

riverbed

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Riverbed Certified Solutions Associate – Storage Delivery (RCSA-SD) Blueprint

Exam 501-01

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Preface

This Riverbed® Certification Blueprint is intended for anyone who wants to become certified in the Riverbed Storage Delivery products and solutions. The Riverbed Certified Solutions Associate – Storage Delivery (RCSA-SD) program is designed to validate the skills required of pre-sales engineers and technical professionals who work in the initial implementation of Riverbed storage products and solutions.

This blueprint provides a combination of theory and practical experience needed for a general understanding of the subject matter. It also provides sample questions that will help in the evaluation of personal progress and provide familiarity with the types of questions that will be encountered in the exam.

This publication does not replace practical experience, nor is it designed to be a stand-alone guide for any subject. Instead, it is an effective tool that, when combined with education activities and experience, can be a very useful preparation guide for the exam.

Certification Overview

The Riverbed Certified Solutions Associate – Storage Delivery certificate is granted to individuals who demonstrate entry-level knowledge and experience with the RiOS® product suite, Granite and Whitewater. The typical RCSA-SD will have taken a Riverbed approved training class such as the *WAN200 Optimization Essentials and EVI200 Edge Virtual Infrastructure* courses in addition to having hands-on experience in performing deployment, troubleshooting, and maintenance of Granite and whitewater products in small and medium organizations. While there are no set requirements prior to taking the exam, candidates who have taken a Riverbed authorized training class and have at least three months of hands-on experience with RiOS® products, Granite and Whitewater have a significantly higher chance of receiving the certification. We would like to emphasize that *solely* taking the class will not adequately prepare you for the exam.

To obtain the RCSA-SD certification, you are required to pass a computerized exam available at any Pearson VUE testing center worldwide.

Benefits of Certification

1. Establishes your credibility as a knowledgeable and capable individual in regard to Riverbed products and services, WAN optimization, Storage Delivery and application acceleration.
2. May help improve your career advancement potential.
3. Entitles you to use the RCSA-SD certification logo on your business card.

Exam Information

Exam Specifications

- **Exam Number:** 501-01
- **Exam Name:** Riverbed Certified Solutions Associate – Storage Delivery
- **Version of RiOS:** Up to Granite v2.0.1, SH EX and VSP v.2.0.1, Whitewater v3.0.1.
- **Number of Questions:** 50
- **Total Time:** 60 minutes for exam, 15 minutes for Survey and Tutorial (75 minutes total)
- **Exam Provider:** Pearson VUE
- **Exam Language:** English and Japanese only. Riverbed allows a 30-minute time extension for English exams taken in non-English speaking countries for students that request it. English speaking countries are Australia, Bermuda, Canada, Ireland, New Zealand, United Kingdom, South Africa, and the United States. A form will need to be completed by the candidate and submitted to Pearson VUE. There will be no time extension for candidates taking the exam in Japanese.
- **Special Accommodations:** Yes (must submit written request to Pearson VUE for ESL or ADA accommodations; includes time extensions and/or a reader)
- **Offered Locations:** Worldwide (over 4000 test centers in 165 countries)
- **Prerequisites:** None (although taking a Riverbed training class is highly recommended)
- **Available to:** Everyone (partners, customers, and employees)
- **Passing Score:** 700 out of 1000 (70%)
- **Certification Expires:** Every two years (must recertify every two years, with six month grace period)
- **Recertification Criteria:** Retake the 501-01 – RCSA-SD current exam. If you are a RCSA-SD certified, taking the 599-01 – RCSP-SD exam will re-certify both your RCSA-SD and the RCSP-SD.
- **Wait Between Failed Attempts:** 72 hours
- **Wait Between Passed Exams:** One year. This will be effective starting March 12, 2011.
- **Cost:** \$150.00 (USD)
- **Number of Attempts Allowed:** Unlimited (though statistics are kept)

Certification Checklist

As the RCSA-SD exam is geared towards individuals who have both the theoretical knowledge and hands on experience with the RiOS products suite, Granite and Whitewater; ensuring proficiency in these areas is crucial towards passing the exam. For individuals starting out with the process, we recommend the following steps to guide you along the way:

1. Building Theoretical Knowledge

The easiest way to become knowledgeable in deploying, maintaining, and troubleshooting the RiOS® product suite, Granite and Whitewater is to take a Riverbed authorized training class. To ensure the greatest possibility of passing the exam, it is recommended that you review the RCSA-SD Blueprint – Recommended Resources for Study and ensure your familiarity with all topics listed, prior to any examination attempts.

2. Gaining Hands-on Experience

While the theoretical knowledge will get you partway there, it is the hands-on knowledge that can get you over the top and enable you to pass the exam. Since all deployments are different, providing an exact amount of experience required is difficult. Generally, we recommend that resellers and partners perform at least five deployments in a variety of technologies prior to attempting the exam. For customers, and alternatively for resellers and partners, starting from the design and deployment phase and having *at least three months of experience* in a production environment would be beneficial.

3. Taking the Exam

The final step in becoming an RCSA-SD is to take the exam at a Pearson VUE authorized testing center. To register for any Riverbed Certification exam, please visit <http://www.pearsonvue.com/riverbed>.

Recommended Resources for Study

Riverbed Recommended Training Courses

- WAN200 Optimization Essentials
- EVI200 Edge Virtual Infrastructure

Additional Information on Riverbed Training can be found at:

<http://www.riverbed.com/services-training/training/>. You can also write to training@riverbed.com.

RIVERBED CERTIFIED SOLUTIONS ASSOCIATE – Storage Delivery (RCSA-SD) BLUEPRINT AND STUDY REFERENCES

The Riverbed Certified Solutions Associate exam, and therefore this blueprint, covers the Riverbed products and technologies up to Granite v2.0.1, SH EX and VSP v.2.0.1, and Whitewater v3.0.1.

This publication does not replace practical experience, nor is it designed to be a stand-alone guide for any subject. Instead, it is an effective tool that, when combined with education activities and experience, can be a very useful preparation guide for the exam.

Riverbed authorized training courses and Riverbed Certification are mutually exclusive programs. This means that certification is not directly mapped to specific training courses and vice versa. We recommend certain courses but in no way does that automatically qualify or prepare you for the exam.

To access Riverbed technical documentation and publications please visit Riverbed Support webpage at <https://support.riverbed.com/index.htm>.

General Knowledge

Subject	Reference
Storage	<p>Books:</p> <ul style="list-style-type: none"> • Private Cloud Computing: Consolidation, Virtualization, and Service-Oriented Infrastructure –Stephen R Smoot, Nam K Tan – (Morgan Kaufmann) • Storage Networking Fundamentals: An Introduction to Storage Devices, Subsystems, Applications, Management, and File Systems (Vol 1) – Marc Farley (Cisco Press) • Storage Implementation in vSphere 5.0 – Mostafa Khalil (VMware Press) <p>Open forums, public sources:</p> <ul style="list-style-type: none"> • http://snia.org • http://www.enterprisestorageforum.com/storage-technology/ • http://chucksblog.emc.com/chucks_blog/

Steelhead, Steelhead EX

Subject	Reference
Steelhead® Appliance (Installation and Configuration)	<ul style="list-style-type: none"> • Steelhead® Appliance Installation and Configuration Guide • Riverbed® Deployment Guide v8.0.4 – Chapter 15: Storage Area Network Replication • Steelhead EX Getting Started Guide v2.0.1 • Steelhead Series EX560 and EX760 Systems Owner's Manual v2.0.1 • Steelhead EX Appliance Installation and Configuration Guide (includes Granite Edge) v2.0.1 • Steelhead EX Management Console User's Guide (includes Granite Edge) v2.0.1 • Riverbed® Training Course: WAN200 Optimization Essentials

Granite

Subject	Reference
Granite™ (Installation and Configuration)	<ul style="list-style-type: none"> • Granite Core Deployment Guide v2.0.1 • Granite Core Installation and Configuration Guide • Granite Core Management Console User's Guide • Riverbed® Training Course: WAN200 Optimization Essentials • Riverbed® Training Course: EVI200 Edge Virtual Infrastructure

Whitewater

Subject	Reference
Whitewater® Cloud Storage Appliance (Installation and Configuration)	<ul style="list-style-type: none"> • Whitewater Deployment Guide v3.0 • Whitewater Getting Started Guide v3.0 • Whitewater Installation Guide v3.0 • Whitewater User Guide v3.0 • Whitewater xx30 Series Expansion Shelf Hardware Owner's Guide v3.0 • Whitewater xx30 Series Hardware Owner's Guide v3.0 • Riverbed® Training Course: EVI200 Edge Virtual Infrastructure

Exam Questions

Types of Questions

The RCSA-SD exam includes a variety of question types, including single-answer multiple choice, multiple-answer multiple choice, drag and drop, scenario based, and fill in the blank. The question distribution is heavily targeted toward the multiple-choice variety, however, fill in the blank questions are used in situations where the command is believed to be important part of everyday Steelhead appliance operation. Regardless of the type of question, selecting the best answer(s) in response the questions will yield the best score.

Sample Questions

1. For which use cases below is a Whitewater appliance best suited? (Select 3)
 - a. Backups and recovery.
 - b. Archive.
 - c. Primary data.
 - d. Database backups.
 - e. Disk replication for primary storage.

2. Which Public Cloud provider is supported by Whitewater appliance? (Select 3)
 - a. Amazon Web services.
 - b. Verizon AAS.
 - c. Nirvanix.
 - d. Rackspace.

3. A crash-consistent snapshot leaves the LUN in the same state as: (Select 2)
 - a. Warm boot.
 - b. Cold reboot.
 - c. Hard reset.
 - d. Logout.

4. What are two optional Windows server plugins utilities for branch offices using Granite appliance?
 - a. DFS and VSS.
 - b. VSS and Turbo Boot.
 - c. IPCFG and Diskshadow.
 - d. RHSP and Turbo Boot.
 - e. iSCSI Initiator and iSCSI target.

5. When configuring high availability for Granite Edge, which of the following is true?

- a. MPIO is enabled on a Steelhead EX appliance to achieve high availability.
- b. A pair of Steelhead CX appliances act as active/standby peers.
- c. Granite Edge does not support high availability.
- d. A pair of Steelhead EX appliances act as active/active peers.
- e. A pair of Steelhead EX appliances act as active/standby peers.

6. From the list below, associate each Granite Edge HA status level to its correct definition:

The Granite Edge is serving client requests, but the peer appliance is down
The Granite Edge is passively accepting updates from the active peer, but its block store is not yet current with the state of the active peer
The Granite Edge is serving client requests; the standby peer synchronizes with the current state of the active peer
The Granite Edge is passively accepting updates from the active peer and is synchronized with the current state of the system
The Granite Edge is updating the standby peer with updates that were missed during an outage.

Active Sync	
Active Degraded	
Active Rebuild	
Standby Rebuild	
Standby Sync	

Answers

1: a, b and d; 2: a, c and d; 3: b and c; 4: d; 5: e; 6 (see below)

Active Sync	The Granite Edge is serving client requests; the standby peer synchronizes with the current state of the active peer
Active Degraded	The Granite Edge is serving client requests, but the peer appliance is down
Active Rebuild	The Granite Edge is updating the standby peer with updates that were missed during an outage.
Standby Rebuild	The Granite Edge is passively accepting updates from the active peer, but its block store is not yet current with the state of the active peer
Standby Sync	The Granite Edge is passively accepting updates from the active peer and is synchronized with the current state of the system