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Tips and Techniques for Red Hat Certification Success

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My Story

Passing the Red Hat Certified Technician (RHCT), Red Hat Certified Engineer (RHCE), or one of the Architect-level exams is a major undertaking, but when you're successful it's a major accomplishment with excellent career-enhancing potential. I passed my RHCE exam in 2005 on the first attempt, and then passed all five RHCA-series exams over the next eight months without ever having to retake an exam. In all, that was nearly 30 hours of examination and close to 200 hours of associated class time, not to mention the on-the-job experience and personal study time needed. In addition to taking the classes and exams, in the intervening years, I've taught dozens of RHCE- and RHCA-level Red Hat courses as a Red Hat Certified Instructor, and proctored numerous certification exams as a Red Hat Certified Examiner.

Through my own certification experience, I developed a number of study techniques that proved useful and, after working with so many students and exam candidates, I've been able to identify particular patterns of success. In this white paper, I'd like to share with you some of these techniques and observations I've found to help you obtain these valuable industry credentials. While everyone has different learning styles and study methods that work well for them, I think most readers with a serious interest in obtaining a Red Hat certification will be able find something of use here.

If you've come looking for specific exam details, you won't find them here. I have too much invested to risk breaking exam confidentiality. The best way you can prepare for the exam is to know the material you'll be tested on, so I'll be focusing on methods of learning the material in preparation for taking a Red Hat certification exam, not the content of the exam.

Why I Chose Red Hat Certifications

I've held a few well known IT industry certifications during my career, mainly because a particular contract required me to have them, or because a key customer hinted that they thought it would be valuable for them. The only certifications that I initiated entirely on my own were the Red Hat ones. Why are they so different? Live, hands-on, performance-based exams.

On exam day, you'll walk into a classroom full of computers, not multiple choice questionnaires. During the exam, you'll be working on one or more of these systems trying to do whatever is needed to achieve certain clearly defined end-states – how the system should behave or be configured when you're done. One hypothetical end-state might be "When a web browser is pointed to your IP address the word hello is displayed." You

may need to install the operating system, configure the Apache web server, enable port 80 access in the firewall, create an HTML document, and troubleshoot file system permissions in order to achieve that end-state – just like you would on the job.

Since the exam tests your actual ability to configure a real system in a way that would be of value in the real world, it's necessarily testing something of real value, and smart employers understand this. Every single Red Hat exam is like this; that's something that can be said of very few other certification programs.

So what tasks can you expect on the actual exam? For that, you can turn to Red Hat's official Prep Guides (see page 7). These are as close as you're going to get to someone telling you what's on the exam. They cover point by point the topics to be covered. If you're taking a Red Hat course with an exam on Friday, look at this document on Monday. Throughout the week, refer back to the Prep Guide at least every evening, checking off the specific exam items in the guide that you now feel comfortable with. This will give you a score of sorts on how well prepared you are for the exam. Before taking the exam, your goal is to have every item checked off.

Doing Is Learning

There's a Chinese proverb that goes, "Tell me, I'll forget. Show me, I'll remember. Involve me, I'll understand." In my opinion, Red Hat's training and certification program embodies this to the core. Every class is designed to be very interactive, hands-on, and full of valuable lab exercises that truly involve you in the topic at hand.

Since the classroom labs are comprised mainly of you working to achieve certain end states on real computer systems, they're probably pretty close to the performance-based exam experience. Don't skip to the end of the lab and follow along by rote, copying the commands in the "solutions" section; instead, be willing to struggle a bit and try out some educated guesses before looking at the solution or asking the instructor for assistance. This practice will force you to become more resourceful and start using the system itself to find the answers, instead of the book. During the exam, you won't have the book, one of the few "non-real world" aspects of the exam.

In the real world, a modern Linux system is full of helpful information. Information that can help you achieve some goal, even if you haven't committed every step to memory. Linux manual pages, or "man pages", contain a wealth of information about system commands and configuration files. Want to know what the syntax is for the ldap.conf file? 'man ldap.conf' will give you all the details. What do the different arguments to the date command do? 'man date' provides an explanation for all of them. Getting to know your way around man pages and how to find what you're looking for (for instance, 'man -k <keyword>' searches man page titles and descriptions) will help you greatly, and will make you a better Linux system administrator too.

Another good tool is tab completion in the Bash shell. Did you remember that the first thing you need to do to configure a new logical volume is to create a physical volume, but you're unsure what command does that? Type 'pv' and then hit the TAB key twice in a row. This will display all the commands that begin with 'pv', you'll see 'pvcreate', 'pvchange', 'pvdisplay', and other key commands related to physical volumes. Not sure what options need to be set for the pvcreate command? 'man pvcreate' lists them all, with full explanation, and even some useful examples.

Lastly, the /usr/share/doc directory offers a number of useful files as well. Most software packages install a set of files in a subdirectory underneath /usr/share/doc. The subdirectory name takes the form "<package_name>-<version>". For example, the 4.1.1 version of the DHCP server package offers a complete annotated working sample configuration in /usr/share/doc/dhcp-4.1.1/dhcpd.conf.sample. In the /usr/share//doc/bind-<version>/arm/ directory, you'll find the Administrator's Reference Manual, a 138 page book quality reference manual for the BIND DNS server, complete with configuration examples. These are just a couple of the excellent bits of information you'll find under /usr/share/doc. I encourage you to explore the relevant subdirectory in /usr/share/doc for any major software packages covered in the Prep Guide.

Understanding all the information sources available on the system itself goes a long way towards enabling you to find the information you need to get the job done when you need it, whether that's during an exam, or on the job.

A List I Can Remember

Even if you know how to access all the help resources on a system, if you constantly need to refer to man pages for every single command, you're going to run out of time; some things you just have to commit to memory. The goal of professional training is for you to understand the technologies well enough to implement them, not to simply remember some specific series of steps that may or may not be portable to your specific environment. Not only is trying to remember a specific sequence of steps not the point of learning, it's also a great exercise in shadow boxing. While the Prep Guides are wonderful tools, they don't give you enough information to know exactly what you'll be doing on the exam and certainly not what steps are needed to achieve those things.

Understanding this, I began to use "lists" to good effect. Every night after class, I'd skim through the chapters we'd covered during the day, making sure I was comfortable with every topic. If I had questions, I'd write them down and either try to answer them on my own, or ask the instructor the next day for his or her thoughts. Then I'd read through the labs and start reducing the labs to lists. The lists became not just a set of commands or configuration files I needed to use to achieve the goal of the lab, but more often than not, I found myself listing pointers to more information on the system, or even key concepts. For example, the list for configuring a DHCP server might be:

1. yum install dhcp
2. /usr/share/doc/dhcp-4.1.1/dhcpd.conf.sample
3. "subnet" option must match network interface
4. service dhcpd restart
5. logs to /var/log/messages

Far from a list of things to type on the command line, it's really a highly condensed list of the key steps, resources, and concepts involved in achieving some goal. Essentially, it's a reminder of the overall process flow and the key knowledge points involved. Just like a good presentation slide deck, this is a summary of key talking points about a larger, more involved concept.

These lists I committed to memory, and then during the exam I at least had a solid starting point from which to work. I wasn't constantly looking up information, but I knew how to find the key resources, and what the overall sequence looked like. This allowed me to focus on the specific customizations or troubleshooting steps required by the end-state, rather than on learning some fundamental process or concept on the fly. You just don't have time to do that.

Observations

There are a few questions that come up quite often in the days leading up to an exam. One that almost always arises is, "What's the pass rate?" With a little searching, you can come up with some RHCE pass-rate numbers, some even published by Red Hat directly. Let's just say statistically you're most likely to fail on the first attempt. This is a good thing. It means that once you do pass, you'll be part of a group of Linux professionals that's not easy to get into, making entry that much more valuable. Much more importantly though, the published pass rates mean almost nothing to you. Your individual "pass rate" is either 100% or 0%, and you can make that 100% more likely by focusing on things that matter – like understanding the material and committing it to memory – rather than obsessing over sideline issues.

Another factor that I've often seen in play is nerves. If you want to see some seasoned IT professionals sweating bullets, come sit a Red Hat exam. Some of the folks around you likely have raises, promotions, or even their continued employment riding on their performance over the next few hours. Even though I was an independent consultant when I took my first Red Hat exam, the RHCE, I was quite nervous as well. I offer two thoughts to keep in mind on exam day. The first is this observation: often times the most nervous are also the most successful. Those who care enough and remain engaged enough despite the possibility of failure, to be nervous during the exam, tend to be the ones who have put the work in to understand the material during class and during their own personal study time. My advice is to take a deep breath periodically, during good stopping points (while your system is rebooting, for instance) stand up and stretch, and clear your head momentarily. While it may seem paradoxical when you're trying to cram so much work into a limited amount of time, taking these few minutes to take your mind off the exam and relax will help you be more focused and more efficient.

In Summary

I really believe with performance-based exams you have to understand the technologies, grasp the key concepts, and know how to put it all together and do the work in order to be successful on the exam; there are no shortcuts. It's what makes Red Hat certifications continue to standout in a crowded market. This doesn't mean that you can't prepare for the exam though. I've offered a number of tips and techniques for maximizing your level of readiness, including:

- Know what to expect; understand performance-based exams.
- Use the Prep Guide to focus your study efforts, and keep "score" of your readiness.
- Know how to use the wealth of information available on the system itself; you just can't "cram" for a performance-based exam and remember everything.
- Give yourself a head start by reducing the labs to memorable lists; know the key resources and the overall process.

- Don't psyche yourself out before you even get started; focus on learning the material, not worrying about the exam.
- During the exam give yourself time to breathe; taking short breaks can actually make you more efficient.

I hope these tips will prove useful, and I wish you success in your future endeavors. I look forward to welcoming you to the ranks of the Red Hat certified!

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RH302 Red Hat Certified Engineer Certification Lab Exam

EX318 Red Hat Enterprise Virtualization Administrator Exam

RHS333 Red Hat Enterprise Security: Network Services Exam - EX333

RH401 Red Hat Enterprise Deployment, Virtualization, and Systems Mgmt Exam - EX401

RH423 Red Hat Directory Services and Authentication Exam - EX423

RHS429 SELinux Policy Administration Exam - EX429

RH436 Red Hat Clustering and Storage Management Exam - EX436

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About the Author

Justin has nearly 15 years of experience designing and managing Linux-based server environments. He's founded or co-founded a number of tech startups, managed a data center for a major multinational mission critical facility provider, and has been an independent technology consultant for over seven years with an emphasis on open source solutions. When's he not immersed in technology, he enjoys both spending time with his wife and

three children and immersing himself in mountaineering pursuits.

Red Hat's Official Prep Guides

RHCT: https://www.redhat.com/certification/rhct/prep_guide/

RHCE: https://www.redhat.com/certification/rhce/prep_guide/

EX318: https://www.redhat.com/courses/ex318_red_hat_enterprise_virtualization_exam/study_guide/

EX333: https://www.redhat.com/certification/ex333/prep_guide/

EX401: https://www.redhat.com/certification/ex401/prep_guide/

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