



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 being developed, the Subject Matter Experts work together to define the role the certified individual will fill. They define all the tasks and knowledge that an individual would need to have in order to successfully implement the product. This creates the foundation for the objectives and measurement criteria, which are the basis for the certification exam.

The Cloud Software Certification item writers used these objectives to develop the questions they wrote, and which will appear on the exam.

It is recommended that you review these objectives. 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, then go through the objective and perform that task in your own environment. Read more information on the task. If there is an objective on a task there is about a 95% chance that you WILL see a question about it on the actual exam.

After you have reviewed the objectives and completed your own research, then take the assessment exam. While the assessment exam will not indicate which question you answered incorrectly, it will tell you how you did by section. This will give you a good indication as to whether you are ready to take the actual exam or if you need to further review the materials.

Note: This is the high-level list of objectives. As you review these objectives, click for a more detailed level of how to perform the task.

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 AI 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
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/cert-kubernetes/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/nt_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/nt_datacap_integration.html
https://www.ibm.com/support/knowledgecenter/en/SSZRWW_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.main.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.workstream/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/SSZR WV_9.1.7/com.ibm.dc.install.doc/dcpov021.htm
https://www.ibm.com/support/knowledgecenter/SSMGNY_19.0.x/com.ibm.wbpm.rpa.main.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/contentcollectorforsapwelcome_4.0.0.html
https://www.ibm.com/support/knowledgecenter/SSNVVQ_5.2.1/com.ibm.ier.ovw.doc/frmovw02.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/dba-architecture/constituent-architectures>

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.workstream/topics/con_rwf_overview.html

https://www.ibm.com/support/knowledgecenter/SSYHZ8_19.0.x/com.ibm.dba.workstream/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.workstream/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/SSZR WV_9.1.7/com.ibm.dc.install.doc/dcpov021.htm
https://www.ibm.com/support/knowledgecenter/SSZR WV_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/topics/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 the 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.