Implementing Citrix NetScaler 10 for Virtualization Solutions

1Y0-250 Exam

Preparation Guide 3.0
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Disclaimer

This exam preparation guide is designed to provide candidates with necessary information about the exam, including study resources and sample questions which enable candidates to assess the types of questions that may be asked during the Citrix certification beta exam. Please be aware that the content of this guide in no way ensures a passing score on the certification exam.

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1   The Exam

1.1 Purpose of the Preparation Guide and Exam

This guide provides a detailed description of the exam, including intended audience and topics covered, as well as direct links to resources used to build the exam, information on how to prepare for the exam and details on the types of questions the exam contains. The guide is intended to help candidates prepare for the 1Y0-250 Implementing Citrix NetScaler 10 for Virtualization Solutions exam. Candidates should read this guide carefully before attempting this exam.

The 250 exam was developed to measure the minimum knowledge and skills required to implement Citrix NetScaler 10 for Virtualization solutions. Passing this exam means a candidate demonstrated the minimum level of knowledge and skills required to install, administer and/or operate enterprise environments consisting of NetScaler 10, including NetScaler Gateway.

This exam does not measure skills related to networking and traffic optimization. It also does not test on features that are only available with Citrix XenDesktop Platinum edition.

1.2 Standard Setting

The passing score for the Implementing Citrix NetScaler 10 for Virtualization Solutions (250) exam is based on the analysis of ratings provided by subject matter experts (SMEs) during a standard setting workshop. A professional analyzed the SME ratings to determine which questions should be kept in the final version of the exam. This analysis provided the basis for a recommended passing score and time limit for the exam.

1.3 Number of Questions

The 250 exam is a 65-question exam written in English.

1.4 Passing Score

The passing score for this exam is 69%.

1.5 Time Limit

Type of Candidate	Time Limits Allowed	Notes
Native English Speakers	105 minutes	
Non-native English speakers who take exam in countries where English is a foreign language	105 minutes +30 minutes (time extension)	Time extension granted automatically
Non-native English speakers who take exam in countries where English is NOT a foreign language	105 minutes +30 minutes	Must call Pearson VUE or register in person to explicitly request the time extension *A $7 USD surcharge will be added to phone registrations.*

1.6 Registration and Administration

This exam is administered at Pearson VUE testing centers worldwide. To learn more about the rules and process of taking an exam, please visit http://training.citrix.com/exams.

Worldwide, visit the Pearson VUE website (www.vue.com/citrix) to locate a testing center in your area and register for an exam. To register in the United States and Canada, you may also register in person at any Pearson VUE testing center or call 1-800-931-4084. *Note: A $7 USD surcharge will be added to phone registrations.*

1.7 Certification Tracks

The 250 exam is a requirement for the Citrix Certified Associate for Networking track.

This exam may also fulfill requirements for advanced certification tracks. For the most up-to-date certification information visit http://training.citrix.com/cms/education/certification/.

1.8 Citrix Exam Retake Policies

Candidates must wait 24 hours from their original appointment time before they can register to retake an exam. After a second attempt, and any attempt thereafter, the candidate must wait 14 calendar days to retake the exam. Beta exams may only be taken once.

Citrix Education monitors retake activity for breaches of this policy. Breach of this policy can result in sanctions up to and including a temporary ban from taking Citrix exams and/or decertification.

For more information on the Citrix Exam Retake Policy, please visit http://training.citrix.com/exams.

1.9 Citrix Candidate Conduct Policy

All Citrix Certification candidates are required to read and agree to be bound by the Candidate Conduct Policy. This policy details specific information regarding what Citrix Education defines as cheating and breaches of security. Violations of this policy can result in actions including, but not limited to, classification of scores as invalid, decertification and testing bans.

To review the Candidate Conduct Policy, please visit http://training.citrix.com/exams.

1.10 Commenting During Live Exam

Citrix Education is committed to continually monitoring and updating our exams as needed. As a practice, Citrix Education regularly reviews and revises exams even after closing the beta period. Comments typed into the exam interface during an exam are considered when making decisions about revising questions.

Candidates are encouraged to use the commenting feature to provide feedback to Citrix Education. However, candidates should be mindful of the time used to provide comments on an exam as it will be subtracted from the allocated time of the test. Candidates can refer to the time clock at any time to view and be cognizant of the test time remaining.

2 The Intended Audience

2.1 Intended Audience

The 250 exam is focused on those topics that are most important to those who install, administer and operate NetScaler 10 environments. Citrix Education selected these topics based on feedback from subject matter experts (SMEs) who perform these tasks in the field. Those who install, administer and operate NetScaler 10 environments may hold various job titles such as:

- Systems Administrator
- Sales/System Engineer (SE)
- Network Administrator
- Network Engineer
- Citrix Administrator
- Operations Engineer

3   Preparatory Recommendations for the Exam

3.1 Introduction

Citrix Education recommends that prior to taking this exam candidates have the knowledge, skills and abilities required to install, administer and operate an enterprise environment that contains NetScaler 10.

3.2 Recommended Knowledge and Skills

Specifically, candidates should have the following knowledge and skills prior to taking this exam:

- Understanding of the OSI model
- Basic knowledge of application and network protocols (e.g. IP, HTTP and DNS), devices, and commonly used tools
- Basic knowledge of network management and auditing protocols (such as SNMP and SysLog)
- Working knowledge of basic routing and layer 2 switching concepts
- Strong working knowledge of commonly used network appliances (NetScaler appliances, load balancers, firewalls, routers, switches)
- Practical experience with troubleshooting tools such as protocol analyzers (e.g. Ethereal (WireShark) and NetMon)
- Knowledge of AAA (authentication, authorization and accounting) protocols such as LDAP or RADIUS
- Basic knowledge of command-line interfaces
- Basic knowledge of VPN concepts
- Knowledge of desktop operating systems (Windows and Mac) and desktop security concepts (e.g. antivirus software and personal firewalls)
- Basic knowledge of XenDesktop, XenApp, web servers and file servers
- Knowledge of certificate management and basic understanding of SSL

3.3 Recommended Product Experience

We recommend that candidates have about six months of experience with the following tasks in a NetScaler 10 environment:

- Assessing the infrastructure needs for a NetScaler implementation
- Designing a NetScaler implementation
- Building a solution to enable remote access

- Securing a NetScaler
- Integrating NetScaler with Citrix, Microsoft and third-party products
- Configuring disaster recovery
- Customizing traffic in a NetScaler implementation
- Setting up auditing, monitoring and reporting for the NetScaler implementation
- Troubleshooting issues on NetScaler

3.4 Recommended Course

Citrix Education recommends that candidates have hands-on experience with NetScaler 10 prior to taking this exam. One of the best ways to do this is by taking formal Citrix training courses. The following courses provide basic training on administrative tasks.

- CNS-206-1I: Implementing Citrix NetScaler 10 for XenDesktop or XenApp Solutions (instructor-led training course or self-study)
- CNS-206-1W: Implementing Citrix NetScaler 10 for XenDesktop or XenApp Solutions (self-paced online training course)

As with all Citrix exams, it is recommended that candidates get hands-on experience by working directly with the products covered on the exam.

While this hands-on experience can be done on the job, Citrix Education official courses offer a safe and robust environment to learn these tasks. Thus they are one of the best ways to prepare for the exam.

3.5 Authorized and Unauthorized Preparation Materials

Citrix Education now offers practice exams to help you prepare for your certification exams. Please click this link to learn more about this exciting new offering: http://training.citrix.com/cms/education/practiceexams.

While there are companies who advertise practice tests and have a money-back guarantee that customers will pass the exam, most of these companies are selling unauthorized preparation materials that include stolen exam questions and answers.

Citrix Education continuously monitors these sites, and when possible, takes appropriate actions.

Citrix Education also monitors exam results to ensure that candidates are not using unauthorized materials to prepare for exams. If it is determined that a candidate used unauthorized materials to prepare for an exam, the candidate's score will be invalidated and his or her

certification will be revoked.

When looking for materials in addition to authorized Citrix practice exams and training to prepare for certification, Citrix Education recommends visiting http://www.certguard.com to verify the legitimacy of the site. This site flags sites that are acting as brain dumps.

4   Exam Sections and Weights

4.1 Introduction

The 1Y0-250 exam is divided into nine (9) sections.

4.2 Section Titles and Weights

Each section of the exam is weighted as follows, totaling 100%.

Section	Weight
Assessing Infrastructure Needs for the NetScaler Implementation	10%
Designing the NetScaler Implementation	6%
Building the Solution to Enable Remote Access	23%
Securing the NetScaler	14%
Integrating with Citrix, Microsoft and Third-party Technologies	8%
Configuring Disaster Recovery	5%
Customizing Traffic in a NetScaler Implementation	6%
Setting Up Auditing, Monitoring and Reporting for the NetScaler Implementation	5%
Troubleshooting Issues on NetScaler	23%
Total	**100%**

4.3 How Section Weights Relate to Questions on the Exam

The section weights included in this guide are intended to help you in understanding how much of the exam is devoted to the topics listed. In fact, the percentages directly map to the number of questions on the exam. For example, if an exam has 60 questions, and Section 1 is weighted at 50%, then 30 of the questions on the exam will relate to Section 1 (60*50% = 30).

Please be warned that section weights are NOT used to calculate your score. Scoring is far more complicated as exam questions may be given different weights based on their overall importance. Because some questions may have different point values assigned to them, section weights and exam scores do not always have a one-to-one correlation.

For example, in an exam where each question is worth one point, a candidate's exam score can be calculated using the arithmetic mean. The candidate's final score would be:

Section	Number of Questions	Maximum Points per Question	Number of Questions Correct	Percentage Score per Section	Arithmetic Mean Score ((Section 1 + Section 2)/2)

1	4	1	2	50%	=(50%+50%)/2 =
2	8	1	4	50%	50%

In the example above, the arithmetic means worked. However, if the same concept is used with questions that are weighted differently, that is, they have different maximum point values, this calculation would not work. See the example below.

Section	Number of Questions	Maximum Points per Question	Number of Questions Correct	Percentage Score per Section	Arithmetic Mean Score ((Section 1 + Section 2)/2)
1	10	1	7	70%	=(70%+30%)/2 =
2	10	10	3	30%	50%

The final score produced above is incorrect because 30 points in Section 2 weigh far more than 7 points in Section 1. On Citrix exams, we tend to calculate the final score as a percentage of:

Total Points Earned / Total Points Possible

Which means, the correct score should be:

(7 * 1) + (3 * 10) / (10 * 10) + (10 * 1)

Which is equal to: 37/110

And thus, the final score is 34%.

For more information on how scoring works in Citrix exams read the blog The Scoring Secrets for Citrix Exams - Divulged.

5   Exam Objectives and Resources for the Exam

5.1 Introduction

All questions on this exam were developed based on tasks and testing aspects identified by subject matter experts. Exam tasks and testing aspects are used to focus the exam on the most important concepts. The tasks and testing aspects for this exam can be found in section 5.3.

In this guide we list all of the tasks and testing aspects and provide you with suggested reading material to help prepare for the exam. In some cases, the tasks require that candidates have field experience including hands-on experience installing, administering and operating NetScaler 10 in enterprise environments. By obtaining this experience, candidates are more likely to pass this exam.

5.2 Resources Used to Develop the Exam

The following resources were used to develop this exam:

Citrix Knowledge Base Articles	
Resource	**Location***
NetScaler Nsconmsg Commands	http://support.citrix.com/article/CTX138840
FAQ: Updating or Replacing an SSL Certificate	http://support.citrix.com/article/CTX109711
How to Convert PFX Certificate to PEM Format for Use with Citrix Access Gateway	http://support.citrix.com/article/CTX106028
How to Configure the Rate Limiting Feature of a NetScaler Appliance to Mitigate a DDoS Attack	http://support.citrix.com/article/CTX127917
How to Take a Network Trace on a NetScaler or Citrix Access Gateway Enterprise Edition Appliance	http://support.citrix.com/article/CTX114018
How to Troubleshoot Authentication with Aaad.debug	http://support.citrix.com/article/CTX114999
Troubleshooting Access Gateway Enterprise Edition/NetScaler License Issues	http://support.citrix.com/article/CTX116444
Citrix eDocs	
Forcing the Primary Node to Stay Primary	http://support.citrix.com/proddocs/topic/ns-system-10-map/ns-nw-ha-frcng-prmry-nd-sty-prmry-tsk.html

Forcing the Secondary Node to Stay Secondary	http://support.citrix.com/proddocs/topic/ns-system-10-map/ns-nw-ha-frcng-scndry-nd-sty-scndry-tsk.html
Configuring High Availability Nodes in Different Subnets	http://support.citrix.com/proddocs/topic/ns-system-10-map/ns-nw-ha-cnfgrng-ha-nodes-dffrnt-sbnts-con.html
Synchronizing Configuration Files in a High Availability Setup	http://support.citrix.com/proddocs/topic/ns-system-10-map/ns-nw-ha-sync-config-files-tsk.html
Configuring Access Gateway Settings with the Remote Access Wizard	http://support.citrix.com/proddocs/topic/access-gateway-10/agee-install-simplified-config-tsk.html
Converting the Format of SSL Certificates for Import or Export	http://support.citrix.com/proddocs/topic/netscaler-traffic-management-10-map/ns-ssl-convert-certs-for-import-export-tsk.html
Setting up AAA Virtual Servers and DNS	http://support.citrix.com/proddocs/topic/ns-security-10-map/ns-aaa-setup-con.html
Configuring AAA Policies	http://support.citrix.com/proddocs/topic/ns-security-10-map/ns-aaa-setup-policies-con.html
Configuring SSL Offloading	http://support.citrix.com/proddocs/topic/netscaler-traffic-management-10-map/ns-ssl-config-ssloffloading-con.html
Citrix Product Guides	
Citrix NetScaler Application Security Guide – Release 10	http://support.citrix.com/article/CTX132366
Citrix NetScaler Command Reference Guide – Release 10	http://support.citrix.com/article/CTX132384
Brief Troubleshooting Guide	http://support.citrix.com/article/CTX108306

*Links are subject to change

**5.3
Sections,
Objectives and
Testing
Aspects**

Section 1: Assessing Infrastructure Needs for the NetScaler Implementation		
Objective Number	**Objective**	**Testing Aspect**
1.01	Verify the objectives of the NetScaler implementation	What
1.02	Determine the services to be provided including the resources to be accessed	What
1.03	Scope the user access needs	What
1.05	Determine the type of user devices in the environment	Why
1.06	Identify connection types	How
1.07	Identify which servers/services require load balancing	What
Section 2: Designing the NetScaler Implementation		
Objective Number	**Objective**	**Testing Aspect**
2.01	Develop the implementation plan	What things to consider
2.02	Given the authentication methods you have, determine how the authentication method) for an environment	What methods to use
2.03	Identify the access requirements for the environment that impact how NetScaler will get implemented	What
2.04	Identify pre-requisites for implementing certain features, such as global server load balancing, clustering, etc.	What to consider
Section 3: Building the Solution to Enable Remote Access		
Objective Number	**Objective**	**Testing Aspect**
3.01	Obtain and install licenses	How
3.03	Determine when to use NetScaler IP (NSIP), Mapped IP (MIP) and Subnet IP (SNIP)	What
3.04	Bind services/service groups to virtual servers	How
3.05	Create custom monitors or modify existing monitors	How
3.07	Install SSL certificates	How
3.08	Create policies by binding policies for services/service groups	How/What
3.09	Configure LDAP or Smart Card	What
3.10	Create virtual servers	How
3.12	Configure pre- and post- authentication policies as part of configuring NetScaler Gateway	When

Objective Number	Objective	Testing Aspect
	settings	
3.13	Configure NetScaler Gateway settings	When
3.14	Customize the user experience	How
Section 4: Securing the NetScaler		
Objective Number	**Objective**	**Testing Aspect**
4.01	Consider the compliance and security capabilities that are native to NetScaler	When
4.02	Importing, linking and verifying certificates including importing SSL certificates	How
4.03	Configure Authentication, Authorization and Accounting (AAA)	How
4.04	Configure Authentication, Authorization and Accounting (AAA)	What
4.07	Set up two-factor authentication	How
Section 5: Integrating with Citrix, Microsoft and Third-party Technologies		
Objective Number	**Objective**	**Testing Aspect**
5.01	Configure Secure Ticket Authority when configuring NetScaler for integration with XenDesktop or XenApp	How
5.02	Use AppExpert templates to integrate with third-party technologies	How
5.03	Configure NetScaler for integration with Microsoft products	How
Section 6: Configuring Disaster Recovery		
Objective Number	**Objective**	**Testing Aspect**
6.03	Configure high availability	How
6.04	Enable disaster recovery for datacenter failure	How
Section 7: Customizing Traffic in a NetScaler implementation		
Objective Number	**Objective**	**Testing Aspect**
7.01	Configure Responder, Rewrite or URL transform	How
7.02	Configure SSL Offload	How
7.03	Set up content switching	How
Section 8: Setting Up Auditing, Monitoring and Reporting for the NetScaler Implementation		
Objective Number	**Objective**	**Testing Aspect**
8.01	Determine what needs to be monitored	Where
8.02	Identify which reporting tool to use for monitoring	What

Objective Number	Objective	Testing Aspect
8.04	Determine how to configure auditing through Syslog from the wizard	How
Section 9: Troubleshooting Issues on NetScaler		
Objective Number	**Objective**	**Testing Aspect**
9.01	Debug Authentication, Authorization and Accounting (AAA)	How
9.02	Troubleshoot license issues	How
9.03	Troubleshooting certificates	How
9.04	Show connection table and routes	How
9.05	Read and interpret logs	What
9.06	Troubleshoot high availability	What
9.08	Use telnet or monitors to check the ports	How
9.09	Conduct packet tracing in the GUI and the shell	How
9.10	Troubleshoot connectivity between rules and third-party products	What
9.11	Verify the network settings	How
9.13	Troubleshoot the NetScaler startup	Where

6   Appendix: Practice

**6.1
Introduction**

Exam-takers should refer to the objectives and testing aspects listed in section 5 of this guide in order to determine not only which topics will be on the exam but also *how* these topics will be tested.

For example, if the **objective** reads, "*Identify the appropriate plug-in to use*," and the **testing aspect** reads, "*When*," exam-takers should expect to see:

- **A "scenario describing the need to install a specific XenApp Plug-in"**

  o *Scenario: XenApp was recently implemented in an environment. A Citrix Administrator in the environment needs to tell the end users which XenApp plug-in to install in order to access their XenApp resources. The end users in the environment will need to access their hosted applications from Web Interface.*

- **A question that requires you to "determine which XenApp Plug-in to install" based on the scenario**

  o *Which XenApp Plug-in should the administrator instruct the end users to install?*

The objectives and testing aspects for this exam were developed by Exam Project Managers and subject matter experts based on identified tasks that relate to installing, administering and operating NetScaler 10. The number of questions written for each objective relates directly to the importance of that objective as it relates to the installing, administering and operating, and is proportional to how frequently that task is performed.

**6.2
Sample
Questions**

Sample Question 1

Scenario: An administrator is planning to implement NetScaler Gateway. The administrator must ensure that users are able to change their passwords when the passwords have expired.

To meet the needs of the scenario, the administrator must ensure that _____ is included in the plan. (Choose the correct option to complete the sentence.)

A. LDAP authentication

B. RADIUS authentication
C. nested groups (enabled)
D. the nsroot username added to Active Directory

Answer: A
Objective: Verify the objectives of the NetScaler implementation
Testing Aspect: What

Source: Citrix eDocs - http://support.citrix.com/proddocs/topic/ns-system-
10-map/ns-ag-aa-config-ldap-authncn-tsk.html

Sample Question 2

Scenario: A virtual server named Internal_Web is configured with a service
group named wservers. The wserver1 and wserver2 servers are added to
the wservers service group with the default settings. A new company
policy requires the weight ratio between wserv1 and wserv2 to be 10:1.

Which action could an administrator take to adjust the weight settings?

A. In Service Groups, modify wservers.
B. In Services, add wserver1 and wserver2 services.
C. In Servers, modify wserver1 and wserver2 servers.
D. In Metric Tables, add a new Metric Table with wserver1 and wserver2
    metrics.

Answer: A
Objective: Bind services/service groups to virtual servers
Testing Aspect: How

Source: Citrix eDocs - http://support.citrix.com/proddocs/topic/netscaler-
traffic-management-10-map/ns-lb-largescale-configsvcgrps-modify-
tsk.html

Sample Question 3

Scenario: A user has connected through the NetScaler Gateway SSL VPN to
the corporate LAN using a hotel's Wi-Fi connection. Security policy states
that users should NOT be able to browse local Internet resources.

Which configuration could an administrator make to meet the needs of the scenario?

A. Disable split tunneling.
B. Change the client default gateway address.
C. Create a DHCP pool on the NetScaler Gateway.
D. Add an IP address range to the Domain/IP Conflict list.

Answer: A
Objective: Consider the compliance and security capabilities that are native to NetScaler
Testing Aspect: When

Source: Citrix eDocs - http://support.citrix.com/proddocs/topic/access-gateway-10/agee-ag-plugin-split-tunneling-tsk.html

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Sample Question 4

Scenario: A company is using a NetScaler for secure remote access to the corporate XenApp environment.

The environment contains the following components:

- XML Service: xenapp.example.local using port 8080
- Web Interface: wi.example.local
- NetScaler Gateway virtual server: remote.example.com

Which command should the administrator run at the command-line interface to configure the Secure Ticket Authority on NetScaler Gateway?

A. bind vpn vserver remote.example.com -staServer wi.example.local
B. bind vpn vserver remote.example.com -staServer http://xenapp.example.local:8080
C. bind vpn vserver remote.example.com -staServer http://wi.example.local/scripts/ctxsta.dll
D. bind vpn vserver remote.example.com -staServer xenapp.example.local:8080/scripts/ctxsta.dll

Answer: B
Objective: Configure Secure Ticket Authority when configuring NetScaler for integration with XenDesktop or XenApp
Testing Aspect: How

Source: Citrix eDocs - http://support.citrix.com/proddocs/topic/access-gateway-10/agee-ag-wi-comm-sta-config.html