP Disk Array
*Introduces the concepts of Storage Area Networks (SAN's) and the configuration of the SureStore E Disk
Arrays XP as part of an overall high availability solution. The XP Arrays management software options
are covered in detail and reinforced with comprehensive practical lab work. (5 days)*

H6704S HP Certified Advanced IT Professional: HP-UX High Availability Practical Exam

Other High Availability Related Courses:
H3045S HP-UX System and Network Administration III
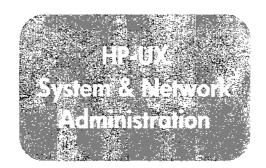

High Availability Books

Clusters for High Availability:
A primer of HP-UX Solutions
Prentice Hall ISBN# 0134947584

Disk and File Management Tasks on HP-UX
Tom Madell
ISBN O-13-518861-X

High Availability Internet Web Sites

High Availability Solutions for Business Critical Challenges

http://www.enterprisecomputing.hp.com

HP Certified IT Professional

HP-UX System & Network Administration

Do You Find Yourself Asking Questions Like ...

1. How can I measure my level of technical expertise?
2. How can I benchmark myself against other IT Professionals?
3. How can I find other people and resources to help further my technical knowledge?
4. How can I have a clear, concise roadmap for further development in my field?
5. How can I gain recognition from my peers and management for my level of technical expertise and contribution?
6. What can I do to keep myself abreast of the latest developments in HP-UX technology?

HP Certified IT Professional Program Overview
The *HP Certified* program is designed to create a high level of technical competence among Information Technology (IT) professionals. It provides a rigorous technical qualification for specific IT job roles, offering increased career opportunities for employees and greater assurance for employers. The program features job role based curriculum paths that provide clear, logical frameworks for attaining the skills needed to excel in particular IT fields.

HP Certified Program Structure
HP Certified is constructed in two levels: the *HP Certified* IT Professional and the *HP Certified* Advanced IT Professional certification paths.

- The first level assesses job-relevant skills through computer-based exams that are supported by HP's core curriculum.
- The second level requires deeper, proven skills as demonstrated by mastering complex tasks in special areas of expertise; such as Systems and Network Administration, High Availability support, Security, and Performance and Capacity Management.

Both levels require the successful completion of rigorous tests; however, the *HP Certified* IT Professional certification requires a computer-based exam, while the *HP Certified* Advanced IT Professional track requires candidates to perform a hands-on tasks in a live system environment.

HP Certified IT Professionals who pass these Certification exams are highly sought after in the IT industry because of their combined expertise in both system and network administration. *HP Certified* provides:
- Technical credibility
- Greater job satisfaction through increased technical competency
- Recognition by peers within the industry

HP Certified IT Professional HP-UX System Administration Certification Training Path
The *HP Certified* IT Professional program curricula includes the following three courses and an optionally preparation seminar:
- Fundamentals of the UNIX Operating System [51434S] (5 Days)
- HP-UX System and Network Administration I [H3064S] (5 Days)
- HP-UX System and Network Administration II [H3065S] (5 Days)
- HP-UX Certification Preparation Seminar [50790S+239] (1 Day)

HP Certified Advanced IT Professional HP-UX System Administration Certification Specializations
The *HP Certified* Advanced IT Professional program curricula includes the following courses and assessment workshops:

Security Specialist
- Practical Unix and Network Security [H3541S] (5 Days)
- Internet Security [H7076S] (3 Days)
- *HP-UX Security Practical Exam [H6703S] (2 Days)

Network Specialist
- Advanced UNIX Networking [H1690S] (5 Days)
- Managing DNS & BIND [H3540S] (2 Days)
- Managing NIS/NIS+ [H3066S] (5 Days)
- *HP-UX Networking Practical Exam [H6700S] (2 Days)

Operations Specialist
- Hands On w/ LVM, MirrorDisk/UX & JFS [H6285S] (3 Days)
- HP-UX System and Network Troubleshooting [H4264S] (5 Days)
- Managing Software with Ignite-UX [H1978S] (3 Days)
- POSIX Shell Programming [H4322S] (5 Days)
- *HP-UX Operations Practical Exam [H6701S] (2 Days)

High Availability Specialist
- Hands On w/ LVM, MirrorDisk/UX & JFS [H6285S] (3 Days)
- High Availability: Hands On with MC/ServiceGuard [H6487S] (5 Days)
- *HP-UX High Availability Practical Exam [H6704S] (2 Days)

Performance Specialist
- Inside the HP-UX Operating System [H5081SS] (5 Days)
- HP-UX Performance and Tuning [H4262S] (5 Days)
- HP PerfView/MeasureWare [B5136S] (3 Days)
- *HP-UX Performance Practical Exam [H6702S] (2 Days) – Future Development

HP Certified IT Professional and Advanced IT Professional Websites:

HP Certified website:
http://www.hp.com/education/certification/index.html

Refer to datasheets on the following web pages for more
information:
http://www.education.hp.com/hpcert-track1.htm
http://www.hp.com/education/certification/structure.html

Currently we recommend the following courses prior to taking the HP-UX
System Administration exam. Please take a look at the following web page:

http://www.hp.com/education/certification/structure.html

Additionally, you can take a practice test online:
http://www.hp.com/education/certification/practest.html

Attend one of our FREE online Certification Prep sessions:
http://education.itresourcecenter.hp.com/hpeducation/product/sem_detail.asp?comm=7&ctgry=2&prod=547

We also have a self-paced prep book,, HP Certified: HP-UX
System Administration, isbn: 0-13-0183741. Available through Amazon.com or
http://www.hp.com/go/retailbooks.

Also visit the Education IT Resource Center for even more online training solutions:
http://education.itresourcecenter.hp.com

Visit the HP Education *HP Certified* website
http://www.hp.com/education/certification
or call HP Education (1-800-HPCLASS)