

# IBM Cloud Professional Certification Program

Study Guide Series

C1000-097: IBM Cloud Pak for Automation v20.0.1 Solution Architecture

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### **Purpose of Exam Objectives**

When an exam is developed, Subject Matter Experts work together to define the role the certified individual will fill. They define the tasks and knowledge that an individual would need to successfully perform this job role doe the product or solution. This creates the foundation for the objectives and measurement criteria, which form the basis of the certification exam. Question writers then use these objectives to develop exam questions.

It is recommended that you review these objectives and ask yourself the following questions:

- Do you know how to complete the task in the objective?
- Do you know why that task needs to be done?
- Do you know what will happen if you do it incorrectly?

If you are not familiar with a task, go through the objective, perform that task in your own environment and read more information on the task. If there is an objective on a task, there is a high likelihood that you WILL see a question about it on the actual exam. Review the recommended learning designed to prepare you to take the certification exam.

After reviewing the objectives in this guide and completing your own research, take the assessment exam. While the assessment exam does not indicate which specific questions were answered incorrectly, it does indicate overall performance by section. This is a good indicator of preparedness or if further preparation is warranted.

#### **High-level Exam Objectives**

Section 1 - Install, Upgrade, and Migrate		
1.1	Describe upgrade/migration process for the Cloud Pak for Automation platform	
1.2	Describe the Cloud Pak for Automation installation	
1.3	Describe how to view license usage metrics	
Section 2 - Cloud Pak for Automation Components Synergy		
2.1	Describe patterns of interaction between Content Analyzer and Content Manager	
2.2	Describe patterns of interaction between Datacap and Content Analyzer	
2.3	Describe the integration of Content Analyzer with Al service	
2.4	Plan the integration of Business Automation Workflow with other Cloud Pak for Automation components	
2.5	Define an approach to use Business Automation Workflow sequential processes with Case Solutions	
Section 3 - Cloud Pak for Automation Architecture		
3.1	Describe the OpenShift Container Platform Architecture	
3.2	Describe the functional aspects of Cloud Pak services and components for architecting a solution	
3.3	Explain the DBA Reference Architecture	
3.4	Explain UMS for security	
Section 4 - Architectural Decisions		
4.1	Identify the criteria for using Business Automation Workflow vs. Workstream Services	
4.2	Identify the criteria for using Content Analyzer vs. Datacap	
4.3	Identify the criteria for using Automation Digital Worker vs. a standard RPA platform	
Sect	Section 5 - Operational Intelligence	
5.1	Define approaches for using the BAI data lake for analytics purposes	
5.2	Describe BAI events and BAI event correlation	
5.3	Describe BAI Dashboard functionality	
5.4	Apply Machine Learning using BAI	

#### **Detailed Exam Objectives**

#### Section 1 - Install, Upgrade, and Migrate

### 1.1. Describe upgrade/migration process for the Cloud Pak for Automation platform. SUBTASK(S):

- 1.1.1. Upgrade 19.0.3 to 20.0.1
- 1.1.2. Migrate from 19.0.2 to 20.0.1 (GitHub Reference below)

#### REFERENCE (S):

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.upgrading/topics/con\_upgrading.html

https://github.com/icp4a/certkubernetes/blob/20.0.1/README.md

https://github.com/icp4a/cert-kubernetes/blob/20.0.1/platform/roks/upgrade.md

https://github.com/icp4a/cert-kubernetes/blob/20.0.1/platform/roks/migrate.md

https://github.com/icp4a/cert-kubernetes/blob/20.0.1/platform/ocp/upgrade.md

https://github.com/icp4a/cert-kubernetes/blob/20.0.1/platform/ocp/migrate.md

### 1.2. Describe the Cloud Pak for Automation installation. SUBTASK(S):

- 1.2.1. Articulate the pros and cons of client-managed v. cloud provider managed deployment.
- 1.2.2. Articulate the sizing steps for the installation.
- 1.2.3. Number of worker nodes
- 1.2.4. CPU size (number of cores)
- 1.2.5. Memory
- 1.2.6. Storage

#### REFERENCE(S):

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.overview/topics/con\_multicloud\_plan.html https://docs.openshift.com/container-platform/4.3/scalability\_and\_performance/recommended-install-practices.html

### 1.3. Describe how to view license usage metrics. REFERENCE(S):

1.3.1.

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.managing/k8s\_topics/tsk\_k8s\_metering.html

#### Section 2 – Cloud Pak for Automation Components Synergy

## 2.1. Describe patterns of interaction between Content Analyzer and Content Manager. SUBTASK(S):

- 2.1.1. Describe how Content Analyzer can be integrated with FileNet Content Manager.
- 2.1.2. Describe the benefits brought by integrating Content Analyzer with FileNet Content Manager.

#### REFERENCE (S):

https://www.ibm.com/support/knowledgecenter/SSUM7G/com.ibm.bacanalyzertoc.doc/int\_filenet\_integration.html

### 2.2. Describe patterns of interaction between Datacap and Content Analyzer. SUBTASK(S):

- 2.2.1. Describe how Datacap can leverage the services of Content Analyzer
- 2.2.2. Describe which type of functional enhancement Content Analyzer can provide to Datacap

#### **REFERENCE**(S):

https://www.ibm.com/support/knowledgecenter/SSUM7G/com.ibm.bacanalyzertoc.doc/int\_datacap\_integration.html

https://www.ibm.com/support/knowledgecenter/en/SSZRWV\_9.1.6/com.ibm.dc.reference.doc/dcacb456.htm

#### 2.3. Describe the integration of Content Analyzer with AI service SUBTASK(S):

2.3.1. Describe the additional features gained by integrating an AI service.

#### **REFERENCE(S):**

https://www.ibm.com/support/knowledgecenter/SSUM7G/com.ibm.bacanalyzertoc.doc/capabilities.html

## 2.4. Plan the integration of Business Automation Workflow with other Cloud Pak for Automation components.

#### SUBTASK(S):

- 2.4.1. Describe how to invoke an Operational Decision Manager decision from a case solution.
- 2.4.2. Describe how to invoke an Operational Decision Manager decision from a Business Automation Workflow process application.
- 2.4.3. Describe how to configure Business Automation Workflow to use an external ECM system.
- 2.4.4. Describe RPA integration with Business Automation Workflow.

2.4.5. Describe Digital Worker integration with Business Automation Workflow.

#### REFERENCE(S):

https://www.ibm.com/support/knowledgecenter/SS8JB4/com.ibm.wbpm.imuc.doc/topics/acmcp043.html

https://www.ibm.com/support/knowledgecenter/SS8JB4/com.ibm.wbpm.wle.editor.doc/topics/textsrvovr.html

https://www.ibm.com/support/knowledgecenter/SS8JB4/com.ibm.wbpm.imuc.doc/topics/t\_bpmexistecm.html

https://www.ibm.com/support/knowledgecenter/SS8JB4/com.ibm.wbpm.wle.editor.doc/topics/robot\_tasks\_creating\_copy.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.adw/topics/con\_task\_exe\_workflow.html

### 2.5. Define an approach to use Business Automation Workflow sequential processes with Case Solutions.

#### SUBTASK(S):

- 2.5.1. Describe the difference between Case Management and sequential processes.
- 2.5.2. Describe the features allowing integration between cases and business processes.
- 2.5.3. Design interactions between cases and business processes.

#### REFERENCE(S):

https://www.ibm.com/support/knowledgecenter/en/SS8JB4/com.ibm.wbpm.workflow.ma in.doc/topics/cld\_integratedcaseprocessenv.html

https://www.ibm.com/support/knowledgecenter/SS8JB4/com.ibm.wbpm.workflow.main.doc/topics/cld\_casesolutions.html

https://www.ibm.com/support/knowledgecenter/SS8JB4/com.ibm.wbpm.workflow.main.doc/topics/rcase\_interactproc.html

#### Section 3 – Cloud Pak for Automation Architecture

### 3.1. Describe the OpenShift Container Platform Architecture. SUBTASK(S):

- 3.1.1. Describe components of OpenShift.
- 3.1.2. Describe master components.
- 3.1.3. Describe node components.
- 3.1.4. Describe the container registry.
- 3.1.5. Describe Web Console.
- 3.1.6. Explain OpenShift Core Concepts.
- 3.1.7. Explain Containers and Images.

- 3.1.8. Explain Pods and Services.
- 3.1.9. Explain Projects.
- 3.1.10. Explain Deployments.
- 3.1.11. Explain Persistent Storage.
- 3.1.12. Explain Networking in OpenShift.
- 3.1.13. Explain Service Catalog Components.
- 3.1.14. Explain Operators.
- 3.1.15. Explain the Operator Hub.

#### REFERENCE (S):

https://docs.openshift.com/container-platform/4.3/welcome/index.html https://docs.openshift.com/container-platform/3.11/welcome/index.html https://kubernetes.io/docs/concepts/

### 3.2. Describe the functional aspects of Cloud Pak services and components for architecting a solution.

#### SUBTASK(S):

- 3.2.1. Business Automation Workflow
- 3.2.2. FileNet Content Manager
- 3.2.3. Enterprise Records
- 3.2.4. Content Collector
- 3.2.5. Operational Decision Manager
- 3.2.6. Content Analyzer
- 3.2.7. DataCap
- 3.2.8. Automation Digital Worker
- 3.2.9. Automation Workstream Services
- 3.2.10. Business Automation Insights
- 3.2.11. Business Automation Studio
- 3.2.12. Business Automation Application Designer
- 3.2.13. Business Automation Navigator
- 3.2.14. Describe basic dependencies between components.
- 3.2.15. Describe the common services in Cloud Pak
  - 3.2.15.1. Describe the service used to view detailed usage metrics
  - 3.2.15.2. Describe the service used to monitor status of applications and cluster

#### REFERENCE(S):

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/welcome/kc\_welcome\_dba\_distrib.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.baw.cam/topics/con\_baw\_cam.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.offerings/topics/con\_Operational Decision Manager\_prod.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.offerings/topics/con\_cm.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.offerings/topics/con\_baca.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.adw/topics/con\_adw\_intro.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.workstrea m/topics/con\_rwf\_intro.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_overview.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.commonservices/metering/3.4.0/metering\_service.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.commonservices/monitoring/1.7.0/monitoring\_service.html

https://www.ibm.com/support/knowledgecenter/SSZRWV\_9.1.7/com.ibm.dc.install.doc/dcpov021.htm

https://www.ibm.com/support/knowledgecenter/SSMGNY\_19.0.x/com.ibm.wbpm.rpa.ma in.doc/kc-homepage-rpav19.html

https://www.ibm.com/support/knowledgecenter/SSAE9L\_4.0.1/com.ibm.content.collector.doc/overview/c\_afu\_overview.htm

https://www.ibm.com/support/knowledgecenter/SSRW2R\_4.0.0/contentcollectorforsap\_welcome\_4.0.0.html

https://www.ibm.com/support/knowledgecenter/SSNVVQ\_5.2.1/com.ibm.ier.ovw.doc/fr\_movw02.htm

#### 3.3. Explain the DBA Reference Architecture. SUBTASK(S):

- 3.3.1. Explain Workflow architecture.
- 3.3.2. Explain Content management architecture.
- 3.3.3. Explain business decision automation architecture.
- 3.3.4. Explain Robotic process automation architecture.
- 3.3.5. Explain Capture architecture.
- 3.3.6. Explain operational intelligence architecture.

#### REFERENCE (S):

https://www.ibm.com/cloud/architecture/architectures/dba-architecture/overview https://www.ibm.com/cloud/architecture/architectures/dbaarchitecture/constituentarchitectures

#### 3.4. Explain UMS for security.

#### SUBTASK(S):

- 3.4.1. Explain how Single Sign-On is supported with UMS.
- 3.4.2. Explain the authentication flow in UMS.
- 3.4.3. Explain delegating authentication to an identity provider.
- 3.4.4. Explain advantages of using UMS Teams vs company-wide user registry.
- 3.4.5. Explain syncing of UMS Teams across different environments.

#### REFERENCE (S):

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.offerings/topics/con\_ums.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.offerings/topics/con\_ums\_sso.html

#### Section 4 - Architectural Decisions

### 4.1. Identify the criteria for using Business Automation Workflow vs. Workstream Services. SUBTASK(S):

- 4.1.1. Describe capability differences between Business Automation Workflow and Workstream Services
- 4.1.2. Describe the out-of-the-box Workstream Services
- 4.1.3. Describe the types of processes that can be automated with Business Automation Workflow
- 4.1.4. Describe different styles of sequencing and delegating work with Business Automation Workflow
- 4.1.5. Describe the built-in governance of Workstream Services
- 4.1.6. Describe the governance process of Business Automation Workflow deployments
- 4.1.7. Identify appropriate business use cases for Business Automation Workflow
- 4.1.8. Identify appropriate business use cases for Workstream Services

#### 4.2. Identify the criteria for using Content Analyzer vs. Datacap. SUBTASK(S):

- 4.2.1. Describe functional capabilities of Content Analyzer.
- 4.2.2. Describe functional capabilities of Datacap.
- 4.2.3. Describe DataCap software components.
- 4.2.4. Identify appropriate use cases for using Content Analyzer.
- 4.2.5. Identify appropriate use cases for using Datacap.

### 4.3. Identify the criteria for using Automation Digital Worker vs. a standard RPA platform.

#### SUBTASK(S):

- 4.3.1. Describe the general functional requirements for an RPA solution
- 4.3.2. Describe the main concepts represented in Automation Digital Worker
- 4.3.3. Identify jobs and activities that can benefit from automation
- 4.3.4. Identify tasks that can be performed by an RPA robot

#### REFERENCE (S):

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_19.0.x/com.ibm.dba.offerings/topics/con\_offerings.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_19.0.x/com.ibm.dba.offerings/topics/con\_entitlements.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_19.0.x/com.ibm.dba.overview/topics/con\_how\_to\_optimize.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_19.0.x/com.ibm.dba.workstrea m/topics/con\_rwf\_overview.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_19.0.x/com.ibm.dba.workstrea m/topics/con\_rwf\_wstreams.html

https://www.ibm.com/support/knowledgecenter/SS8JB4/com.ibm.wbpm.workflow.main.doc/topics/overview.html

https://www.ibm.com/support/knowledgecenter/SS8JB4/com.ibm.wbpm.admin.doc/topics/replacing\_updating\_gov\_app.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_19.0.x/com.ibm.dba.workstrea m/topics/con\_rwf\_overview.html

https://www.ibm.com/support/knowledgecenter/SSUM7G/com.ibm.bacanalyzertoc.doc/capabilities.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_19.0.x/com.ibm.dba.offerings/topics/con\_baca.html

https://www.ibm.com/support/knowledgecenter/SSZRWV\_9.1.7/com.ibm.dc.install.doc/dcpov021.htm

https://www.ibm.com/support/knowledgecenter/SSZRWV\_9.1.7/com.ibm.dc.install.doc/dcpov005.htm

https://www.ibm.com/cloud/architecture/architectures/roboticProcessAutomationDomain/reference-architecture

https://www.ibm.com/cloud/architecture/architectures/roboticProcessAutomationDomain https://www.ibm.com/support/knowledgecenter/SSYHZ8\_19.0.x/com.ibm.dba.adw/topics/con\_ov\_basics.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8 19.0.x/com.ibm.dba.adw/topic s/con\_dw\_plan.html

#### Section 5 - Operational Intelligence

#### 5.1. Define approaches for using the BAI data lake for analytics purposes.

#### SUBTASK(S):

- 5.1.1. Explain overall BAI architecture, components, and concepts.
- 5.1.2. Explain BAI Architecture and design for a (single node) server
- 5.1.3. Describe high availability and fault tolerance in BAI
- 5.1.4. Explain BAI security
- 5.1.5. Describe differences between the available topologies on BAI e.g., Kubernetes or (single node) server.

#### REFERENCE (S):

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_overview.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_sn\_overview.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_top\_fault\_tolerance.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/tsk\_bai\_top\_securing\_comm\_and\_data.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_intro.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_sn\_overview.html

#### 5.2. Describe BAI events and BAI event correlation. SUBTASK(S):

- 5.2.1. Explain Event Processing for capturing data
- 5.2.2. Explain how BAI correlates messages from CP4A components

#### REFERENCE (S):

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_overview.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/ref\_bai\_top\_ref.html

https://www.ibm.com/support/knowledgecenter/en/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_events\_workcontext\_correlation.html

#### 5.3. Describe BAI Dashboard functionality. SUBTASK(S):

5.3.1. Describe Out-of-Box BAI Dashboard functionality

- 5.3.2. Demonstrate understanding of Elasticsearch configurations, to implement strategy for purging, backing up, and restoring data.
- 5.3.3. Demonstrate understanding of predefined patterns (e.g. time series, process summaries, case summaries) and searches in BAI.

#### REFERENCE (S):

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_dashboards.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/ref\_bai\_es\_alias\_indexes.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_dashboards.html

## 5.4. Apply Machine Learning using BAI. SUBTASK(S):

- 5.4.1. Describe at a high-level the patterns of using analytics and machine learning on BAI event data, for example, next best action.
- 5.4.2. Describe the purpose of an HDFS data lake in BAI.

#### **REFERENCE**(S):

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_mch\_learning.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8\_20.0.x/com.ibm.dba.bai/topics/con\_bai\_top\_data\_lake.html

#### **Next Steps**

- 1. Take IBM Cloud Pak for Automation v20.0.1 Solution Architecture assessment test for this exam.
- 2. If you pass the assessment exam, visit pearsonvue.com/ibm to schedule your testing sessions.
- 3. If you failed the assessment exam, review how you did by section. Focus attention on the sections where you need improvement. Keep in mind that you can take the assessment exam as many times as you would like (\$30 per exam); however, you will still receive the same questions only in a different order.