Certification guide

HP ATA – Networks certification

Introduction

In today's business environment, the lack of skills to execute IT technologies and cloud solutions is a roadblock for many companies trying to stay competitive. The HP Accredited Technical Associate (ATA) certification addresses those issues by providing the industry's first architect-level, open-standards, cloud-focused curriculum and certification designed for the academic environment. A robust curriculum with practice exams and real-world scenarios infused with the relevant business context enables students to implement an IT solution from start to finish in small and medium size environments.

Through HP Institute, the HP ATA certification covers these essential IT areas:

- HP ATA – Connected Devices*
- HP ATA – Networks*
- HP ATA – Servers and Storage*
- HP ATA – Cloud

HP ATA certification helps students gain higher job and earning potential through industry-recognized certification and high-quality education that provides end-to-end IT skills with HP and industry-standard technologies. The HP ATA – Networks certification provides the knowledge and experience required to design a wired and wireless switched and routed solution that meets small and medium business customer requirements. Through this course and certification, you will learn how to explain and recognize networking technologies such as data link protocols, physical connections, layer 3 routing, upper layer protocols and applications, and multicast technology. You will also learn how to install, configure, initiate, and upgrade networks. In addition to troubleshooting those infrastructures, you will perform administrative, operational, and network management. Unlike other courses, you will also learn the implications of these technologies for customer needs.

See "Exam and course details" for more information.

* Prerequisite to attain HP ATA – Cloud certification

Start your IT career

Achieving an HP ATA – Networks certification signifies job-readiness in key IT roles:

- Network architect
- Network engineer
- Network system administrator
- Technical support engineer
- Helpdesk support

For HP ATA certification, training is delivered through Certiport authorized centers and approved learning institutions. Certiport is the largest provider of academic certification programs in the world and is working with HP to deliver the HP Institute program worldwide. To find and a participating school near you or to register for an exam, please visit certiport.com/hpstudent.

Exam and course details

Course name: Designing and Deploying Network Solutions (#00422833)
Exam HP4-A02

Section	Objective
1. Explain and recognize networking technologies and their implications for customer needs	**1.1 Describe the OSI model** • Identify each layer and describe its purpose and function • Map the most common IP suite protocols to the OSI layers **1.2 Describe and recognize the most common data link protocols and their associated physical connections (layers 1 and 2)** • Recognize and describe the common network topologies • Describe the most common layer media (layer 1) • Describe the common data link (layer 2) connections • Describe Ethernet technology and media • Describe wireless technology and media **1.3 Describe layer 3 routing concepts with detailed focus on IP** • Compare/Contrast classful subnets vs. classless networks • Explain IP addressing rules • Describe Dynamic Host Control Protocol (DHCP) • Explain why IPv6 was invented (to support larger number of device addresses) • Describe how IPv4 routing works **1.4 Identify common dynamic routing protocols and describe their function on a network** • Compare and contrast with static routes • Describe Routing Information Protocol (RIP) • Describe Open Shortest Path First (OSPF) and why it exists **1.5 Describe the purpose and function of layer 4 (transport) protocols on an IP network** • Compare and contrast TCP and UDP within the IP protocol stack **1.6 Describe the common IP-based upper layer (layers 5, 6, and 7) protocols and applications** • Identify and describe the purpose of a port • Identify the common upper-layer applications and their functions **1.7 Describe multicast technology and its purpose** • Describe how a switch deals with multicast traffic differently • Identify common applications and protocols that use multicast on a network **1.8 Describe the concept of quality of service (QoS)** • Describe the common use cases for QoS • Apply the fundamental axiom of prioritization: “If there is no congestion, prioritization has no effect” • Describe the difference between “over-provisioning” and prioritization and when to use one vs. the other in a small-business context

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Section	Objective
	1.9 Describe how to secure a network using basic security features • Define basic security concepts • Describe common network access security methods • Identify and describe common administrative access security methods (e.g., for infrastructure devices) • Describe the concepts and functions of virtual private networks (VPNs) • Describe the purpose and functions of firewalls and proxy servers at a high level • Describe the common data integrity technologies (encryption, certificates, etc.) **1.10 Describe the common ways to increase availability and performance of a network** • Describe the concept of redundancy • Describe the concept of link aggregation **1.11 Describe the concept and use of VLANs** • Describe a VLAN and its benefits • Describe port-based VLANs (IEEE 802.1Q) **1.12 Describe the common network management technologies** • Describe device management • List and describe the common tools used to manage traffic on a network
2. Plan and design wired and wireless network solutions for SMB customers	**2.1 Consult with an SMB customer to assess their business and technical needs and create a plan for a networking solution** • Gather/Analyze customer business requirements • Plan for cable and port requirements • Plan for bandwidth and QoS requirements (Including types of traffic, iSCSI, etc.) • Plan for critical and high traffic users/servers • Plan for anticipated future growth of network • Plan for serviceability and management • Plan for mobility and wireless • Plan for security • Plan for voice • Plan for green IT **2.2 Design a networking solution to meet the customer needs identified in the planning stage** • Specify number of ports and types • Determine speed requirements, including access speed, uplink speed, and backplane speeds • Design network topology • Determine types of media • Determine number uplinks required • Determine redundancy scheme, including spanning tree topology, layer 3 routing protocols, and link aggregation (when multiple links per host are required) • Assess business requirements and design all elements of network security into a single, integrated security solution • Specify network management tools to be used • Design wireless and mobility **2.3 Identify and describe best practices for designing solutions** • Take advantage of industry standards and HP developed best practices • Take into consideration HP Networking strengths in the design • Sflow and traffic monitoring
3. Install, configure, start up, and upgrade network solutions for SMB customers	**3.1 Prepare for and install networking equipment** • Perform pre-project survey to validate appropriate design • Install modules and components in devices in specified slots based on manufacturer and design requirements • Build initial configuration files as required by design • Update firmware and initial configuration files • Perform specific configuration of devices—device name, port names, VLANs, routing, certificates, spanning tree, SSIDs, PoE, DHCP servers and relays, etc. • Configure WAN devices • Implement required security devices • Physically connect devices per design requirements

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Exam HP4-A02

Section	Objective
	3.2 Install and configure management and administration solution • Install management software (PMC+) • Configure management software per design requirements (application security) • Run device discovery for specified devices • Run and store default reports, including discovered devices, network map, etc. • Develop and implement management policies per design requirements **3.3 Validate installed solution** • Validate installed solution • Validate required devices show in management software • Validate wireless coverage, roaming, and capacity results compared to design • Validate management policy results • Perform backup of initial configuration (management solution and device configurations)
4. Optimize wireless, switched, and routed network infrastructures for SMB customers	**4.1 Manage network assets using HP and third-party tools** • Interpret counters and logs • Use HP tools to ease deployment of multiple devices • Interpret output of or data within existing HP tools **4.2 Optimize network performance by improving segmentation and topology** • Small-scale capacity planning—thinking ahead, planning for expansion and future growth • Verify identified bottleneck or limitation **4.3 Optimize L3 routing protocol convergence and scalability** • Tune advanced layer 3 routing protocols, including dynamic and static **4.4 Optimize network availability** • Implement trunking **4.5 Optimize and scale wireless network configuration** • Use wireless optimization tools and techniques • Optimize RF coverage, User count, and cell size adjustments **4.6 Optimize security on wired/wireless networks and devices** • Centralize security implementation and administration **4.7 Optimize power utilization by implementing Green IT practices** • Implement power, cooling, PoE
5. Troubleshoot wireless, switched, and routed network infrastructures for SMB customers	**5.1 Troubleshoot routed and switched networks** • Describe specific tools appropriate for troubleshooting wired or wireless networks, and manage network assets using appropriate tools **5.2 Troubleshoot remote connectivity** • Troubleshoot VPNs • Troubleshoot mobile devices (tablets, phones, and laptops) **5.3 Troubleshoot wireless networks** • Troubleshoot connectivity and roaming • Troubleshoot wireless security • Use HP and industry-standard tools to troubleshoot wireless infrastructure **5.4 Troubleshoot security faults and threats** • Secure the network and mitigate security threats • Troubleshoot secure infrastructure for SMB customers **5.5 Troubleshoot common network issues using the HP troubleshooting methodology** • Establish objectives and translate the reported system issue into the precise problem statement • Gather, document, and analyze data • Develop and verify a hypothesis • Design and implement an action plan • Evaluate the results and compare to the objectives • Iterate through process as required

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6. Perform administrative, operational, and network management tasks for SMB customers	**6.1 Perform change management to network configuration and devices** • Configuration changes—network devices, growth • Keep software current—management server updates, TFTP, firmware updates, etc. **6.2 Manage network events and policies** • Set up alerts, policies, and notifications • Review and take action on alerts and log files • Develop response policies such as scripted issue resolution, escalation processes, management involvement, end-user/customer communication, etc. **6.3 Perform network administration tasks** • Implement moves/adds/changes/deletions/password resets • Back up device configurations via management software or device console • Keep documentation current—network diagrams, passwords, device configurations, etc.

Exam details

To maximize results, it is recommended that students successfully complete the training and hands-on labs prior to the exam. The following are details about this exam:

- Item types: Multiple choice
- Exam time: 60 minutes
- No online or hard copy reference material allowed

An email notification of test results will be sent 2–5 days after taking the exam.

Continuing career development

To continue your career development, HP ExpertOne provides everything you need to stay relevant and able to support the evolving needs of business and IT. ExpertOne provides training and certification for architecting, implementing, and supporting complete, end-to-end IT solutions with skill levels ranging from professional to master.

HP Institute and Certiport partnership

HP is partnering with Certiport, Inc. to co-develop and distribute the HP Institute program. Certiport is the world leader in performance-based certification program management solutions with more than 12,000 academic institutions worldwide. HP and Certiport have developed a complete set of academic solution components. The academic components include HP Official Courseware textbooks, videos to enhance the practical learning, practice tests, and certification exams. All of these are designed for use by educators directly in the classroom environment.

Resources

Student Overview
certiport.com/hpjobready

HP Institute
hp.com/go/Institute

HP ExpertOne
hp.com/ExpertOne

Certiport
certiport.com/hp

HP ExpertOne

HP helps organizations address the widening IT expertise gap with HP ExpertOne, the industry's first end-to-end learning and expertise program. It delivers comprehensive knowledge with real-world, hands-on experience to attain the critical skills needed to architect, design, and integrate multivendor, multiservice converged infrastructure and cloud solutions.
HP Institute extends the ExpertOne approach, bringing the industry's first academic architect-level certification to high school and secondary schools and traditional two- and four-year institutions. By injecting business value and end-to-end IT skills into technology education, HP Institute helps academic institutions prepare more qualified IT professionals. Graduates will have the business insight and knowledge of HP and industry-standard solutions needed to be productive from day one—the same skills employers will seek most to help their businesses implement critical new technology strategies and solutions.

For more information on the HP Institute or how you can be involved, please contact hpinstituteprogram@hp.com.

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