



**Preparation Guide**

Edition 202401

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# 1. Overview

EXIN DevOps Professional (DEVOPSP.EN)

## Scope

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

- DevOps adoption
- the First Way: flow
- the Second Way: feedback
- the Third Way: continual learning and experimentation
- information security and change management

## Summary

DevOps is best known in the field of software services, but its principles are applicable in all contexts where fast delivery of reliable products and services is relevant. DevOps contributes to the success of the overall organization by facilitating the synergy of Agile development, service management and Lean improvement while assuring security and maintaining control in a continuous delivery pipeline.

The primary purpose of this module is to test whether the candidate is familiar with DevOps practices in the Three Ways: flow, feedback, and continual learning and experimentation. The candidate will understand the impact of these organizational and technical changes on their daily work.

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

- continuous integration: merging all 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

The DevOps practices covered in this certification are derived from the Three Ways:

- The First Way is to enable the work to move fast from left to right, from Development to Operations to the customer.
- The Second Way is to enable feedback to go fast from right to left, from all stakeholders back into the value stream.
- The Third Way is to enable learning by creating a high-trust culture of experimentation and risk-taking.

Moreover, the crucial subjects of security in all stages, and maintaining compliance during change are covered.

## Context

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



## Target group

The EXIN DevOps Professional certification is meant for anyone working within a DevOps environment or in an organization that considers the transition to a DevOps way of working.

The target group includes, but is not limited to:

- software and website developers
- system engineers
- DevOps engineers
- product and service owners
- project managers
- test engineers
- IT service management operating and support staff
- product owners or process managers
- Lean IT professionals
- Agile Scrum practitioners

## Requirements for certification

- Successful completion of the EXIN DevOps Professional exam.

Pre-knowledge of DevOps, for instance through the EXIN DevOps Foundation exam, is recommended.

## 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:	90 minutes

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

## Bloom level

The EXIN DevOps Professional certification tests candidates at Bloom Level 2 and 3 according to Bloom's Revised Taxonomy:

- 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.
- Bloom level 3: Application - shows that candidates have the ability to make use of information in a context different from the one in which it was learned. This type of questions aims to demonstrate that the candidate is able to solve problems in new situations by applying acquired knowledge, facts, techniques, and rules in a different, or new way. These questions usually contain a short scenario.

## 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

84 hours (3 ECTS), depending on existing knowledge.

### Training organization

You can find a list of our Accredited Training Organizations at [www.exin.com](http://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
<b>1. DevOps adoption</b>		<b>12.5%</b>
	1.1 Basic concepts of DevOps	2.5%
	1.2 Principles of the Three Ways	3.75%
	1.3 Organization	6.25%
<b>2. The First Way: flow</b>		<b>25%</b>
	2.1 Deployment pipeline	12.5%
	2.2 Automated testing	5%
	2.3 Continuous integration	5%
	2.4 Low-risk releases	2.5%
<b>3. The Second Way: feedback</b>		<b>30%</b>
	3.1 Telemetry	7.5%
	3.2 Feedback	10%
	3.3 Hypothesis-driven development and A/B-testing	5%
	3.4 Review and coordination	7.5%
<b>4. The Third Way: continual learning and experimentation</b>		<b>20%</b>
	4.1 Learning	10%
	4.2 Discoveries	10%
<b>5. Information security and change management</b>		<b>12.5%</b>
	5.1 Information security	7.5%
	5.2 Change management	5%
<b>Total</b>		<b>100%</b>

## Exam specifications

### 1 DevOps adoption

- 1.1 Basic concepts of DevOps  
The candidate can...
  - 1.1.1 describe basic DevOps concepts like continuous delivery, Agile infrastructure, kata, work-in-progress (WiP), technical debt, and lead time.
- 1.2 Principles of the Three Ways  
The candidate can...
  - 1.2.1 distinguish the principles of flow, feedback and continuous learning and experimentation.
  - 1.2.2 explain the difference between system of records (SoR) and system of engagement (SoE) in relationship to DevOps.
- 1.3 Organization  
The candidate can...
  - 1.3.1 explain how the several DevOps roles work together in order to add value to the business.
  - 1.3.2 explain the differences between I-shape, T-shape, and E-shape in relationship to DevOps.
  - 1.3.3 explain how to integrate Operations into the daily work of Development.

### 2 The First Way: flow

- 2.1 Deployment pipeline  
The candidate can...
  - 2.1.1 choose techniques, such as infrastructure as a code and containers, to solve a deployment pipeline problem.
  - 2.1.2 choose the best solution to optimize the value stream.
  - 2.1.3 assess a shared version control repository for completeness.
  - 2.1.4 adapt the definition of done (DoD) in order to reflect the DevOps principles.
  - 2.1.5 explain how tooling can be used to automate the building and configuration of the environment.
- 2.2 Automated testing  
The candidate can...
  - 2.2.1 explain the difference between a non-ideal testing pyramid and an ideal testing pyramid.
  - 2.2.2 select the intended use of test-driven development in a flow.
- 2.3 Continuous integration  
The candidate can...
  - 2.3.1 choose the optimal branching strategy.
  - 2.3.2 explain the influence of technical debt on the flow.
  - 2.3.3 explain how to eliminate technical debt.
- 2.4 Low-risk releases  
The candidate can...
  - 2.4.1 discriminate the several release and deployment patterns in order to enable low-risk releases.
  - 2.4.2 select the right architectural archetype to use.



### 3 The Second Way: feedback

- 3.1 Telemetry
  - The candidate can...
  - 3.1.1 describe how telemetry can contribute to optimizing the value stream.
  - 3.1.2 describe the monitoring framework components.
  - 3.1.3 explain the added value of self-service access to telemetry.
- 3.2 Feedback
  - The candidate can...
  - 3.2.1 solve deployment problems using fix-forward and roll-back techniques.
  - 3.2.2 change launching guidance requirements checklists to fit into a DevOps guidance.
  - 3.2.3 apply safety checks using the launch readiness review (LRR) and the hand-off readiness review (HRR).
  - 3.2.4 explain how user experience (UX) design can be used as feedback mechanism.
- 3.3 Hypothesis-driven development and A/B-testing
  - The candidate can...
  - 3.3.1 explain how A/B-testing can be integrated into a release and into feature testing.
  - 3.3.2 explain how hypothesis-driven development can aid the delivery of expected outcomes.
- 3.4 Review and coordination
  - The candidate can...
  - 3.4.1 examine the effectiveness of a pull-request process.
  - 3.4.2 explain the review techniques: pair programming, over-the-shoulder, e-mail pass-around and tool-assisted code review.
  - 3.4.3 choose the best review technique for a given situation.

### 4 The Third Way: continual learning and experimentation

- 4.1 Learning
  - The candidate can...
  - 4.1.1 differentiate between the several Simian Army monkey types to improve learning.
  - 4.1.2 conduct a blameless postmortem meeting.
  - 4.1.3 explain how injection of production failure creates resilience.
  - 4.1.4 explain when to use game days.
- 4.2 Discoveries
  - The candidate can...
  - 4.2.1 describe how to use (codified) non-functional requirements (NFRs) to design for Operations.
  - 4.2.2 explain how to build reusable operations user stories into development.
  - 4.2.3 explain which objects should be stored in the single shared source code repository.
  - 4.2.4 explain how to convert local discoveries into global improvements.

### 5 Information security and change management

- 5.1 Information security
  - The candidate can...
  - 5.1.1 explain how to integrate preventative security controls.
  - 5.1.2 explain how to integrate security in the deployment pipeline.
  - 5.1.3 explain how to use telemetry for enhancing security.
- 5.2 Change management
  - The candidate can...
  - 5.2.1 explain how to maintain security during change.
  - 5.2.2 explain how to maintain compliance during change.

### 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.

A/B-testing	kaizen blitz (or improvement blitz)
acceptance tests	kanban
Agile infrastructure	kata
andon cord	latent defects
anomaly detection techniques	launch readiness review (LRR)
antifragility	launching guidance
automated tests	lead time
bad-apple theory	learning culture
bad paths	logging levels
blameless postmortem	loosely coupled architecture
blue-green deployment pattern	mean time to release (MTTR)
branching strategy	microservices
brownfield	monitoring framework
business value	monolithic
canary release pattern	(non-)ideal testing pyramid
change categories	non-functional requirement (NFR)
change schedules	non-functional requirement (NFR) testing
cloud configuration files	Operations/Ops
cluster immune system release pattern	Ops liaison
code branch	organization archetypes
code review forms	organizational typology model
codified non-functional requirement (NFR)	over-the-shoulder
commit code	packages
compliance checking	pair programming
compliance officer	peer review
containers	Product Owner
continuous delivery	pull-request process
Conway's law	quality assurance (QA)
defect tracking	reduce batch size
definition of done (DoD)	reduce number of handoffs
Dev rituals	release branch
Development/Dev	release managers
downward spiral	release patterns
e-mail pass-around	sad path
feature toggles	safety conditions
feedback	security testing
feedforward	self-service capability
Gaussian distribution	shared goals
greenfield	shared operations team (SOT)
hand-off readiness review (HRR)	shared version control
happy path	single repository
information radiators	smoke testing
InfoSec	standard deviation
infrastructure as code	standard operations
integration tests	static analysis
I-shaped, T-shaped, E-shaped	swarming

system of engagement (SoE)  
system of records (SoR)  
technical debt  
technology adoption curve  
technology executives  
test-driven development  
the Agile manifesto  
the Lean movement  
the Simian Army:

- chaos gorilla
- chaos kong
- conformity monkey
- doctor monkey
- janitor monkey
- latency monkey
- security monkey

the Three Ways  
theory of constraints  
tool-assisted review  
Toyota kata  
transformation team  
trunk  
value stream  
value stream mapping  
virtualized environment  
visualization  
waste  
waste reduction  
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. Gene Kim, Jez Humble, Patrick Debois, John Wills  
**The DevOps Handbook 2<sup>nd</sup> ed.: How to Create World-Class Agility, Reliability, and Security in Technology Organizations**  
IT Revolution Press; 2<sup>nd</sup> edition (2021)  
ISBN: 9781950508402 (hard cover)  
ISBN: 9781950508433 (e-book)  
ISBN: 9781950508440 (audio)

### Additional literature

- B. Bart de Best  
**DevOps Best Practices**  
Leonon Media (2017)  
ISBN: 9789492618078
- C. Gene Kim, Kevin Behr, George Spafford  
**The Phoenix Project**  
IT Revolution Press (2013)  
ISBN: 9780988262577
- D. Garima Bajpai, Thomas Schuetz  
**Strategizing Continuous Delivery in the Cloud**  
Packt Publishing (2023)  
ISBN: 9781837637539
- E. Other sources:  
<http://newrelic.com/devops>  
<http://devops.com/>

### Comment

Additional literature is for reference and depth of knowledge only.

## Literature matrix

Exam requirements	Exam specifications	Literature
<b>1. DevOps adoption</b>		
	1.1 Basic concepts of DevOps	Preface, Introduction of Part I, Chapters 1 & 21
	1.2 Principles of the Three Ways	Chapters 2, 3, 4 & 5
	1.3 Organization	Chapters 6, 7 & 8
<b>2. The First Way: flow</b>		
	2.1 Deployment pipeline	Chapters 5, 6, 7, 8, 9 & 11
	2.2 Automated testing	Chapter 10
	2.3 Continuous integration	Chapters 11, 21 & 22
	2.4 Low-risk releases	Chapters 12 & 13
<b>3. The Second Way: feedback</b>		
	3.1 Telemetry	Chapters 14 & 15
	3.2 Feedback	Chapter 16
	3.3 Hypothesis-driven development and A/B-testing	Chapter 17
	3.4 Review and coordination	Chapter 18
<b>4. The Third Way: continual learning and experimentation</b>		
	4.1 Learning	Chapter 19 & Appendix 9
	4.2 Discoveries	Chapter 20
<b>5. Information security and change management</b>		
	5.1 Information security	Chapter 22
	5.2 Change management	Chapter 23



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