EXAM BLUEPRINT GUIDE

Nutanix Certified Professional Database Automation (NCP-DB) 7.5 Beta Exam

Table of Contents

Author
Jeff Hall, Manager, Technical Certification Development

Contributors
Ashish Sharma, Service Provider Solution Architect

Boris Kalavsky, Sr. Staff Consultant

Daljit Singh, Staff Database Engineer

Jérémie Moreau, Staff Consulting Architect

Jeremy Launier, Sr. Principal PM II

Lev Goronshtein, Advisory Systems Engineer

Magnus Andersson, Principal Solutions Architect

Mike Matthews, Advisory Solution Architect

Rajneesh Mishra, Sr. Database Consultant

Robbi Richmond, Advisory Solution Specialist

Sunny Kichloo, Consulting Architect

Varun Verma, Staff Solutions Architect

Venu Vuppalapati, Principal Practice Lead

1. The Exam

1.1 Purpose of Exam

The Nutanix Certified Professional - Database Automation (NCP-DB) 7.5 exam will measure a candidate's ability to deploy, administer, optimize, and troubleshoot database workloads using Nutanix Database Service (NDB).

1.2 Number of Questions

The NCP-DB 7.5 beta exam consists of 95 multiple-choice and multiple-response questions.

1.3 Pricing

There is no cost for the NCP-DB 7.5 beta exam.

1.4 Passing Score

The final score will be determined by examining the results from the beta exam period, determining which exam items performed well, and evaluating each candidate's results, based on only the items that performed well.

This process can take from 4-6 weeks from the time the beta period has ended. Once the evaluation is complete, candidates will receive their scores. Candidates who have passed will not need to take the live exam.

1.5 How Objectives Relate to Questions on the Exam

Objectives summarize what the test is designed to measure. Objectives are developed by Exam Developers and Subject Matter Experts based on identified tasks that relate to the job of deploying and administering a Nutanix multicloud platform environment.

Once the initial development process is complete, these objectives are verified using an external group of individuals in the actual job role. Finally, a number of questions is determined for each objective, which relates directly to the criticality of the task in the job role.

1.6 Languages

The beta exam is available in English.

1.7 Time Limit

The time limit for the exam is 180 minutes.

1.8 Scheduling and Taking the Exam

The NCP-DB 7.5 exam is delivered via remote proctoring or in-person at select test centers.

If you select remote proctoring, after registering for the exam and providing valid identification, you will receive information on how to take the exam from your location using a web browser. Because the exam is remote proctored, you will be provided with a locked down, monitored, secure exam experience.

If you select in-person testing, you will be able to select a test center near you. On the day of the exam, you will need to arrive at the test center 15 minutes prior to the exam start time with a valid government-issued ID.

1.9 Certification Tracks

The NCP-DB 7.5 beta exam is a core component of the Nutanix Database Automation track. Passing this exam results in achieving the NCP-DB 7 certification.

The certification requires a passing score on the exam. While it is not required that you attend a course, Nutanix provides training that covers the objectives on the exam. Details on the recommended training course are provided in Section 4.

1.10 Retake Policy

If a candidate fails an exam on the first attempt, he or she is allowed two additional attempts. There is a seven-day waiting period between attempts. Like the first attempt, these are paid for individually and Nutanix recommends that you allow sufficient time between attempts to be properly prepared and to maximize your chances for success.

Please note: After three attempts, you will be unable to take the exam for 60 days, after which you can email university@nutanix.com and request that your attempts are reset. Nutanix recommends you utilize the time to thoroughly review this guide and the related references and/or take the recommended training for this exam.

1.11 Exam Security

Nutanix reserves the right to refuse certifying a candidate who violates exam security policies. This includes copying and redistribution of exam material, using any type of study material during the exam itself, attempting to photograph exam items and taking an exam using a false identity. Your identity is captured as part of the exam registration process and must be validated before you will be allowed to take the exam.

1.12 Recertification

Once you have passed the Nutanix Certified Professional – Database Automation 7.5 exam and achieved the NCP-DB 7 certification, it will remain valid for three years.

To maintain your certification status, you must either renew your existing certification, pass an equivalent NCP-level exam within another certification track, or pass the NCM-MCI exam.

1.13 Benefits of Certification

- Digital badge from Credly that you can share on social media
- Access to the Certification store at http://store.nutanix.com for shirts, mugs, and more
- Opportunity to participate as a SME to develop future exams
- Discount on attending Nutanix .NEXT

2. Intended Audience

A candidate for the NCP-DB 7.5 exam and NCP-DB 7 certification has approximately 1-2 years of database experience with at least 6 months of NDB experience on the Nutanix Platform (on-prem and public cloud).

Successful candidates are typically database administrators or developers, automation engineers, Nutanix channel partner personnel that perform NDB-related functions, or Nutanix OEM vendors who manage databases on the Nutanix Platform (on-prem and within the public cloud).

Successful candidates should be able to successfully provision, patch, protect, and clone databases. Additionally, the candidate should be able to deploy and configure NDB, register databases and database server VMs, recover databases, and create new NDB profiles.

Finally, the successful candidate will most likely have taken training courses, such as the Nutanix Database Management & Automation (NDMA) course.

3. Objectives Covered in the NCP-DB 7.5 Beta Exam

3.1 Introduction

It is recommended that candidates have the knowledge and skills necessary to provision, patch, protect, and clone databases; deploy and configure NDB; register databases and database server VMs; recover databases; and create new NDB profiles before attempting the Nutanix Certified Professional – Database Automation 7.5 beta exam. It is also recommended that the candidate complete the training course described in Section 4 prior to taking the exam.

For the NCP-DB 7 certification, candidates will be tested on the following software versions:

- Nutanix Database Service (NDB): 2.10
- Prism Central: version pc.7.5

3.2 Objectives

Prior to taking this exam, candidates should understand each of the following objectives. Each objective is listed below; along with related tools the candidate should have experience with, and related documentation that contains information relevant to the objective. Please note that some documentation requires access via the Support Portal. Information on creating an account for use with the Support Portal can be found here.

All objectives may also be referenced in other product documentation not specifically highlighted below. The candidate should be familiar with all relevant product documentation or have the equivalent skills.

Section 1 – Deploy and Configure an NDB Solution

Objective 1.1: Deploy an NDB VM

Knowledge

- Download, import, create, and run the installation wizard
- Determine and configure network settings
- Determine when and how to assign a static IP address to the NDB VM by using the console

References

- Welcome to NDB Wizard
- NDB Network Requirements
- Installing NDB on AHV

- Deploying NDB on Flow Virtual Private Cloud Subnets
- Assigning a static IP address to the NDB VM by using the console

Objective 1.2: Configure an NDB instance

Knowledge

- Logging on to NDB
- Perform Basic Configuration
    - Change the Language Settings
    - Configure an SSL Certificate
    - Change NTP/DNS from NDB Server CLI
    - Configure SMTP

References

- Logging on to NDB
- Change the language settings
- Configure an SSL certificate
- Configure NTP Servers
- Configure DNS Servers
- Sending Alert Notifications to an email recipient

Objective 1.3: Deploy and configure NDB High Availability

Knowledge

- Deploy NDB High Availability
- Configure High Availability
- Discuss service resiliency
- Enable multi-cluster

References

- NDB Service Management
- Enabling High Availability for NDB
- NDB Service Resiliency

- Enabling NDB Multi-Cluster

Section 2 – Monitor Alerts and Storage Usage within an NDB Implementation

Objective 2.1: Manage Alerts

Knowledge

- Monitor alerts
- Resolve alerts
- Manage alert policies
- Configure alert retention

References

- Monitor alerts using the Alerts Dashboard
- Resolving alerts
- Disabling or Enabling Alert Policies
- Setting Alert retention

Objective 2.2: Monitor and manage storage usage

Knowledge

- Identify database source and clone size
- Monitor database storage efficiency
- Monitor the number and size of snapshots
- Scale or extend storage for a database
- Leverage Time Machine dashboard for storage utilization monitoring

References

- NDB Dashboard
- Clone Management
- Snapshot Management
- Snapshot Retention and Promotion
- Scaling a SQL Server Database

- Scaling an Oracle Database
- Time Machine Behavior and Functionality

Section 3 – Operate and Maintain an NDB Environment

Objective 3.1: Register database server VMs and databases

Knowledge

- Verify prerequisites
    - Download scripts to verify Windows or Linux VMs
    - Reference Nutanix release notes to validate supportability
- Provide OS and database instance credentials
- Select Nutanix cluster for registration
- Discover the database instance
- Select one or more database(s)
- Provide credentials to connect to the database
- Manage logs with NDB vs third-party backup

References

- NDB prerequisites
- Running the Prerequisites Script (Linux)
- MongoDB database registration prerequisites
- Registering a Nutanix Cluster with NDB
- Registering a database server cluster
- Registering databases that use Nutanix Objects
- Database registration
- Database Log Management

Objective 3.2: Provision databases

Knowledge

- Select database engine
- Select single instance or HA instance

- Select Nutanix cluster(s) for provisioning
- Select profiles
- Provide name and size of database

References

- Getting Started with Provisioning Databases
- Provisioning a SQL Server vSingle Node Database Server VM
- Provisioning a SQL Server Database as a Group
- Provisioning a MySQL HA Instance
- PostgreSQL Database Provisioning
- MongoDB Database Provisioning
- Oracle Database Provisioning
- Oracle PDBs and CDBs
- Configuring Custom Drive Letters for SQL Server Databases

Objective 3.3: Patch NDB-managed entities

Knowledge

- Determine when and how to create and associate maintenance window
- Perform patching
- Create software profile versions
    - Image based
    - Incremental package
- Publish software profile versions
- Test patches according to vendor-specific processes
- Apply patches
    - Immediately
    - Scheduled
    - Maintenance Windows

References

- Maintenance Window
- Operating System Patching
- MongoDB Server VM Operating System Patching
- Creating a Software Profile Version
- NDB Entity Sharing
- Patching an Oracle Database Server VM
- One-Click Patching
- MongoDB Server Cluster Patching

Objective 3.4: Troubleshoot NDB operations

Knowledge

- Analyze alerts
- Review and interpret operation logs
- Generate diagnostics bundle

References

- NDB Alert Management
- NDB Operation Logs
- Downloading the Diagnostics Bundle using the NDB UI
- Downloading the Diagnostics Bundle using the NDB CLI
- Shutting Down NDB
- Troubleshooting DB Server VM provisioning failure

Objective 3.5: Clone databases

Knowledge

- Determine business requirements for clones
- Create Clones
    - Authorize existing VMs
    - Configure pre and post create scripts

    - Determine target VM for clone
    - Create from manual snapshot or point-in-time
    - Clone from a remote cluster
- Refresh Clones
    - Manage refresh schedule
    - Execute manual refresh

References

- Refreshing Database Clones (Manual)
- Creating Database Clones
- Creating Single Node Database Clones
- Creating Database Group Clones
- Updating a Database Clone
- Removing a Database Clone (Manual)

Objective 3.6: Restore source databases

Knowledge

- Restore from a snapshot
- Restore to a point in time
- Restore from a remote cluster

References

- NDB High Availability
- Oracle Database Disaster Recovery
- Restoring an Oracle Database
- Restoring an SQL Server Database
- Restoring a PostgreSQL Instance

Objective 3.7: Manage Time Machine

Knowledge

- Determine Time Machine requirements
    - Determine number of snapshots
    - Determine schedule retention policies
    - Determine storage requirements based on policy
- Create custom SLAs
- Manage Data Access Management (DAM) policy
    - Create Data Access Management policy
    - Replicate snapshots and logs to remote clusters
- Protect databases
    - Apply SLA to databases
    - Create manual snapshot

References

- Nutanix Database Service Time Machine
- Time Machine Behavior and Functionality
- Enabling Time Machine
- SLA Management
- Data Access Management (DAM)
- Configuring a Data Access Management Policy for a Time Machine
- Creating Snapshots (Manual)

Section 4 – Administer an NDB Environment

Objective 4.1: Manage NDB profiles

Knowledge

- Create Profiles
    - Software
    - Compute
    - Network
    - Database parameters

    - Windows domain
- Manage profile status
- Identify OOB software profiles
- Replicate software profile to a remote cluster

References

- Creating a Software Profile
- Creating a Compute Profile
- Creating a Network Profile
- Creating a Database Parameter Profile
- Creating a Windows Domain Profile
- Replicating a Software Profile

Objective 4.2: Perform NDB software upgrades

Knowledge

- Perform upgrade of NDB
- Perform a manual upgrade of NDB

References

- NDB Upgrade Requirements
- Upgrading NDB (One-Click Upgrade)
- Upgrading NDB (Offline Upgrade)

Objective 4.3: Add Nutanix clusters to NDB

Knowledge

- Verify prerequisites
- Register cluster
- Configure storage containers

References

- NDB Prerequisites
- Enabling NDB Multi-Cluster
- Registering a Nutanix Cluster with NDB

Objective 4.4: Manage networks in NDB

Knowledge

- Determine when to use an NDB-managed network
- Create an NDB-managed network
- Add a VLAN

References

- NDB Network Requirements
- Network Placement
- NDB with Flow Virtual Networking
- Adding a VLAN to NDB
- Adding a Stretched VLAN to NDB

Objective 4.5: Manage access controls

Knowledge

- Integrate with Active Directory
- Manage permissions and roles
    - Create custom roles
    - Map users and groups
    - Create users and groups
    - Share entities

References

- Configuring Active Directory Access
- Role-based Access Control

- Privileges and Permissions
- Adding a User
- Viewing Users' Roles
- Adding, Updating, and Removing a Group
- NDB Entity Sharing

Objective 4.6: Use NDB APIs and end clients

Knowledge

- Select appropriate tools
- Use API equivalent button
- Use CLI
- Use API

References

- NDB API Specification
- Using the API Equivalent button
- NDB GUI and CLI

4. NCP-DB 7.5 Training Recommendations

4.1 Course Recommendations

Nutanix offers training on the objectives tested for in the exam. More information on these courses, including delivery methods and pricing, can be found at nutanix.com/training.

The course details are here, as follows:

The Nutanix® Database Management & Administration (NDMA) course teaches the skills needed to install, configure, operate, and manage Nutanix Database Service (NDB).

The NDBA course explores a number of subjects, including:

- The what, how, why, and benefits of database-as-a-service (DBaaS).
- Important NDB terms and concepts, like copy data management, time machine, provisioning profiles and data access management.
- Implementing role-based access control (RBAC), including working with built-in and custom roles, and managing users and groups.
- Adding multiple clusters to NDB, working with Nutanix Guest Tools, and registering a Nutanix cluster with NDB.
- Monitoring and investigating issues with NDB, using alert policies, notifications, and collecting logs.
- Operations involved in protecting and restoring databases, including creating snapshots, cloning databases, log catch-up operations, refreshing clones, and restoring source databases.

This course is available online or instructor-led. More information including schedules and how to register can be found at www.nutanix.com/university.

5. Resources

5.1 Nutanix Community Edition

The Nutanix Community Edition is a free product that allows you to deploy a Nutanix Cloud Platform. To download the software and build your own environment for exam preparation, click here.

5.2 Test Drive

You can also take a 2-hour Hyperconverged Test Drive, which utilizes the Nutanix Community Edition, by clicking here.

5.3 The Nutanix Community

Connect with cloud builders from around the world, learn from IT Pros in your industry and share experiences on the Nutanix Community. The community maintains an area focused on Nutanix certifications, which is located here.

5.4 Additional Database Automation Resources

Find a wealth of additional Database Automation resources here.