

# Study Guide

# **Progress® MarkLogic® Professional Certification**

Taking a Written Exam

**General Preparation** 

Developer Written Exam Guide

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**Example Written Exam Questions** 

Hands-On Exam Overview

## **Taking a Written Exam**

In this section we will cover important general information about what to expect during your testing appointment, including what will happen before the exam begins, during the exam, and after the exam is completed.

#### • Before the Exam

- 1. The exam proctor will direct you to a site where you will review the instructions for taking the exam.
- 2. The exam Proctor will then validate your contact information, identity, and testing environment through the use of your web cam and government issued photo ID.
- 3. Once your identity has been confirmed, the exam Proctor will provide you with an exam key which you must enter in order to begin. Exam keys are only valid for your specific testing event and will not be provided in advance. Without a valid exam key, the system will not enable you to take the exam.
- 4. The final step before starting the exam is to review and accept the Terms and Conditions of the Certification Program.

#### During the Exam

- 1. Each exam will consist of 50 questions. Certification upgrade exams between versions of MarkLogic software may be less than 50 questions.
- 2. Every exam will be different; however, the distribution of questions across categories and the weight of questions within categories will be the same for each exam attempt.
- 3. You will have 60 minutes to complete the exam, starting from the time you are presented the first question.
- 4. Each question may be skipped once. Skipped questions will then be presented back to you after all other questions have been answered.
- 5. Do not close the browser window until your exam is complete. If you accidentally close it, please contact the exam proctor and they can help you resume the exam, as long as there is time remaining.
- 6. The back button on your browser will not function during the exam. Instead you may skip questions once and answer them at the end.
- 7. The exam will automatically finish when you have either submitted answers for all the questions or time expires.

#### • After the Exam

- 8. Upon completion of the exam, your results will be saved in the system, displayed on your screen, and sent to the email address provided when you entered your contact information.
- 9. To pass the exam you must answer at least 37 out of 50 questions correctly.
- 10. You will be provided a breakdown of your score overall and by category. You will not be shown the exact questions that you answered correctly or incorrectly.
- 11. If successful in passing the exam, the next step is to enroll in a hands-on testing event.



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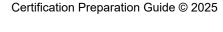
12. If unsuccessful in passing the exam, you may retry by enrolling in another written exam testing event.

## **General Preparation:**

To prepare for the MarkLogic Professional Certification program it is recommended that you have attended formal MarkLogic University training, performed your own research and self-study, and obtained real world professional experience using MarkLogic.

Resources that are available to you include:

- Free MarkLogic University Instructor led, self-paced and On Demand training:
  - o <a href="https://www.marklogic.com/learn/university/">https://www.marklogic.com/learn/university/</a>
- Learning Assessment tests:
  - o <a href="https://mlu.marklogic.com/assessments/">https://mlu.marklogic.com/assessments/</a>
- Developer Community resources, blogs and tutorials:
  - o <a href="http://developer.marklogic.com">http://developer.marklogic.com</a>
- Inside MarkLogic Server whitepaper:
  - o <a href="http://developer.marklogic.com/inside-marklogic">http://developer.marklogic.com/inside-marklogic</a>
- Performance: Understanding System Resources:
  - o <a href="http://developer.marklogic.com/learn/understanding-system-resources">http://developer.marklogic.com/learn/understanding-system-resources</a>
- Documentation:
  - o http://docs.marklogic.com



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# **Developer Written Exam Details**

In this section you will learn more about the MarkLogic Certified Developer written exam. You will learn about the category breakdown and some example topics within each category to help focus your studies.

Category	Key Topics
Architecture	General understanding of key MarkLogic architecture components including:
	o Databases
	o Forests
	o Application servers
	<ul> <li>Hosts (E node / D node concepts)</li> </ul>
	o Groups
	o Caches
	o Clusters
	• Merges
	Rebalancing
	Scalability
XPath & FLWOR	XPath expressions, predicates, and axes
(XQuery exam only)	FLWOR expression logic
	XQuery programming structure and syntax
Using the Node.js API	Database clients
(Node.js exam only)	Document Descriptors
	Callbacks, promises and streams
	Performing CRUD operations
Using the Java API	Database clients
(Java exam only)	Document Managers
	• Handles
	Performing CRUD operations
Indexing	Element and attribute range indexes
	String range indexes and collation

	Term List indexes
	Reverse index
	Tokenization and stemming concepts
	Working with data across multiple languages and its impact on indexes
	Reindexing
Search	Search relevancy, query weighting, document weighting
	Filtered versus Unfiltered search
	Using query constructors
	• Query tuning functions such as <b>plan()</b>
	Search across multiple languages
Template Driven	Creating and using templates
Extraction	
Optic API	Creating Optic plans
	• Selects
	• Joins
SQL	SQL configuration
	SQL queries in MarkLogic
Data Modeling	Using mlcp to ingest and transform documents
	Loading and managing data using the Client REST API
	Managing binary documents
	Using fields
	Data modeling choices and the impact on indexes and query resolution
	Denormalization
	The envelope pattern
Transactions	• MVCC
	Single statement transactions
	Multi statement transactions
	Distributed transactions
	Point in time queries versus queries that require locks

	Using server side functions like invoke(),eval(), and spawn()
Security	<ul> <li>Roles and users</li> <li>Application server security</li> <li>Permissions</li> <li>Privileges</li> <li>Managing security on code in a modules database</li> <li>Amps</li> <li>Redaction</li> <li>Element-level security</li> </ul>
Semantics	<ul> <li>Loading and managing RDF data with mlcp</li> <li>Data modeling of triples in MarkLogic</li> <li>SPARQL query language</li> <li>Named graphs and collections</li> <li>Using the sem functions</li> <li>Using the cts semantics functions</li> </ul>

# **Administrator Written Exam Details**

In this section you will learn more about the MarkLogic Certified Administrator written exam. You will learn about the category breakdown and some example topics within each category to help focus your studies.

Category	Key Topics
Installation and Configuration	System requirements
	Installation steps
	• Licensing
	Cluster deployment
	• Ports
	• Groups
	Admin Interface
	REST API
	• ml-gradle
	Documentation
Monitoring	Log Files
	Dashboards
	Management API
	• Meters
Databases	Creation techniques
	• Forests
	• Sizing
	• Storage
	• Ports
Roles and Users	Creating roles
	Role inheritance
	<ul> <li>Privileges</li> </ul>
	Creating users
Data Loading	Data modeling

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	APIs for loading
	URIs, directories, and collections
	Document permissions
	MIME types
	• CPF
Updates, Merges, and	Modifying documents
Transactions	Batch updates
	• CoRB
	Data Movement SDK
	Stands and merging
	Transactions
	• Locking
Search	• APIs
	• Stemming
	• Triples
	• SQL
	Optic API
Serving Data	App servers
	Modules
	• REST
	Data service
	Automating deployment
Indexes	Understanding uses
	Types of indexes
	Optional indexes
	Range indexes
	• Sizing
Security	Roles, users, and privileges
	Security database
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	<ul> <li>Encryption at Rest</li> </ul>
	• SSL for hosts
	Element-level security
	• Redaction
	Granular privileges
	<ul> <li>Auditing</li> </ul>
Resizing	Forest sizing
	Adding forests
	<ul> <li>Rebalancing</li> </ul>
	• Retiring forests
	Removing a host
Backups	• Location
	Doing a backup
	<ul> <li>Scheduling backups</li> </ul>
	<ul> <li>Incremental backups</li> </ul>
	• Restoring
	Point-in-time restore
High Availability	Forest replication
	<ul> <li>Failover hosts</li> </ul>
	Database replication
	Flexible replication
Tiered Storage	• Purpose
	Assignment policy
	• Range partitions
	Query partitions
Performance	Common factors
	• Unfiltered vs. filtered search
	• Cache hits and misses
	• Sorting

	MLCP -fastload
Upgrading	Single host
	Rolling upgrade
	Best practices
Support	• Contact
	Handbook
	Telemetry
	Dump file

## **Accessing Example Questions:**

To better understand the format and structure of questions on the written certification exam you should begin preparing by:

- 1. Taking and passing the Learning Assessments for the courses in your learning track:
  - a. <a href="https://mlu.marklogic.com/assessments/">https://mlu.marklogic.com/assessments/</a>

#### Hands-On Exam Overview

After successful completion of the written exam you will be eligible to take the hands-on exam.

The hands-on exam is deliverable-based. You will access a hosted virtual machine which will have all the necessary software, data, and instructions required to complete the hands-on exam. You will have up to 4 hours to complete the deliverables according to the requirements defined in the instructions.

The exam proctor will provide you details on how to access the virtual machine and the instructions during your hands-on testing session. All your deliverables will be saved to the virtual machine. MarkLogic representatives will evaluate your submissions and provide your results within two (2) weeks of completing the hands-on exam.

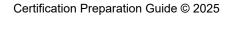
Deliverables for the developer exams include writing optimized, scalable code to:

- Perform data loads.
- Perform database transactions.
- Perform searches.
- Perform SPARQL queries.
- Perform Optic API queries.
- Perform query analysis and tuning.
- Implementing redaction rules.

Deliverables for the administrator exam includes:

- Creating a cluster
- Defining a database, forests, and REST API instance
- Creating roles and users
- Loading documents
- Defining indexes
- Deploying a data service
- Backing up a database
- Retiring and un-attaching forests

- Creating forest replicas
- Enabling telemetry
- Creating granular privileges



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