DASA

DEVOPS AGILE
SKILLS ASSOCIATION

DASA DEVOPS PROFESSIONAL - SPECIFY AND VERIFY

Syllabus

Version 1.2.0

June 2021

DASA DEVOPS AGILE SKILLS ASSOCIATION

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Previous	1.1.0	March 2021
Current	1.2.0	June 2021
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SCOPE AND PURPOSE OF THIS DOCUMENT

The purpose of this document is to inform all parties interested in the DASA DevOps Professional - Specify and Verify course of the areas covered in the course.

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THE DASA DEVOPS COMPETENCE MODEL

The DevOps Agile Skills Association (DASA) competence framework identifies 8 knowledge areas (indicated by the symbol K) and 4 skills areas (indicated by the symbol S) that are relevant in DevOps, as shown in the following figure.

1. Novice / 2. Competent / 3. Proficient / 4. Expert / 5. Master

Every individual operating in a DevOps team requires to be competent at all 8 knowledge areas and proficient at the 4 skill levels. In order for DevOps teams to be effective, they require all 12 areas to be at the Expert level. Individual team members can specialize in specific areas, in order for teams to achieve these capabilities.

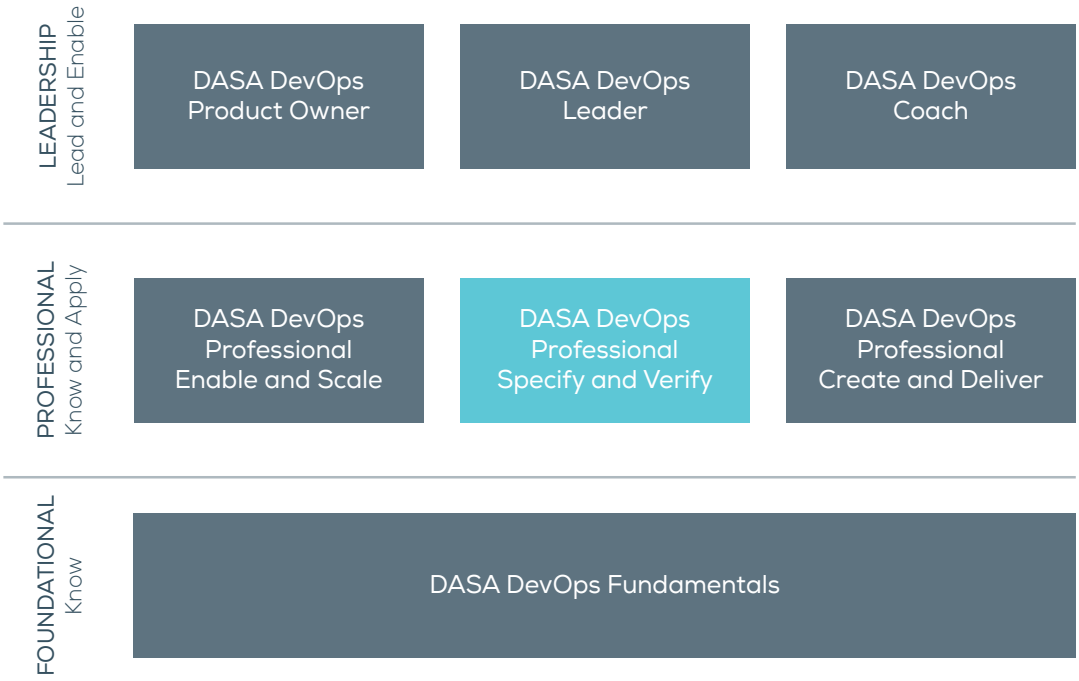
DASA DEVOPS PROFESSIONAL - SPECIFY AND VERIFY

The ultimate goal of any business is to deliver the value that its customers want. Understanding the customers' needs, communicating these to the team clearly, and ensuring the intended outcome is produced is essential to deliver the required customer value. Recent developments in IT methodologies have given rise to a spate of concepts, such as Agile, Scrum, DevOps, and Lean IT, that has enabled the realization of the customer value more rapidly than traditional methods. DevOps focuses entirely on providing customer value.

Specification and Verification constitute the activities performed by a DevOps team that determine and communicate what is valuable within a product, both functionally and non-functionally, from the customers' perspective and ensuring the delivery of the desired value. Being end-to-end responsible with the whole team to deliver value makes these activities an essential skill set of a DevOps Professional.

This 16 hours course focuses on the concepts and activities that specification and verification of a product/service include. DASA DevOps Professional - Specify and Verify focuses on the knowledge areas: Architecture and Design, Business Value Optimization, Business Analysis, and Test Specification as defined by DASA and the need of having these areas for successful DevOps results.

The qualification extends traditional analysis, test, or architecture training courses through its combination and relation with each other, and puts them in a DevOps context. As teams start to take on DevOps responsibilities, this course will guide them on how to apply their knowledge in new ways, acquire new methods, and begin with new approaches.



QUALIFICATION OBJECTIVES

When you have acquired the required knowledge from this course, you will be able to:

- Understand how the tasks covering specification and verification fit into a DevOps environment.
- Take end-to-end responsibility for your product - from concept to grave.
- Truly understand your customers and validate whether the product fits their needs.
- Find good ways to communicate with everyone involved, from customers to stakeholders and developers.
- Describe and visualize your product in a format that fits your specific situation.
- Understand what software quality means and how to achieve adequate quality with your product.
- Decide adequately which kind of tests the product needs and understand what you gain from them.
- Set up useful feedback loops and use them meaningfully.
- Understand which architectural considerations are important in a DevOps environment.

HOW DOES DASA DEVOPS PROFESSIONAL - SPECIFY AND VERIFY FIT INTO THE DASA COMPETENCE FRAMEWORK?

After completing this course, you will cover the area marked as DASA DevOps Professional - Specify and Verify in the following figure of the DASA qualification scheme. As a result, you will reach the "Proficient" level of the scheme.

1. Novice / 2. Competent / 3. Proficient / 4. Expert / 5. Master

TARGET AUDIENCE

The DASA DevOps Professional - Specify and Verify qualification is primarily aimed at:

- Individuals involved in IT development, IT operations, or IT Service Management
- Individuals whose role are affected by DevOps and continuous delivery, such as:
  - ◊ Architects
  - ◊ Product Owners, Business Analysts
  - ◊ Test Engineer, Test Analysts
  - ◊ Software Developers, Engineers
  - ◊ UX and Interaction Designers
  - ◊ Integration Specialists
  - ◊ Incident and Change Managers
  - ◊ System and Network Administrators, Operations

COURSE REQUIREMENTS

- **Required**: DASA DevOps Fundamentals certificate
- **Beneficial**: Familiarity with Agile, Scrum, Lean, and basic knowledge of specification and testing

CERTIFICATION REQUIREMENTS

You will receive the required certification from DASA on successful completion of the DASA DevOps Professional - Specify and Verify exam.

EXAM DETAILS

The characteristics of the DASA DevOps Professional - Specify and Verify exam are:

Exam Format:

- Closed-book format
- Web-Based
- Participants may bring scratch paper

Questions:

- 25 multiple-choice questions

Passing Score:

- 60%

Exam Duration:

- 60 minutes
- 15 minutes extra time for non-native English speakers.

LEARNING OUTCOMES

A classification widely used when designing assessments for certification and education is the Bloom's Taxonomy of Educational Objectives. This classifies learning objectives into six ascending learning levels, each defining a higher degree of competencies and skills. (Bloom et al, 1956, Taxonomy of Educational Objectives).

This structured approach helps to ensure:

- A clear delineation in learning level content between different qualification levels
- Learning outcomes are documented consistently across different areas of the guidance
- Exam questions and papers are consistent and are created to a similar level of difficulty

The DASA DevOps Professional - Specify and Verify qualification examines learning outcomes at all the four levels mentioned in the following table.

DASA DEVOPS PROFESSIONAL - SPECIFY AND VERIFY LEARNING OUTCOMES				
	1. Knowledge	2. Comprehension	3. Application	4. Analysis
Generic Definition from Learning Outcomes	Know key facts, terms, and concepts relating to the syllabus area.	Understand key concepts relating to the syllabus area.	Be able to apply key concepts relating to the syllabus area for a given scenario.	Be able analyze and distinguish between appropriate and inappropriate use of the method/ guidance for a given scenario/ situation.
Qualification Learning Outcomes	Know facts, including terms, concepts, principles, tools, and techniques relating to the syllabus area.	Understand the concepts, principles, and dimensions of DevOps and can explain how these are applied.		

SYLLABUS AREAS

The following syllabus areas are identified for DASA DevOps Professional - Specify and Verify.

SYLLABUS AREA CODE	SYLLABUS AREA TITLE
TAQ	Thinking About Quality and Value
DV	Delivering Value
UYC	Understanding Your Customers
DRP	Designing The Right Product
AFD	Architecting For Devops
PVA	Practical Value Assurance In Devops
MTP	Monitoring and Testing in Production

SYLLABUS

In the following tables, the key aspects of the DASA DevOps Professional - Specify and Verify syllabus are described.

THINKING ABOUT QUALITY AND VALUE

This module introduces the concept of quality, and how to reason about it. It explains why quality is needed, what level is adequate, and how it relates to specification. Further, the module discusses the DevOps view and approach to Quality Assurance.

Syllabus Area Code TQV	Syllabus Area Title: Thinking About Quality and Value
Topic	Subtopics/Objectives
Quality and Value	• Relationship Between Quality and Value • Quality vs Reliability vs Trust vs Value • Specification and Verification in Context • Relation Between Quality and Specification
DevOps View on Quality Assurance	• The Three Ways of DevOps • First Way: DevOps is About Value Streams • Quality is Part of Value Stream • Second Way: DevOps is About Feedback Loops • Third Way: DevOps is About Experimentation
DevOps Approach to Quality Assurance	• Quality at the Source • Quality is Everyone's Concern • The DevOps Testing T • DevOps Approach to Specification • From Quality Assurance to Value Assurance • Value Streams and Cycle Time

DELIVERING VALUE

A DevOps team provides value when it can deliver a solution to a customer's need with acceptable use of resources. This module considers value from the perspective of the product as a whole as well as the product's context and discusses their implications.

Syllabus Area Code DV	Syllabus Area Title: Delivering Value
Topic	Subtopics/Objectives
The Product Lifecycle	• The Product Lifecycle • Product Development: From Concept to Grave • Evolution of a Product Vision • Understanding the Context of your Product • Enterprise Strategy Formulation • Categorize Investments by Horizon • Identify Opportunities for the Portfolio's Future State
Taking an Economic Perspective	• Forms of Business Value • The Kano Model • Investments to Reduce Technical Debt • Investments for Cultural Debt
Value Stream Mapping	• Lead Time • Steps of a Value Stream Analysis • Evaluate the Value Stream • DevOps Transformation Canvas

UNDERSTANDING YOUR CUSTOMERS

To achieve customer focus, the DevOps team needs to know who their customers are and grasp their needs. This module provides concepts, methods and techniques to identify and approach customers as well as understand what is valuable to them.

Syllabus Area Code UYC	Syllabus Area Title: Understanding Your Customers
Topic	Subtopics/Objectives
Customers and Stakeholders	• Customers, Users, and Stakeholders • Types of Stakeholders • Stakeholder Analysis • Stakeholder Mapping • Prioritize Stakeholders • Conflicting Goals Between Stakeholders
Identifying and Interacting with Customers	• It is Not Intuitive to find Your Ideal Customer • Identifying Customer Using Personas • Customer Journey • Communicating With Your Customer
Gathering Requirements from Stakeholders	• The Need Behind the Wish • Role of an Analyst • Requirements Elicitation • Elicitation Techniques

DESIGNING THE RIGHT PRODUCT

A DevOps teams' goal is to build the right product. This module explains and discusses how to focus on what the right product is and how to foster a common understanding of all its relevant aspects to all interested parties.

Syllabus Area Code DRP	Syllabus Area Title: Designing The Right Product
Topic	Subtopics/Objectives
The Right Product	• What is the Right Product? • Getting to the Right Product • Product Vision • The Role of the Product Owner • Embrace Change in Product Development
Structuring Requirements for a Product	• Structuring Requirements Hierarchically • User Story • Product Backlog and Storymap • Definition of Ready • Acceptance Criteria and Definition of Done
Lean User Experience	• Applying the Principles of Lean to Design • Three Principles of Lean UX • Lean Startup • Design Thinking • MVP for Customer Feedback

ARCHITECTING FOR DEVOPS

Qualities of a product are in large part determined by its architectural design. Architecture is also facilitating the DevOps teams' capability to deliver value. This module looks at architectural issues within the product itself as well as the fit with the architectural landscape which enables a DevOps teams' way of working.

Syllabus Area Code AFD	Syllabus Area Title: Architecting For Devops
Topic	Subtopics/Objectives
Introduction to Architecture	• Practical Architecure Work • DevOps' Demand on Architecture • Architecture and Testing • The Pasta Theory
Architecture and Teams	• Conway's Law • Ramifications of Conway's Law
Fundamental Considerations About	• Architecture • Systems Thinking • Theory of Constraints • Well-Designed Team Interactions • Finding the Decoupling Point • Making the Right Trade-Offs
Practical Architecture Work	• Verifying Software Architecture • Refactoring Architectures • Relationship Between Testing and Architecture • Humans as Part of the System • Documenting Architecture

PRACTICAL VALUE ASSURANCE IN DEVOPS

Once familiar with the concept of quality, this module introduces ways to practically quantify it through tests. It explains practical concepts and approaches such as test levels, how to create good test cases, and how to determine the quality and efficiency of testing. Concepts such as TDD and BDD are debated and the role of testing and testers in a DevOps organisation explored.

Syllabus Area Code PVA	Syllabus Area Title: Practical Value Assurance in DevOps
Topic	Subtopics/Objectives
Testing and Other VA Techniques	• Impact of Verification on the Development Process • Why Testing is Annoying • Creating Product Feedback Systems • The Testing Trade-off Triad • Creating Technical/Human Feedback Systems • Being Mindful of the Weaknesses of Feedback Systems • Working with Feedback • Feedback as Nonviolent Communication
How to Test Well	• Brian Marick's Testing Quadrant • Test Levels/Pyramid • Testing in Production • Automated Creation of Test Cases: Fuzzing • Code Reviews • Tests are Part of Your Product and Your Architecture • Testing Metrics • Approaching Value Assurance in Brownfield (Legacy) Projects

Syllabus Area Code PVA	Syllabus Area Title: Practical Value Assurance in DevOps
Topic	Subtopics/Objectives
Common Testing Practices and Approaches	• Test-Driven Development • BDD: Test-Driving Your Product • The Gherkin Syntax
Value Assurance in DevOps	• Quality and Value in the DevOps Context • Continuous VA: The DevOps Testing T • Role of the Tester
Testing in DevOps	• Testing in the Development Pipeline • Continuous Testing • CI/CD Pipeline I: Product/Platform • Manual Testing • Exploratory Testing • Testing Infrastructure and Processes

MONITORING AND TESTING IN PRODUCTION

While testing takes place before production, DevOps' strength lies in integrating feedback from production as well. It includes passively monitoring your system and actively devising and conducting experiments, even on customer-facing products.

Syllabus Area Code MTP	Syllabus Area Title: Monitoring and Testing in Production
Topic	Subtopics/Objectives
What is Monitoring	• Monitoring • Alerting • Health Checks • Center Monitoring on Business Value
Value Assurance in DevOps	• Value Assurance in Production • Demands on the CI Pipeline
Monitoring and Testing	• Relationship Between Monitoring and Testing • Advantages of Testing in Production • Risks of Testing in Production • Risk Mitigation Techniques
Postmortems	• Running a Postmortem • Learning from Incidents
DevOps Approach to Monitoring	• Monitoring in DevOps • Dashboards • Antifragility

Note: For the purpose of simplicity the term product is used interchangeably for software application, IT system, or IT service.

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www.devopsagileskills.org