



The SAS Certified Professional Program
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INTRODUCTION

The world of statistical programming, application development, data management and providing business solutions is competitive and continues to grow in complexity as new technology emerges. As a result, the demand for qualified, knowledgeable professionals also increases. As the number of SAS users and consultants continues to grow, the need to distinguish between those who have mastered a specified level of competence in their use of SAS products and/or solutions versus those who have not becomes increasingly important.

While obtaining certification is typically a voluntary process, it is becoming more and more necessary for IT professionals to become certified to remain competitive in the job market. Employers perceive employees with certification as being more competent and productive. In addition, employees view certification as contributing to their professional credibility.

Recent studies published by Gartner Consulting (2001), Foote Partners LLC (2002) and Certification Magazine (January, 2002) indicate that the benefits of certification include improved job security and increased compensation for the individual employee, even in today's economy. For the employer, certified individuals typically provide a higher level of service and productivity, which can lead to a competitive advantage. In fact, it has been noted that IT certification now plays an increasingly important role for hiring managers in the industry.

In recent years, certification programs have dramatically increased in popularity and credibility with the IT industry. As part of this trend, SAS Institute launched a global certification program in 1999. New certification credentials and other enhancements to the program were announced at SUGI 28 and will be discussed in this paper.

The new program structure is the outcome of a Certification Global Summit which was attended by SAS executive management, including representatives from World Wide Marketing, Professional Services, Education, Research and Development, and Technical Support from SAS Americas and SAS International.

The outcome of the Global Summit recommended program changes that include the introduction of new version-less exams/exam tracks and the creation of job-role based exams.

SAS Certification exam tracks have been developed where one or more exams must be successfully completed to earn a specific credential. The number of exams varies by track and will be discussed later in this paper.

The new version-less exams are not tied to a specific release of the SAS System. As such, SAS Certification candidates will not automatically need to sit for a new exam each time there is a new release of the SAS System. Each SAS Certification exam will be evaluated with each new release of SAS to determine if significant feature/functionality enhancements have been introduced and if changes in the SAS System require a new SAS Certification exam to be introduced.



Job-role based exams are intended to not only measure familiarity with SAS technologies, but also the application of SAS technologies to solving job role requirements. The value of certifying individuals at the job role level was supported by research recently published by Certification Magazine (Moore, 2002).

To ensure currency of SAS System skills, SAS Certified Professionals are required to be re-certified every three years.

NEW SAS CERTIFIED PROFESSIONAL CREDENTIALS AVAILABLE

New SAS certification credentials have been introduced to measure SAS competency across a number of functional areas, including:

SAS Certified Base Programmer

This credential is designed to assess knowledge of SAS programming essentials, including importing and exporting raw data files, manipulating and transforming data, combining SAS data sets, creating basic detail and summary reports using SAS procedures, and identifying and correcting data, syntax and programming logic errors. Successful candidates for the SAS Certified Base Programmer certification should have at least one year of current SAS programming experience.

Exams Required:

SAS Base Programming Exam

SAS Certified Advanced Programmer

This credential is designed to measure advanced SAS programming and data management fundamentals, including efficient SAS programming techniques. Successful candidates for the SAS Certified Advanced Programmer Certification should have a minimum of three years of experience in programming and data management using SAS. Candidates for this credential should be able to write efficient SAS code to solve complex problems in accordance with system specifications, while minimising use of computing resources. Candidates should also be knowledgeable in using advanced DATA step programming statements and efficiency techniques to solve complex problems, writing and interpreting SAS SQL code, and creating and using SAS MACRO variables.

Exams Required:

SAS Base Programming Exam *

SAS Advanced Programming Exam

* Please note that the SAS V8 Core Concepts exam will satisfy the SAS Base Programming Exam prerequisite for this track.

SAS Certified webAF Developer: Server-side

This credential is intended to validate experience designing and developing advanced web-based information delivery applications using SAS software. Successful candidates for this certification should have at least three years of experience designing and developing advanced web-based information delivery applications using SAS Software, including SAS webAF server-side technology. Successful candidates must understand object-oriented techniques and principles and be knowledgeable in the following SAS software components and procedures typically used to develop applications in SAS: Base SAS, the Output Delivery System, SAS Macro Language, SCL, SQL processing with SAS, DATA Step



programming, SAS webAF, SAS Integration Technologies, DHTML, Java and the Java server-side environment, SAS/ACCESS technologies, SAS/CONNECT, SAS/SHARE, and SAS OLAP Server.

Required Exams:

SAS Base Programming Exam or SAS V8 Core Concepts Exam
SAS Advanced Programming Exam
SAS webAF Server-side Application Development Exam

SAS Certified Warehouse Development Specialist

This credential is intended to test skills involved in the detailed design of data warehouse components in accordance with system specifications and constructing the components of the warehouse. The Warehouse Development Specialist can be thought of as the implementer of a SAS Data Warehouse. Candidates for this credential should be able to design detailed components of the data warehouse in accordance with system specifications and construct the components of the warehouse in compliance with the detailed design. Successful candidates will have a working knowledge in data management programming skills, data quality, extract, transform, and load (ETL), and testing procedures. Practical experience is likely to include work in data modeling, systems analysis, process design, data storage systems, and the software development life cycle. Successful candidates for the SAS Certified Warehouse Development Specialist certification should have a minimum of three years of experience in data warehouse development and design using SAS software.

SAS Certified Warehouse Development Specialists must have a detailed working knowledge of SAS® data warehousing technologies and their practical application in data warehousing projects, including use of the SAS Rapid Warehousing Methodology.

Exams Required:

SAS Base Programming Exam or SAS V8 Core Concepts Exam
SAS Advanced Programming Exam
SAS Warehouse Technology Exam
SAS Warehouse Development Specialist Concepts Exam

SAS Certified Warehouse Architect

This credential tests skills involved in designing, implementing, testing and deploying data warehouse solutions. Successful candidates for the SAS Certified Warehouse Architect certification should have detailed knowledge of the development of the information architecture and communicating the design to the customer, the construction team and all other designated parties. Successful candidates must exhibit knowledge of strategies for gathering requirements, designing, implementing, testing, and deploying data warehouse solutions. Examples include work in data modeling, systems analysis, process modeling, system architecture, data storage systems, system development life cycle, and extract, transform and load (ETL) procedures.

Exams Required:

SAS Warehouse Technology Exam
SAS Warehouse Architect Concepts Exam

Below is a summary table of the credentials with the required examinations:

The Power to Know.



Certifications	Examinations Required
SAS Certified Base Programmer	SAS Base Programming
SAS Certified Advanced Programmer	SAS Base Programming SAS Advanced Programming
SAS Certified webAF Developer: Server-side	SAS Base Programming SAS Advanced Programming SAS webAF Server-side Application Development
SAS Certified Warehouse Development Specialist	SAS Base Programming SAS Advanced Programming SAS Warehouse Technology SAS Warehouse Development Specialist Concepts
SAS Certified Warehouse Architect	SAS Warehouse Technology SAS Warehouse Architect Concepts

PREPARING FOR AND TAKING A SAS CERTIFICATION EXAM

Exam format:

All SAS Certification exams are computer based and consist of multiple-choice questions. The number of questions varies per examination but is in the range of 50-80 questions per exam. Each production exam must be completed in two hours. Candidates receive immediate pass/fail feedback upon completion of a production exam, including a breakdown of their performance in the different topic areas.

Test preparation:

Each exam challenges candidates to apply specific knowledge they have acquired through SAS software training and practical work experience. Experience is a critical component of obtaining the knowledge necessary to become a SAS Certified Professional. To gauge exam readiness, candidates are encouraged to review the subject matter covered on each exam.

SAS also offers a broad curriculum of instructor-based courses and e-learning training guides to assist individuals in preparing for an exam. Candidates may also benefit from reviewing product documentation or other reference material before taking an exam.

Candidates are encouraged to visit www.sas.com/certification to view the content and list of recommended test preparation materials for each exam.

Test registration:

To ensure the security of the tests and the test results, SAS Certification exams are administered by Prometric, a Thomson Learning Company. Individuals may register for exams at more than 2,500 Authorised Prometric Testing Centers in more than 140 countries around the world. Online registration is recommended and is available at www.2test.com.

In the UK the fee to sit a production exam* is £109 + VAT. In the Republic of Ireland the fee is €170.75 + VAT. Certification exam prices are subject to change. For the latest pricing information and Certification special offers, please visit the www.sas.com/certification.

The Power to Know.



* Please note that pricing and test duration information may vary for beta exams.

SAS CERTIFICATION NEWSLETTER

To stay current with SAS Certification news, please register for our newsletter at http://www.sas.com/offices/europe/uk/certification/newsletter_request.html

FOR MORE INFORMATION

Individuals are encouraged to visit www.sas.com/certification to learn more about the SAS Certified Professional Program, including any of the above exams and credentials.

CONCLUSION

The SAS Certified Professional Program was developed to provide users with a universal, standardised measure of knowledge in a particular SAS job-role. It has benefits for both employers and individuals. Great care has been used to develop the examinations, the same care that was given to determining the needs of SAS users and arriving at the credentials offered within the program. In 2003, five new credentials are being introduced. The program continues to evolve and we are constantly assessing if new credentials should be added. SAS encourages users to visit www.sas.com/certification and begin the steps to becoming a SAS Certified Professional.



REFERENCES

The content of this paper was taken from *An Overview of SAS Certification and the Test Development Process* (SUGI 28) by Linda Althouse and Marc Vaglio-Laurin, Certification Program Team, SAS Institute Inc., Cary, NC. This paper also contains a detailed discussion of the process used to develop the SAS certification examinations.

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Sosbe, T. (2002). Certification Training: Real Results, Real Value. *Certification Magazine*, January.

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