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To Our Valued Readers:

In a CertCities.com article dated December 15, 2001, Citrix Systems’ CCA certification was ranked #8 in a list of the “10 Hottest Certifications for 2002.” This shouldn’t come as a surprise, especially when you consider the success Citrix has seen with their flagship product, MetaFrame XP, since its release last year. Citrix continues to expand its dominance in the application services market, and as companies begin integrating Citrix products into their multi-platform IT infrastructures, you can be assured of high demand for professionals with the CCA certification.

Sybex is proud to have helped thousands of IT professionals prepare for certification exams over the years, and we are excited about the opportunity to continue to provide professionals like you with the skills needed to succeed in the highly competitive IT industry.

Our authors and editors have worked hard to ensure that the CCA: Citrix MetaFrame XP 1.0 Study Guide you hold in your hand is comprehensive, in-depth, and pedagogically sound. We’re confident that this book will meet and exceed the demanding standards of the certification marketplace and help you, the Citrix certification candidate, succeed in your endeavors.

As always, your feedback is important to us. Please send your comments, questions, or suggestions to support@sybex.com.

Good luck in pursuit of your Citrix certification!

Neil Edde
Associate Publisher—Certification
Sybex, Inc.
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For Bill Burkhardt

For all the lives you have touched and all the guidance you have given, thank you for everything you have brought to so many.

In loving memory of Pearl, Imogene, and Mary
We want to thank everyone who supported us and guided us to this point in our lives. Without all of the people who make up our family and friends, we could not have accomplished this task. Know that you are in our hearts forever.

I must start out these acknowledgments with a huge heartfelt thank-you to my family. To my wife, DeAnn: You have traveled along this rocky road with me for many years, and you never seem to tire of the hairpin turns I take along the way. Thank you for all of your support; I could never have done this without you. You may never know how much your understanding meant to me when things got crazy and I was lost in my own little world while I wrote. You truly are my soul mate and my very best friend. And to my daughters, Jami and Becca: The two of you were great throughout this process, just as you have been with everything that comes along. Thank you for understanding what this meant to me and for supporting me. I know that I didn’t get to do everything we wanted to do as deadlines loomed in front of me, but you never became discouraged or upset. The three of you are my life, and I couldn’t imagine my world without you in it. I cannot say “thank you” enough. I love you with all of my heart.

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—Brad

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—John

There is no way this book could have come to fruition without the assistance, guidance, and support that we received. Every book is the culmination of much talent, and this one is no exception. The two of us would like to give credit where credit is due.

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Introduction

If you are preparing to take the Citrix Certified Administrator (CCA) exam, you will undoubtedly want to find as much information as you can concerning MetaFrame XP. The more information you have at your disposal and the more hands-on experience you gain, the better off you will be when attempting the exam. This study guide was written with that in mind. We have attempted to dispense as much information as we can about MetaFrame XP administration. The key was to provide enough information so that you will be prepared for the exam but not too much so that you will be overloaded. Using the Citrix Certified Administrator Exam Guide found on the Citrix website, we have arranged this book into chapters that represent the exam objectives. If you need to concentrate on a particular objective, you will find everything you need within the chapter on which the objective is based.

This book presents the material at an intermediate technical level. Experience with, and understanding of, the two Microsoft operating systems on which MetaFrame XP can be installed, Windows 2000 Server and Windows NT Server 4.0, Terminal Server Edition, is essential. We do not have enough room within this text to include a primer on the finer points of Windows administration and configuration. While you do not have to be Microsoft certified to successfully complete the CCA exam, it does help. Of course, if you are going to be administering and supporting MetaFrame XP, you will need those skills anyway.

We’ve included review questions at the end of each chapter to give you a taste of what it’s like to take the exam. If you’re already administering and supporting MetaFrame XP, we recommend that you check out these questions first to gauge your level of expertise. You can then use the book mainly to fill in the gaps in your current knowledge. You may find, as many administrators have, that working on a daily basis with MetaFrame XP may not allow you to actually take advantage of all the functionality of the product. Using this study guide will help you round out your knowledge base before tackling the exam.

If you can answer 80 percent or more of the review questions correctly for a given chapter, you can probably feel safe moving on to the next chapter. If you’re unable to answer that many correctly, reread the chapter and try the questions again. Your score should improve.
Don’t just study the questions and answers—the questions on the actual exam will be different from the practice ones included in this book and on the CD. The exam is designed to test your knowledge of a concept or objective, so use this book to learn the objective behind the question.

What Is the Citrix MetaFrame Certification?

After gaining acceptance in the computer industry for providing an enterprise-level solution for terminal services, Citrix Systems decided that they needed a way of identifying individuals who have become proficient at administering MetaFrame and WinFrame. Hence the Citrix Certified Administrator certification was born. The exam concentrates on the administration and management of a MetaFrame or WinFrame server and does not overlap the Microsoft arena. Questions are geared to test the user’s knowledge of Citrix technologies and leave the operating and networking fields to the Microsoft Certified Professional exams. The CCA exam is actually the jumping-on point for Citrix certification. Although it is a stand-alone exam and will grant you CCA credentials, it is used as the first exam of the Citrix Certified Enterprise Administrator (CCEA) certification, which includes four other exams.

The exam itself is aimed toward those administrators who will be working with MetaFrame on a daily basis and need to understand the basic building blocks. Topics such as Resource Manager, Network Manager, and NFuse are touched upon in this exam but not in great detail. Those topics are reserved for the CCEA exams. Institutions that hire individuals based not only on experience but also on credentials can be assured that an individual with CCEA certification has the knowledge needed to administer a Citrix-based network. Those administrators who successfully complete the exam can be assured that their certification is respected in the computer industry.

Why Become CCA Certified?

There are a number of reasons for becoming CCA certified:

- It demonstrates proof of professional achievement.
- It increases your marketability.
Introduction

- It provides greater opportunity for advancement in your field.
- It is increasingly found as a requirement for some types of advanced training.
- It raises customer confidence in you and your company’s services.

Let’s explore each reason in detail.

**Provides Proof of Professional Achievement**

Specialized certifications are the best way to stand out from the crowd. In this age of technology certifications, you will find hundreds of thousands of administrators who have successfully completed the Microsoft and Novell certification tracks. To set yourself apart from the crowd, you need a little bit more. The Citrix Certified Administrator exam is the starting point for the Citrix Certified Enterprise Administrator certification and will give you the recognition you deserve.

**Increases Your Marketability**

Almost anyone can bluff their way through an interview. Once you have certified on a product such as MetaFrame XP, you will have the credentials to prove your competency. And certifications are not something that can be taken from you when you change jobs. Once certified, you can take that certification with you to any of the positions you accept.

**Provides Opportunity for Advancement**

Those individuals who prove themselves as competent and dedicated are the ones who will most likely be promoted. Becoming certified is a great way to prove your skill level and shows your employers that you are committed to improving your skill set. Look around you at those who are certified. They are probably the ones who receive good pay raises and promotions when they come up.

**Fulfills Training Requirements**

Many companies have set training requirements for their staff so that they stay up-to-date on the latest technologies. Having a certification program for the Citrix family of products provides administrators another certification path to follow when they have exhausted some of the other industry-standard certifications.
**Raises Customer Confidence**

As companies discover the Citrix advantage, they will undoubtedly require qualified staff to implement this technology. Many companies outsource the work to consulting firms with experience working with MetaFrame XP. Those firms that have certified staff have a definite advantage over other firms that do not.

**How to Become a Citrix Certified Administrator**

As this book goes to press, the only exam provider is Prometric, a division of Thomson Learning. To register for a Citrix Certified Administrator exam, contact Prometric at 1-800-481-EXAM or visit their website at [www.2test.com](http://www.2test.com). When you register for the exam, you will be asked for the exam number, 1Y0-220. Payment of $100 will be requested at that time, and you will have one year in which to take the exam. Exams can be scheduled up to six weeks out or as early as the next day.

When you schedule the exam, you will receive instructions regarding appointment and cancellation procedures, ID requirements, and information about the testing center location. In addition, you will receive a registration and payment confirmation letter from Prometric.

The exam consists of 40 questions, and you will be given one hour to complete it. Make sure you use your time wisely. Follow the guidelines later in this introduction on how to take the exam.

**Note**

In addition to reading the book, you might consider downloading and reading the white papers that Citrix has provided on their website.

**Who Should Buy This Book?**

If you want to acquire a solid foundation in Citrix MetaFrame XP administration, and your goal is to prepare for the exam by learning how to use and manage MetaFrame XP, this book is for you. You’ll find clear explanations of the concepts you need to grasp and plenty of help to achieve the high level of professional competency you need in order to succeed in your chosen field.
If you want to become certified as a Citrix Certified Administrator, this book is definitely for you. However, if you just want to attempt to pass the exam without really understanding MetaFrame XP, this study guide is not for you. It is written for people who want to acquire hands-on skills and in-depth knowledge of MetaFrame XP.

How to Use This Book and the CD-ROM

We’ve included several testing features both in the book and on the CD-ROM bound in the book. These tools will help you retain vital exam content as well as prepare to sit for the actual exam. Using our custom test engine on the CD-ROM, you can identify weak areas up front and then develop a solid studying strategy using each of these robust testing features. Our thorough readme file on the CD-ROM will walk you through the quick and easy installation process.

Before You Begin   At the beginning of the book (right after this introduction, in fact) is an assessment test that you can use to check your readiness for the actual exam. Take this test before you start reading the book. It will help you determine the areas you may need to brush up on. The answers to each assessment test appear on a separate page after the last question of the test. Each answer also includes an explanation and a note telling you in which chapter this material appears.

Chapter Review Questions   To test your knowledge as you progress through the book, there are review questions at the end of each chapter. As you finish each chapter, answer the review questions and then check to see if your answers are right—the correct answers appear on the page following the last review question. You can go back to reread the section that deals with each question you got wrong to ensure that you get the answer correct the next time you are tested on the material.

Electronic “Flashcards”   You’ll also find 150 flashcard questions for on-the-go review. Download them right onto your Palm device for quick and convenient reviewing.

Test Engine   In addition to the assessment test and the chapter review tests, you’ll find two sample exams on the CD-ROM. Take these practice exams just as if you were taking the actual exam (i.e., without any reference material). When you have finished the first exam, move onto the next one to solidify your test-taking skills.
90 percent of the answers correct, you’re ready to go ahead and take the certification exam.

**Full Text of the Book in PDF** Also, if you have to travel but still need to study for the Citrix MetaFrame exam and you have a laptop with a CD-ROM drive, you can carry this entire book with you just by taking along the CD-ROM. The CD-ROM contains this book in PDF (Adobe Acrobat) format so it can be easily read on any computer.

**Exam Objectives**

Behind every computer industry exam you are sure to find exam objectives—the broad topics on which the exam developers want to ensure your competency. The official Citrix Certified Administrator exam objectives are listed here.

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**NOTE**

Exam objectives are subject to change at any time without prior notice and at Citrix’s sole discretion. Please visit the Training and Certification page of Citrix’s website at [http://www.citrix.com/training/testing.asp#cert](http://www.citrix.com/training/testing.asp#cert) for the most current listing of exam objectives.

1. Introduction to MetaFrame XP
   a. Identify the Key Benefits of Deploying MetaFrame
   b. Understanding Digital Independence
   c. Identify the Benefits of MetaFrame Interoperability

2. MetaFrame Installation process
   a. Identify the Software and Hardware requirements for MetaFrame XP
   b. Perform Server Planning and Sizing Issues
   c. Installing MetaFrame and various setup options

3. Using Citrix Technologies
   a. Identify the components of the ICA Packet
   b. List the benefits of SpeedScreen Technology
   c. Discuss the features of Independent Management Architecture
   d. Recognizing Listener Ports, Idle Sessions, ICA Sessions and Client Device Licensing
4. MetaFrame XP Administration
   a. Administering using the Citrix Management Console
   b. Identify Published Application, Server and Citrix Administrator Properties
   c. Understanding Citrix Management Console

5. Additional Management Tools
   a. Identify features of Citrix Server Administration
   b. Shadowing with the Shadow Taskbar
   c. Creating connections with the Citrix Connection Configuration
   d. Configure SpeedScreen Latency Reduction Manager

6. Load Management and Security
   a. Analyzing Load with Load Manager
   b. Identify Encryption Strengths and Performance

7. Applications
   a. Installing, Uninstalling and Migrating Applications
   b. Configuring Applications for use in a MetaFrame environment

8. Citrix ICA Client Software
   a. Installing the Citrix ICA Client Software

9. Citrix Program Neighborhood
   a. Customizing Program Neighborhood interface and recognizing the ICA Toolbar Icons

10. Web Connectivity
    a. Recognizing Citrix Web Components
    b. Identifying NFuse Features and Components

11. Printing
    a. Creating Client, Network and local Printers
    b. Replicating Print drivers and Importing Print Servers
12. Monitoring and Troubleshooting MetaFrame XP Servers
   a. Using Event Viewer and System Information
   b. Managing Resource and Citrix Network Manager and Troubleshooting Network Monitor

Tips for Taking the Citrix Certified Administrator Exam

Here are some general tips for taking your exam successfully:

- Bring two forms of ID with you. One must be a photo ID, such as a driver’s license. The other can be a major credit card or a passport. Both forms must contain a signature.
- Arrive early at the exam center so you can relax and review your study materials, particularly tables and lists of exam-related information.
- Read the questions carefully. Don’t be tempted to jump to an early conclusion. Make sure you know exactly what the question is asking.
- Don’t leave any unanswered questions. Unanswered questions are scored against you.
- There will be questions with multiple correct responses. When there is more than one correct answer, a message at the bottom of the screen will prompt you to “Choose all that apply.” Be sure to read the messages displayed.
- When answering multiple-choice questions you’re not sure about, use a process of elimination to get rid of the obviously incorrect answers first. This will improve your odds if you need to make an educated guess.
- On form-based tests, because the hard questions will eat up the most time, save them for last. You can move forward and backward through the exam. (When the exam becomes adaptive, this tip will not work.)
- For the latest pricing on the exams and updates to the registration procedures, call Prometric at (800) 481-EXAM (481-3926). If you have further questions about the scope of the exams or related Citrix certifications, refer to the Citrix website at www.citrix.com/calc.
About the Authors

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John Price is a Citrix Certified Administrator. He is both MCSE and MCT certified. Currently he works as a trainer and a Network Engineer Consultant, specializing in Citrix enterprise implementations. John has been working with Citrix products since 1996. You can e-mail him at JPrice@zygort.com.
1. You want to take advantage of the new features of MetaFrame XP. Your server farm is in native mode and you want to utilize the XML service to look for published applications. Which protocol would you select for your clients to use?
   A. TCP/IP
   B. TCP/IP+HTTP
   C. HTTP
   D. NETBIOS

2. Which of the following database engines is not supported for use with the data store?
   A. Microsoft SQL
   B. Oracle
   C. Sybase
   D. Microsoft Access

3. When you grant access permissions, which of the following individual permissions are assigned when the Guest Access permission is used?
   A. Query Information
   B. Set Information
   C. Shadow
   D. Logon
   E. Logoff
   F. Message
   G. Connect
   H. Disconnect
4. On which of the following systems can you install the Win32 client? (Choose all that apply.)
   
   A. Windows 2000 Professional, 64MB RAM
   B. Windows NT Workstation 4.0, 64MB RAM
   C. Windows Me, 96MB RAM
   D. Windows for Workgroups version 3.11, 16MB RAM
   E. DOS 6.20, 16MB RAM

5. When assigning evaluators to servers, where can you view all of the servers and the evaluators that are assigned to each?
   
   A. Servers node, Contents tab
   B. Servers node, Load Manager tab
   C. Load Evaluators node, Contents tab
   D. Load Evaluators node, Usage Reports tab

6. Within the Client Settings of the Connection Properties sheet, the (Inherit User Config) and By Default, Connect Only The Client’s Main Printer options are selected. Within the user’s profile, the options Connect Client Printers At Logon and Default To Main Client Printer are selected. When the user logs on to a session, what printers are available?
   
   A. All of the client printers are auto-created and available, and the user’s default printer is the default printer in the session.
   B. All of the client printers are auto-created and available, and the server’s default printer is the default printer in the session.
   C. Only the user’s default printer is auto-created and set as the default printer.
   D. The user’s default printer is auto-created along with the server printers. The server’s default printer is made the default printer in the session.