Nutanix Certified Professional Database Automation (NCP-DB) 6.5 Exam

Table of Contents

Author

Jeff Hall, Manager, Technical Certification Development

Contributors

Scott Fadden, Sr. Staff Architect

Lev Goronshtein, Advisory Systems Engineer

Ross Hunt, Staff Resident Architect

Predee Kajonpai, Staff Database Solutions Architect

Krishna Kapa, Staff Solutions Architect

Keith Olsen, Advisory Systems Engineer

Andrei Patergin, CTO, NewBeg, Inc.

Robbi Richmond, Portfolio Specialist

Lochan Serma, Staff Consulting Architect

Mandar Surkund, Sr. Database Solutions Architect

David Teague, Technical Marketing Engineer

Varun Verma, Sr. Solutions Architect

Venu Vuppalapati, Sr. Staff Global Practice Lead - Database

1. The Exam

1.1 Purpose of Exam

The Nutanix Certified Professional - Database Automation (NCP-DB) 6.5 exam will measure a candidate's ability to deploy, administer, optimize, and troubleshoot database workloads using Nutanix Database Service (NDB). Successful candidates demonstrate mastery of these skills and abilities.

1.2 Number of Questions

The NCP-DB 6.5 exam consists of 75 multiple-choice and multiple-response questions.

1.3 Pricing

The cost for the NCP-DB 6.5 exam is $199 USD.

1.4 Passing Score

The passing score for this exam is 3000, using a scaled scoring method. The scale is from 1000-6000. Scaled scores are calculated using a mathematical formula that considers a variety of factors, including the number and type of exam questions included in a specific version of the exam.

Because this combination may vary in different versions of the same examination, scaled scores provide a fair score for everyone based on the version of the exam taken.

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 an NDB-managed database 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 exam is available in English.

1.7 Time Limit

The time limit for the exam is 120 minutes.

1.8 Scheduling and Taking the Exam

This 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 6.5 exam is a core component of the Nutanix Database Automation track. Passing this exam results in achieving the NCP-DB 6 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 6.5 exam and achieved the NCP-DB 6 certification, it will remain valid for two 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

- Points on Nutanix Xtribe that you can redeem for prizes (only available for Nutanix customers)

- 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 6.5 exam and NCP-DB 6 certification has approximately 1-2 years of database management experience, while having at least 6 months of Nutanix Database Service or Nutanix Era experience.

Successful candidates are typically database administrators, Nutanix technical employees, Nutanix channel partners, Nutanix OEM vendors, and Nutanix customers who are capable of successfully provisioning, patching, protecting, and cloning NDB-managed databases. Finally, the successful candidate will most likely have taken training courses, such as the Nutanix Database Administration (NDBA) course.

3. Objectives Covered in the NCP-DB 6.5 Exam

3.1 Introduction

It is recommended that candidates have the knowledge and skills necessary to deploy, administer, optimize, and troubleshoot database workloads using Nutanix Database Service (NDB) and Era before attempting the Nutanix Certified Professional – Database Automation 6 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 6 certification, candidates will be tested on the following software versions:

- AOS and Prism: version 6.5

- Nutanix Database Service (NDB - formerly Era): version 2.5

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 – Describe NDB Concepts

Objective 1.1: Define database and NDB terminology

Knowledge

- Identify NDB software compatibility

- Define Time Machine SLAs

- Define Data Access Management (DAM)

- Define provisioning profiles

- Define Copy Data Management (CDM)

- Define Greenfield and Brownfield Databases

References

- NDB Software Compatibility and Feature Support

- NDB Terminology Reference

- SLA Management

- Data Access Management

- [NDB Profiles](#)
- [Copy Data Management](#)
- [Getting Started with Provisioning Databases](#)
- [Database Management](#)

Objective 1.2: Describe NDB features and benefits

Knowledge

- Describe provisioning
- Describe patching
- Describe cloning
- Describe data protection

References

- [Getting Started With Provisioning Databases](#)
- [One-Click Provisioning](#)
- [One-Click Patching](#)
- [Data Access Management](#)
- [Clone Management](#)
- [Database Protection](#)

Section 2 – Describe NDB Concepts

Objective 2.1: Deploy an NDB Instance

Knowledge

- Download, import, and create an NDB instance
- Assign a static IP address to the NDB instance
- Log onto NDB and run the installation wizard

References

- [NDB network requirements for installation](#)
- [Install NDB on AHV](#)
- [Install NDB on ESXi](#)
- [Assigning a Static IP Address to the NDB VM by Using the Console](#)
- [Logging on to NDB](#)
- [Welcome to NDB Wizard](#)

Objective 2.2: Configure an NDB Instance

Knowledge

- Change NTP/DNS from the NDB server CLI
- Determine network firewall ports
- Configure network segmentation
- Change language settings
- Configure an SSL certificate
- Deploy NDB High Availability

References

- Initial Configuration
- NDB Limitations and Notes
- NDB Network Placement
- NDB Service Management
- Configuring an SSL Certificate
- Changing the Language Settings
- Enabling High Availability for NDB

Objective 2.3: Configure NDB High Availability

Knowledge

- Configure High Availability
- Ensure service resiliency
- Discuss NDB Control Plane configuration and scalability

References

- Nutanix Database Service High-Availability Configuration
- NDB Service Resiliency
- Nutanix Database Service Management Plane Availability Models
- NDB Control Plane Configuration and Scalability

Section 3 – Monitor Alerts and Storage Usage Within an NDB Implementation

Objective 3.1: Monitor alerts

Knowledge

- Monitor alerts

- Clear alerts

- Filter alerts by time range

- Configure SMTP

- Set policies

References

- Alerts Dashboard

- Disabling or Enabling Alert Policies

- Setting Alert Retention

- Sending Alert Notifications to an Email Recipient

Objective 3.2: Monitor and manage storage usage

Knowledge

- Identify database sources and clone sizes

- Monitor database storage efficiency

- Monitor snapshots

- Scale or extend storage for a database

References

- Clone Management

- Copy Database Management

- Time Machine Behaviour and Functionality

- Extending database storage

Section 4 – Operate and Maintain an NDB Environment

Objective 4.1: Apply procedural concepts to register database server VMs and databases

Knowledge

- Verify registration prerequisites

- Provide OS and database instance credentials

- Select an appropriate cluster

- Discover an instance

- Select one or more databases

- Provide credentials to connect to a database

- Manage logs with NDB versus third-party backup solutions

- Determine Time Machine policy settings related to registering database server VMs and databases

References

- Oracle Database Server VM Registration Prerequisites

- SQL Server Database Server VM Registration Prerequisites

- Database Registration Prerequisites

- Registering a Nutanix cluster with NDB

- Role-based Access Control

- Account Management

- Database Log Management

- Database Log Backup Management in NDB

- Updating a Database Time Machine

Objective 4.2: Apply procedural concepts to provision databases

Knowledge

- Select a database engine

- Select a single instance or a cluster

- Create or select an appropriate profile

- Provide the name and size of a database

- Determine Time Machine policy settings related to provisioning databases

References

- Provisioning a database
- One-Click Provisioning
- Creating a Software Profile
- Adding Time Machine Data Access to a Nutanix Cluster

Objective 4.3: Apply procedural concepts to test and publish database patches

Knowledge

- Create software profile versions
- Publish software profile versions
- Test patches according to vendor-specific processes

References

- Creating a Software Profile Version
- One-Click Patching
- Patching a Database Server VM
- Patching a Database Server Cluster

Objective 4.4: Determine the correct method to apply Linux OS patches

Knowledge

- Apply patches immediately
- Schedule user patch implementation
- Create and associate a maintenance window
- Validate a patch repo configuration

References

- Operating System Patching
- NDB Limitations and Notes
- Maintenance Window

Objective 4.5: Upgrade databases

Knowledge

- Upgrade Oracle databases
- Identify which database engines support upgrades

References

- Upgrading Oracle Database Software
- NDB Limitations and Notes
- NDB Database Engine Compatibility Matrix

Objective 4.6: Given a scenario, troubleshoot NDB operations

Knowledge

- Analyze alerts
- Review operation logs
- Generate diagnostics bundles
- Analyze failed snapshots
- Analyze failed refresh clones

References

- Alert Management
- Operations Logs
- Downloading the Diagnostics Bundle
- Snapshot Management
- Clone Management
- SQL Server Database Server VM Provisioning
- Scaling a Database
- Updating a Nutanix Cluster
- Creating a Software Profile
- Time Machine Behaviour and Functionality

Section 5 – Protect NDB-managed Databases Using Time Machine

Objective 5.1: Create, delete, and modify SLA retention policies

Knowledge

- Determine the number of snapshots
- Determine schedule retention policies
- Create custom SLAs

- Determine storage requirements based on a policy
- Manage SLAs for multiple clusters

References

- SLA Management
- Built-in SLAs
- Creating Custom SLAs
- Adding Time Machine Data Access to a Nutanix Cluster
- Time Machine - The First Log Purge
- Nutanix Cluster Management

Objective 5.2: Given business requirements, perform a database clone

Knowledge

- Determine business requirements for clones
- Configure a refresh schedule
- Configure a removal schedule
- Authorize existing VMs
- Configure pre-create and post-create scripts
- Determine a target VM for cloning
- Clone from a remote cluster

References

- Creating a Clone Refresh Schedule
- Creating a Clone Removal Schedule
- Authorize Database Server VMs
- Refreshing Database Clones (Manual)
- Creating Single Node Database Clones
- Nutanix Cluster Management

Objective 5.3: Apply procedural concepts to restore source databases

Knowledge

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

References

- Restoring an Oracle Database
- Restoring a SQL Server Database
- SQL Server Backup Operations with Third-Party Applications
- SQL Server Restore Operations
- How to restore a database on Storage Spaces using CLI
- Restoring a PostgreSQL Instance
- Restoring a MongoDB Instance

Objective 5.4: Refresh clones

Knowledge

- Manage refresh schedules
- Execute a manual refresh

References

- Creating a Clone Refresh Schedule
- Refreshing Database Clones (Manual)

Objective 5.5: Apply policies to protect databases

Knowledge

- Apply an SLA
- Create a manual snapshot

References

- Database Protection
- SLA Management
- Create Snapshots (Manual)

Objective 5.6: Apply procedural concepts to create Data Access Management (DAM)

Knowledge

- Create a DAM policy
- Apply a DAM policy
- Replicate additional snapshots for cluster removal

References

- Data Access Management

- Create Sanitized Database Snapshots Synchronously
- Entity Sharing Policies

Section 6 – Administer an NDB Environment

Objective 6.1: Manage NDB profiles

Knowledge

- Create a software profile
- Create a compute profile
- Create a network profile
- Create database parameters
- Create a Windows domain
- Manage the published, unpublished, and deprecated profile statuses
- Identify OOB software profiles
- Replicate a software profile to a remote cluster

References

- Getting Started with NDB Profiles
- Creating a Software Profile
- Creating a Compute Profile
- Creating a Network Profile
- Creating a Database Parameter Profile
- Creating a Windows Domain Profile
- Updating a Software Profile Version

Objective 6.2: Perform NDB software upgrades

Knowledge

- Perform an update of an NDB instance
- Update a dark site-based NDB instance

References

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

Objective 6.3: Apply procedural concepts to add Nutanix clusters to NDB

Knowledge

- Verify prerequisites to adding clusters to NDB
- Register a cluster with NDB
- Enable multi-cluster
- Configure affinity for database server VMs

References

- Registering a Nutanix Cluster with NDB
- Enabling NDB Multi-Cluster
- Setting VM Host Affinity

Objective 6.4: Manage networks in NDB

Knowledge

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

References

- NDB Network Management
- Adding a VLAN to NDB
- Adding a Stretched VLAN to NDB
- Creating a Network Profile

Objective 6.5: Manage access controls in NDB

Knowledge

- Understand access controls and roles
- Create custom roles
- Create users and groups
- Map users and groups
- Share entities

References

- Privileges and Permissions
- Creating a Role
- Adding a User
- Adding, Updating, and Removing a Group
- Configuring Active Directory Access
- NDB Entity Sharing

Objective 6.6: Identify how to use NDB APIs and CLI

Knowledge

- Identify which tools are available
- Download NDB APIs
- Identify how to use the NDB CLI
- Identify how to use NDB APIs

References

- NDB GUI and CLI
- NDB Network Requirements
- Acropolis v1 API Reference

4. NCP-DB 6.5 Training Recommendations

4.1 Course Recommendation

Nutanix offers a course that provides training on the objectives tested for in the exam. More information on this course, including delivery methods and pricing, can be found at nutanix.com/training.

The course details are 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 will explore a number of subjects, including:

- The what, the how, the why, and the 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, including alert policies, notifications, and log collection.
- 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.

The material provided in the course covers a majority of the objectives (approximately 80%) that appear on the NCP-DB 6.5 exam and is recommended for individuals who want to gain a good understanding of these objectives. Please note that additional exposure to a Nutanix environment is highly recommended.

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.

NUTANIX

+1 (855) 688-2649 | certification@nutanix.com | www.nutanix.com