Preparation Guide

Edition 202211

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Content

1. Overview

EXIN DevOps Foundation (DEVOPSF.EN)

Scope

The EXIN DevOps Foundation certification validates a candidate's knowledge on:

- DevOps basics
- DevOps principles
- DevOps key practices
- Practical applications of DevOps

Summary

The word DevOps is a contraction of 'Development' and 'Operations'. DevOps is a set of best practices that emphasizes the collaboration and communication of IT-professionals (developers, operators, and support staff) in the lifecycle of applications and services, leading to:

- continuous integration: merge developed working copies to a shared mainline several times a day
- continuous deployment: release continuously or as often as possible
- continuous feedback: seek feedback from stakeholders during all lifecycle stages

DevOps changes how individuals think about their work. DevOps values diversity, supports processes that accelerate the rate by which businesses realize value, and measures the effect of social and technical change. DevOps is a way of thinking and working that enables individuals and organizations to develop and maintain sustainable work practices.

The EXIN DevOps Foundation certification has been designed to give IT and business professionals basic knowledge and understanding of DevOps. This certification focuses on building basic knowledge, enabling a professional to work within a DevOps environment, and recognizing the benefits DevOps may bring to their organization. The certification is a stepping-stone to the EXIN DevOps Professional and EXIN DevOps Master™ certifications.

Context

The EXIN DevOps Foundation certification is part of the EXIN DevOps qualification program.

Target group

EXIN DevOps Foundation is ideal for IT and business professionals who want to understand DevOps and how their organization can benefit from its principles. This includes anyone who participates in a DevOps team, and anyone engaged in information and technology management.

Requirements for certification

- Successful completion of the EXIN DevOps Foundation exam.

Examination details

Examination type:	Multiple-choice questions
Number of questions:	40
Pass mark:	65% (26/40 questions)
Open book:	No
Notes:	No
Electronic equipment/aides permitted:	No
Exam duration:	60 minutes

The Rules and Regulations for EXIN's examinations apply to this exam.

Bloom level

The EXIN DevOps Foundation certification tests candidates at Bloom level 1 and 2 according to Bloom's revised taxonomy:

- Bloom level 1: Remembering – relies on recall of information. Candidates will need to absorb, remember, recognize and recall.
- Bloom level 2: Understanding – a step beyond remembering. Understanding shows that candidates comprehend what is presented and can evaluate how the learning material may be applied in their own environment. This type of questions aims to demonstrate that the candidate is able to organize, compare, interpret and choose the correct description of facts and ideas.

Training

Contact hours

The recommended number of contact hours for this training course is 14. This includes group assignments, exam preparation and short breaks. This number of hours does not include lunch breaks, homework and the exam.

Indication study effort

56 hours (2 ECTS), depending on existing knowledge.

Training organization

You can find a list of our Accredited Training Organizations at www.exin.com.

2. Exam requirements

The exam requirements are specified in the exam specifications. The following table lists the topics of the module (exam requirements) and the subtopics (exam specifications).

Exam requirements	Exam specifications	Weight
1. DevOps basics		**25%**
	1.1 DevOps origins	7.5%
	1.2 Definition of DevOps	7.5%
	1.3 Reasons for using DevOps	7.5%
	1.4 Misconceptions about DevOps	2.5%
2. DevOps principles		**27.5%**
	2.1 Value stream	10%
	2.2 Deployment pipeline	5%
	2.3 Version control	5%
	2.4 Configuration management	5%
	2.5 Definition of done (DoD)	2.5%
3. DevOps key practices		**27.5%**
	3.1 Difference with traditional practices	12.5%
	3.2 DevOps practices	15%
4. Practical applications of DevOps		**20%**
	4.1 Applicability	5%
	4.2 Limitations	5%
	4.3 Using commercial off-the-shelf software (COTS)	2.5%
	4.4 Evolving architecture and organizational models	2.5%
	4.5 Iterative progression	5%
	Total	**100%**

Exam specifications

1 DevOps basics

1.1 DevOps origins

The candidate can…

1.1.1 describe the historical developments from Waterfall to Scrum to Agile.

1.1.2 describe the developments in virtualization and cloud computing that enable DevOps.

1.1.3 explain how DevOps developed from a historical perspective.

1.2 Definition of DevOps

The candidate can…

1.2.1 outline how DevOps is an expansion of Lean and Agile thinking.

1.2.2 explain that DevOps requires value stream thinking.

1.2.3 clarify how DevOps can yield a greater return on IT than other practices.

1.3 Reasons for using DevOps

The candidate can…

1.3.1 identify decreasing time to market as a reason for using DevOps.

1.3.2 identify reducing technical debt as a reason for using DevOps.

1.3.3 identify eliminating fragility as a reason for using DevOps.

1.4 Misconceptions about DevOps

The candidate can…

1.4.1 clarify that DevOps is not a part of Agile.

1.4.2 clarify that DevOps is more than tools and automation.

1.4.3 clarify that DevOps is not a new profession.

2 DevOps principles

2.1 Value stream

The candidate can…

2.1.1 define the concept value stream.

2.1.2 explain the concept value stream map (VSM).

2.1.3 clarify how a value stream map (VSM) may help optimizing processes in the business.

2.1.4 explain why value stream thinking is the core of DevOps.

2.2 Deployment pipeline

The candidate can…

2.2.1 define the concept deployment pipeline.

2.2.2 identify the challenges when implementing a deployment pipeline.

2.3 Version control

The candidate can…

2.3.1 define the concept version control.

2.3.2 explain why version control is important.

2.4 Configuration management

The candidate can…

2.4.1 define the concept configuration management.

2.4.2 explain why configuration management is important for DevOps.

2.5 Definition of done (DoD)

The candidate can…

2.5.1 explain why a clear definition of done (DoD) is important for working with a DevOps mindset.

3 DevOps key practices

3.1 Difference with traditional practices

The candidate can…

- 3.1.1 clarify how DevOps facilitates more frequent releases.
- 3.1.2 clarify how DevOps focuses more on adding value to the business.
- 3.1.3 explain that DevOps requires automation.
- 3.1.4 clarify how DevOps deals with solving incidents and defects differently.
- 3.1.5 clarify how DevOps needs continuous improvement.

3.2 DevOps practices

The candidate can…

- 3.2.1 outline the importance of a diverse team.
- 3.2.2 outline the importance of visualizing work.
- 3.2.3 outline why work in progress (WIP) and batch sizes should be limited.
- 3.2.4 list how DevOps incorporates operational requirements into Development.
- 3.2.5 explain the importance of supporting innovation.
- 3.2.6 identify ways to deal with bottlenecks.

4 Practical applications of DevOps

4.1 Applicability

The candidate can…

- 4.1.1 characterize situations in which DevOps is feasible.
- 4.1.2 identify conditions that make adoption of DevOps interesting for the business.

4.2 Limitations

The candidate can…

- 4.2.1 identify a lack of readiness to adopt DevOps.
- 4.2.2 characterize monolithic IT infrastructure and architecture as a limitation for adopting DevOps.

4.3 Using commercial off-the-shelf software (COTS)

The candidate can…

- 4.3.1 clarify the risk of COTS in strategic business lines.
- 4.3.2 identify solutions for working with COTS when there is no other option.

4.4 Evolving architecture and organizational models

The candidate can…

- 4.4.1 identify the difficulties a rigid IT department poses on implementing DevOps.
- 4.4.2 characterize the need for a flexible mindset to change and innovation.

4.5 Iterative progression

The candidate can…

- 4.5.1 recall that DevOps may start small and can be built up from there.
- 4.5.2 recall that DevOps is a way of thinking, which may start anywhere in the organization.

3. List of basic concepts

This chapter contains the terms and abbreviations with which candidates should be familiar.

Please note that knowledge of these terms alone does not suffice for the exam. The candidate must understand the concepts and be able to provide examples.

affinity (in DevOps)
Agile infrastructure
automated testing
automation
blamelessness
build (management)
business value
change management
cloud computing
collaboration (in DevOps)
commit code
communication styles
compact
definition of done (DoD)
deployment pipeline
Development (team)
feedback
feedforward
flow
iteration
ji-kotei-kanketsu (JKK)
just in time (JIT)
lead time
Lean
loosely coupled architecture
microservices
minimum viable product
monolithic
negotiation styles
non-functional requirement
one-piece-flow
Operations (team)
organizational learning
(product) backlog
Product Owner
pull system
the Agile Manifesto
the Lean movement
tools
Toyota Production System (TPS)
value (stream)
value stream map (VSM)
waste (in Lean)
Waterfall
work in progress (WIP)
work-in-progress limit (WIP-limit)

4. Literature

Exam literature

The knowledge required for the exam is covered in the following literature:

A. Oleg Skrynnik
DevOps – a Business Perspective
Van Haren Publishing, 2018 (first edition)
ISBN: 9789401803724 (hardcopy)
ISBN: 9789401803731 (eBook)
ISBN: 9789401803748 (ePub)

Literature matrix

Exam requirements	Exam specifications	Reference
1. DevOps basics		
	1.1 DevOps origins	Chapter 1.1, 1.4
	1.2 Definition of DevOps	Chapter 1.2, 2.1, 3.1
	1.3 Reasons for using DevOps	Chapter 1.3
	1.4 Misconceptions about DevOps	Chapter 1.5
2. DevOps principles		
	2.1 Value stream	Chapter 2.1, 3.1, 3.6, 4.10, 5.7
	2.2 Deployment pipeline	Chapter 3.2
	2.3 Version control	Chapter 3.3
	2.4 Configuration management	Chapter 3.4
	2.5 Definition of done (DoD)	Chapter 3.5
3. DevOps key practices		
	3.1 Difference with traditional practices	Chapter 4.1
	3.2 DevOps practices	Chapter 4.2, 4.3, 4.4, 4.5, 4.6, 4.8, 4.9, 4.11
4. Practical applications of DevOps		
	4.1 Applicability	Chapter 5.1
	4.2 Limitations	Chapter 5.1
	4.3 Using commercial off-the-shelf software (COTS)	Chapter 5.2
	4.4 Evolving architecture and organizational models	Chapter 4.1, 5.3, 5.4
	4.5 Iterative progression	Chapter 5.6

Contact EXIN

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