

CCSP

Certified Cloud Security Professional

An (ISC)² Certification

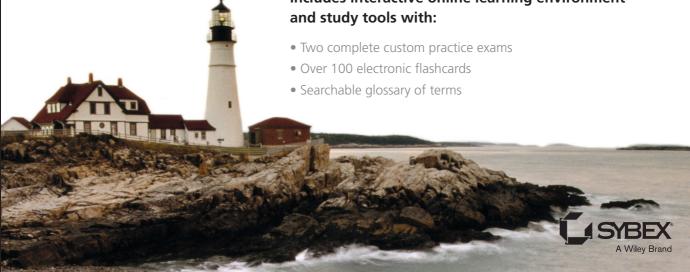
Official Study Guide

Second Edition

Ben Malisow, CCSP, CISSP

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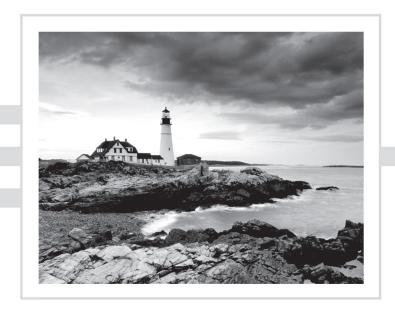
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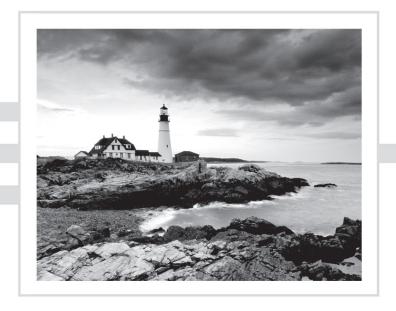
Official Study Guide



(ISC)^{2®} CCSP®

Certified Cloud Security Professional

Official Study Guide



Ben Malisow



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Introduction

The Certified Cloud Security Professional (CCSP) certification satisfies the growing demand for trained and qualified cloud security professionals. It is not easy to earn this credential; the exam is extremely difficult, and the endorsement process is lengthy and detailed.

The CCSP (ISC)² Official Study Guide offers the cloud professional a solid foundation for taking and passing the Certified Cloud Security Professional (CCSP) exam. However, if you plan on taking the exam to earn the certification, this cannot be stressed enough: you cannot expect to pass the exam using this book as your sole source. Please refer to the list of additional recommended reading at the end of this introduction.

(ISC)²

The CCSP exam is governed by $(ISC)^2$. $(ISC)^2$ is a global not-for-profit organization with four primary mission goals:

- Maintain the Common Body of Knowledge (CBK) for the field of information systems security.
- Provide certification for information systems security professionals and practitioners.
- Conduct certification training and administer the certification exams.
- Oversee the ongoing accreditation of qualified certification candidates through continued education.

A board of directors elected from the ranks of its certified practitioners operates the $(ISC)^2$.

(ISC)² supports and provides a wide variety of certifications, including the CISSP, SSCP, CAP, CSSLP, HCISPP, and CCSP. These certifications are designed to verify the knowledge and skills of IT security professionals across all industries. You can obtain more information about the organization and its other certifications by visiting www.isc2.org.

Topical Domains

The CCSP certification covers material from the six topical domains. They are as follows:

- Domain 1: Cloud Concepts, Architecture, and Design
- Domain 2: Cloud Data Security
- Domain 3: Cloud Platform and Infrastructure Security
- Domain 4: Cloud Application Security
- Domain 5: Cloud Security Operations
- Domain 6: Legal, Risk, and Compliance

These domains cover all of the pertinent areas of security related to the cloud. All the material in the certification are vendor- and product-agnostic. Each domain also contains a list of topics and subtopics the CCSP-certified professional is expected to know.

The detailed list of domains/topics of knowledge, experience requirements, exam procedures, and exam domain weights can be found in the CCSP Certification Exam Outline: https://www.isc2.org/-/media/ISC2/Certifications/Exam-Outlines/CCSP-Exam-Outline.ashx.

Prequalifications

(ISC)² has defined the qualifications and requirements you must meet to become a CCSP:

- A minimum of five years of cumulative, paid, full-time information technology experience of which three years must be in information security and one year in one of the six domains of the CCSP examination
- Earning the Cloud Security Alliance's CCSK certificate may be substituted for one year of experience in one of the six domains of the CCSP examination.
- Earning the CISSP credential may be substituted for the entire CCSP experience requirement.

Candidates who do not meet these requirements may still sit for the exam and become an Associate of (ISC)². Associates have six years (from passing the exam) to fulfill any remaining experience requirements.

Certified members of (ISC)² must also adhere to the (ISC)² formal code of ethics, which can be found on the (ISC)² website at www.isc2.org/ethics.

Overview of the CCSP Exam

The CCSP exam typically consists of 125 multiple-choice questions covering the six domains of the CCSP CBK, and you must achieve a score of 70 percent or better to pass.

You will have three hours to complete the exam. Twenty-five of the questions will be unscored questions used solely for research purposes. Be sure to answer every question as best you can because you will not know which questions are scored and which are not and you will receive 0 points for unanswered questions. Points are not subtracted for incorrect answers; never leave any question unanswered, even if your answer is a guess.

CCSP Exam Question Types

Most of the questions on the CCSP exam are in the multiple-choice format, with four options and a single correct answer. Some are straightforward, such as asking you to

identify a definition. Other questions will ask you to identify an appropriate concept or best practice. Here is one example:

- 1. Putting sensitive operational information in a database away from the production environment in order to provide higher protection and isolation is called
 - A. Randomization
 - B. Elasticity
 - C. Obfuscation
 - **D.** Tokenization

You must select the one correct or best answer. Sometimes the answer will seem obvious to you, and other times it will be harder to discriminate between two good answers and pick the best. Watch out for general, specific, universal, superset, and subset answer selections. In other cases, none of the answers will seem correct. In these instances, you will want to select the least incorrect answer. There are also questions that are based on theoretical scenarios, where you must answer several questions given a specific situation.



The correct answer to the question above is option D, tokenization. In a tokenized arrangement, sensitive information is placed in a database away from the production environment, and tokens (representing the stored sensitive information) are stored in a database within the production environment. In order to select the correct answer, the reader has to understand how tokenization works and how that method can be used to isolate sensitive data from the production environment; the question does not mention tokens or tokenization, so it requires complex thought. An easier answer would be "data segregation," but that's not an option. This is not an easy question.

In addition to the standard multiple-choice question format, (ISC)² has added a new question format that uses a drag-and-drop approach. For instance, you may see a list of items on one side of the screen that you need to drag and drop onto their appropriate counterparts on the other side of the screen. Other interactive questions may include matching terms with definitions and clicking on specific areas of a chart or graphic. These interactive questions are weighted with a higher point value than the multiple-choice type, so you should pay extra attention when answering them.

Study and Exam Preparation Tips

I recommend planning for at least 30 days of intensive studying for the CCSP exam. I have compiled a list of tips that should help:

 Take one or two evenings to read each chapter thoroughly and work through the review material at the end.

- Think about joining a study group, to share insight and perspective with other candidates.
- Answer all the review questions and take the practice exams on the Sybex website associated with this book (see details on the back cover).
- Complete the written labs from each chapter.
- Before you move on to the next section of work, be sure to review the previous day's study to be sure you are retaining the information.
- Take study breaks but stay on track.
- Put together a study plan.
- Review the (ISC)² Exam Outline.

Advice on Taking the Exam

Here are some test-taking tips and general guidelines:

- Answer easy questions first. You can mark all of the questions you are unsure of and go back over them after you have completed the exam.
- Eliminate incorrect answers first.
- Be careful of double negatives in the language of the question.
- Read the questions carefully to ensure you fully understand them.
- Take your time. Do not hurry. Rushing leads to test anxiety and loss of focus.
- Take a bathroom break and a breather if you need to, but keep it short. You want to maintain your focus.
- Observe all exam center procedures. Even if you've previously taken an exam at a Pearson Vue center, some have slightly different requirements.

Manage your time. You have three hours to answer 125 questions. That equates to just a bit less than two minutes per question, which in most cases is more than enough time.

Make sure you get plenty of sleep the night before. Be sure to bring any food or drink you think you might need, although they will be stored while you are taking the exam. Also, remember to bring any medications you need to take and alert the staff of any condition that might interfere with your test taking, such as diabetes or heart disease. No test or certification is worth your health.

You may not wear a watch into the test lab. There are timers on the computers and in the testing labs. You must also empty your pockets, with the exception of your locker key and ID.

You must bring at least one picture ID with a signature, such as a driver's license, with you to the testing center, and you should have at least one more form of ID with a signature. Arrive at least 30 minutes early to the testing site to make sure you have everything you need. Bring the registration form that you received from the testing center along with your IDs.

Completing the Certification Process

Once you have successfully completed the CCSP exam, there are a few more things to do before you have earned your new credential. First, transmission of your (ISC)² score happens automatically. You will receive instructions on the printed results from your test as you leave the testing center. They will include instructions on how to download your certification form, which will ask you for things such as whether you already have another (ISC)² credential (such as the CISSP) and similar questions. Once completed, you will need to sign and submit the form to (ISC)² for approval. Usually, you will receive notice of your official certification within three months. Once you are fully certified, you can use the CCSP designation in your signatures and other places of importance, per (ISC)² usage guidelines.

Notes on This Book's Organization

This book covers all of the six CCSP Common Body of Knowledge (CBK) domains in sufficient depth to provide you with a basic understanding of the necessary material. The main body of the book is composed of 11 chapters that are arranged as follows:

Chapter 1: Architectural Concepts

Chapter 2: Design Requirements

Chapter 3: Data Classification

Chapter 4: Cloud Data Security

Chapter 5: Security in the Cloud

Chapter 6: Responsibilities in the Cloud

Chapter 7: Cloud Application Security

Chapter 8: Operations Elements

Chapter 9: Operations Management

Chapter 10: Legal and Compliance Part 1

Chapter 11: Legal and Compliance Part 2

Obviously, the book does not follow the order of the domains or the official exam outline. Instead, the chapters of the book are arranged in a way to explain the material in a narrative format that conveys the concepts in a linear manner.

Each chapter includes elements designed to assist you in your studies and to test your knowledge of the material presented in the chapter. It is recommended that you read Chapter 1 first to best orient yourself in the subject matter before moving on to the other chapters.



Please see the table of contents and chapter introductions for more detailed domain topics covered in each chapter.

Elements of This Study Guide

This study guide contains several core elements that will help you prepare for the CCSP exam and the real world beyond it:

Real World Scenarios: The book has several real-world scenarios laid out to help you further assimilate the information by seeing where and under what circumstances certain solutions have worked (or not) in the real world and why.

Summaries: The summary is a quick overview of important points made in the chapter.

Exam Essentials: Exam Essentials highlight topics that could appear on the exam in some form. While the author does not know exactly what will be included on a particular exam, this section reinforces significant concepts that are crucial to understanding the CBK and the test specifications for the CCSP exam.

Written Labs: Each chapter includes written labs that bring together various topics and concepts brought up in the chapter. While this content is designed for classroom use in a college/university, it may aid in your understanding and clarification of the material beyond classroom use as well.

Answers to the Written Labs are in Appendix A.

Chapter Review Questions: Each chapter includes practice questions designed to measure your knowledge of fundamental ideas discussed in the chapter. After you finish each chapter, answer the questions; if some of your answers are incorrect, it is an indication that you need to spend more time studying the corresponding topics. The answers to the practice questions are in Appendix B.

What Is Included with the Additional Study Tools

Beyond all of the information provided in the text, this book comes with a helpful array of additional online study tools. All of the online study tools are available by registering your book at www.wiley.com/go/sybextestprep. You'll need to choose this book from the list of books there, complete the required registration information, including answering the security verification to prove book ownership. After that you will be emailed a pin code. Once you get the code, follow the directions in the email or return to www.wiley.com/go/sybextestprep to set up your account using the code and get access.

The Sybex Test Preparation Software

The test preparation software, made by the experts at Sybex, can help prepare you for the CCSP exam. In this test engine, you will find all the review and assessment questions from the book and additional bonus practice exam questions that are included with the study

tools. You can take the assessment test, test yourself by chapter, take the practice exam, or take a randomly generated exam consisting of all the questions.

Glossary of Terms in PDF

Sybex offers a robust glossary of terms in PDF format. This comprehensive glossary includes essential terms you should understand for the CCSP certification exam, in a searchable format.

Bonus Practice Exams

Sybex includes two practice exams; these contain questions meant to survey your understanding of the essential elements of the CCSP CBK. Both tests are 125 questions long, the length of the actual certification exam. The exams are available online at www.wiley.com/go/sybextestprep.

Assessment Test

- 1. What type of solutions enable enterprises or individuals to store data and computer files on the Internet using a storage service provider rather than keeping the data locally on a physical disk such as a hard drive or tape backup?
 - A. Online backups
 - B. Cloud backup solutions
 - **C.** Removable hard drives
 - D. Masking
- 2. When using an infrastructure as a service (IaaS) solution, which of the following is not an essential benefit for the customer?
 - **A.** Removing the need to maintain a license library
 - **B.** Metered service
 - **C.** Energy and cooling efficiencies
 - **D.** Transfer of ownership cost
- **3.** ______ focuses on security and encryption to prevent unauthorized copying and limitations on distribution to only those who pay.
 - A. Information rights management (IRM)
 - B. Masking
 - **C.** Bit splitting
 - **D.** Degaussing
- 4. Which of the following represents the correct set of four cloud deployment models?
 - A. Public, private, joint, and community
 - **B.** Public, private, hybrid, and community
 - **C.** Public, Internet, hybrid, and community
 - **D.** External, private, hybrid, and community
- **5.** What is a special mathematical code that allows encryption hardware/software to encrypt and then decipher a message?
 - A. PKI
 - **B.** Key
 - C. Public-private
 - **D.** Masking