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TECH NOTE

Nutanix Database Service and ServiceNow RBAC Integration

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Contents

1. Executive Summary....4

2. Introduction....5
- Audience....5
- Purpose....5
- Document Version History....5

3. Nutanix Database Service and ServiceNow Logical Overview....6
- Nutanix Database Service....7
- ServiceNow....7

4. Nutanix Database Service RBAC....8
- Nutanix Database Service RBAC Overview....8
- Nutanix Database Service Daily Operations....9

5. ServiceNow RBAC Overview....10

6. Nutanix Database Service and ServiceNow RBAC Approach....13

About Nutanix....15

List of Figures....16

1. Executive Summary

Controlling the operations that users can perform is critical to any service or system that provides more than a single operation. To provide this critical function, you need role-based access control (RBAC).

Nutanix Database Service (NDB) (formerly Nutanix Era), a database and data copy management solution, and ServiceNow, which delivers enterprise digital workflows, both offer RBAC. In this document, we discuss the integration between ServiceNow and NDB, made possible by the rich application programmable interface (API) built into NDB, which ServiceNow workflows can consume. Using NDB alongside ServiceNow empowers organizations to provide true database management as a service—in addition to all the other capabilities that ServiceNow offers—using the same front-end portal.

2. Introduction

Audience

This tech note is part of the Nutanix Solutions Library. We wrote it for architects and developers responsible for integrating NDB and ServiceNow. Readers should already be familiar with NDB and ServiceNow.

Purpose

In this document, we cover RBAC in NDB and ServiceNow and offer guidance on how to implement a combined solution.

Document Version History

Version Number	Published	Notes
1.0	July 2019	Original publication.
1.1	July 2020	Updated Nutanix overview.
1.2	July 2021	Refreshed content.
1.3	July 2022	Updated product naming from Nutanix Era to Nutanix Database Service and updated the Nutanix Database Service and ServiceNow Logical Overview and Nutanix Database Service RBAC sections.

3. Nutanix Database Service and ServiceNow Logical Overview

This section provides an overview of the logical components involved in a solution where ServiceNow acts as an end-user front-end web portal offering NDB items for consumption. In this arrangement, end users don't access the NDB UI.

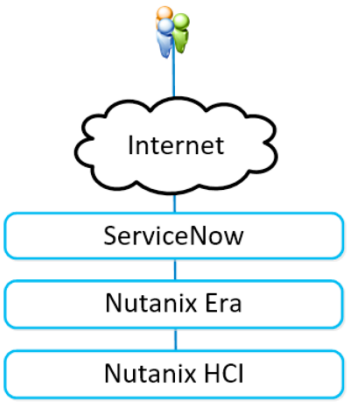

Figure 1: NDB (Formerly Nutanix Era) and ServiceNow Logical Overview

Note: This logical overview doesn't include additional available ServiceNow components such as MID server.

The following table describes the logical components of the solution.

Table: Logical Components

Component	Description
ServiceNow	End-user portal providing catalog items that can perform NDB tasks. Authorized users can request the catalog items.
NDB	Responsible for database, database server, and data copy management activities. Accessed by ServiceNow through REST API.

Component	Description
Nutanix HCI	Holds and performs tasks related to VMs, clones, snapshots, and time machine operations.

Nutanix Database Service

NDB (formerly Nutanix Era) automates and simplifies database administration, bringing one-click simplicity and invisible operations to database provisioning and life-cycle management.

NDB enables database administrators to perform operations such as database registration, provisioning, cloning, patching, and restore. It allows administrators to define provisioning standards with end-state driven functionality that includes network segmentation, high availability database deployments, and much more.

With the NDB multicluster capability, you can easily manage databases across multiple locations, both on-premises and in the cloud, with Nutanix clusters.

For more information, read the NDB solution brief.

ServiceNow

ServiceNow is a cloud company that provides IT services management (ITSM), IT operations management (ITOM), and IT business management (ITBM) as a software service.

4. Nutanix Database Service RBAC

Nutanix Database Service RBAC Overview

NDB can work with either Microsoft Active Directory users or NDB local users. Because a centralized user management solution outweighs a local user management solution, choose Active Directory--based users when possible.

NDB supports multiple roles that you can use to control access to available NDB operations and tasks. Use the concept of least privileges when assigning a role to a user or service account.

Table: Roles, Privileges, and Permissions

Privilege	Super Administrator	Infrastructure Administrator	Database Infrastructure Administrator	Database Administrator (DBA)
Databases	Yes	Yes	Yes	Yes
Time machines	Yes	Yes	Yes	Yes
Compute profiles	Yes	Yes	Yes	No
Network profiles	Yes	Yes	Yes	No
Software profiles	Yes	Yes	Yes	No
Database parameter profiles	Yes	Yes	Yes	No
Clones	Yes	Yes	Yes	Yes
Database servers	Yes	Yes	Yes	Yes
Access control	Yes	No	No	No

Privilege	Super Administrator	Infrastructure Administrator	Database Infrastructure Administrator	Database Administrator (DBA)
NDB (formerly Era) configuration	Yes	No	No	No
SLAs	Yes	Yes	Yes	Yes
Tags	Yes	Yes	Yes	Yes
Alerts	Yes	Yes	Yes	Yes

Nutanix Database Service Daily Operations

After your initial setup of NDB, the most obvious tasks require the Database Administrator role, as it includes management of databases, database servers, time machines, and clones. You may encounter situations that require other roles, but the Database Administrator role is necessary much more often.

The following table suggests an estimated weight (based on standard usage assumptions) for the roles required for daily operations after initial NDB setup.

Table: NDB Role Usage Assumption

NDB Role	Weight
Super Administrator	1 percent
Infrastructure Administrator	3 percent
Database Infrastructure Administrator	5 percent
Database Administrator	91 percent

5. ServiceNow RBAC Overview

Administrators can control ServiceNow RBAC at multiple layers using several configuration elements. See ServiceNow documentation for detailed information.

The following example looks at access controlled at the ServiceNow catalog item level. The next figure shows catalog items presented to a ServiceNow user with the ServiceNow Admin role.

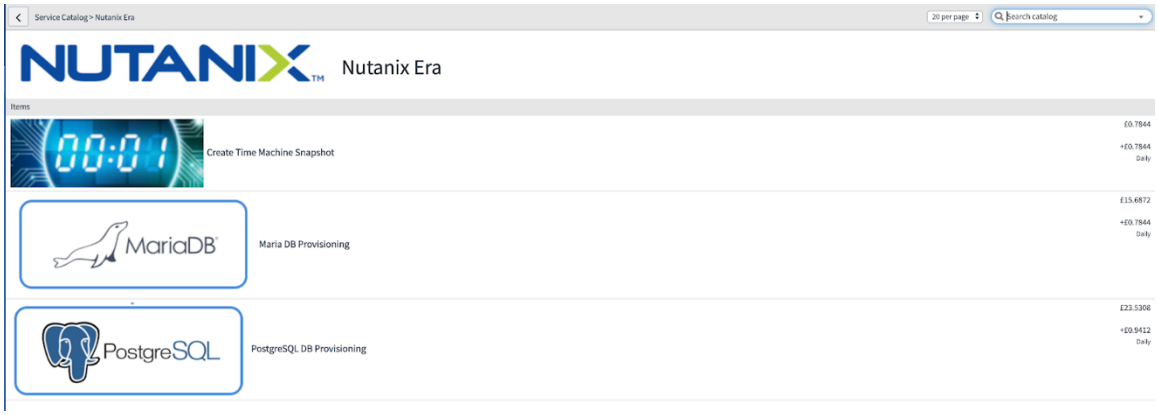

Figure 2: ServiceNow Catalog Items

These individual catalog items are configured to be available for any user signed in to ServiceNow. This availability setting applies to both the MariaDB Provisioning and PostgreSQL DB Provisioning items.

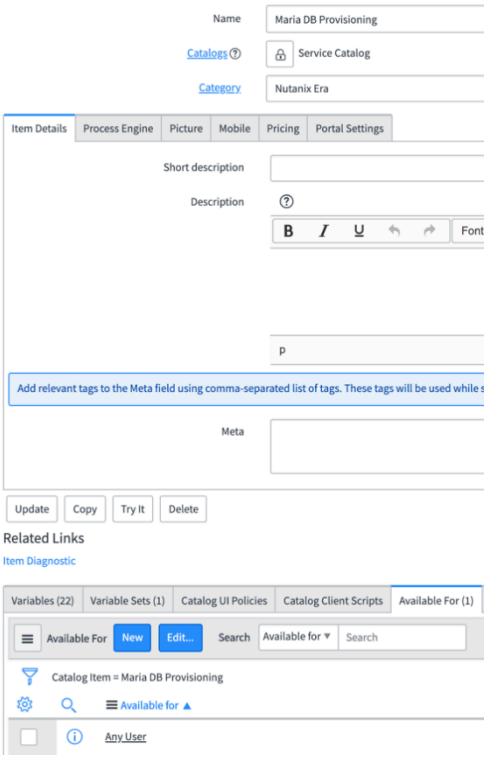

Figure 3: MariaDB Catalog Item Configuration

In the following figure, we set the Create Time Machine Snapshot catalog item to be available only for users with the Admin role.

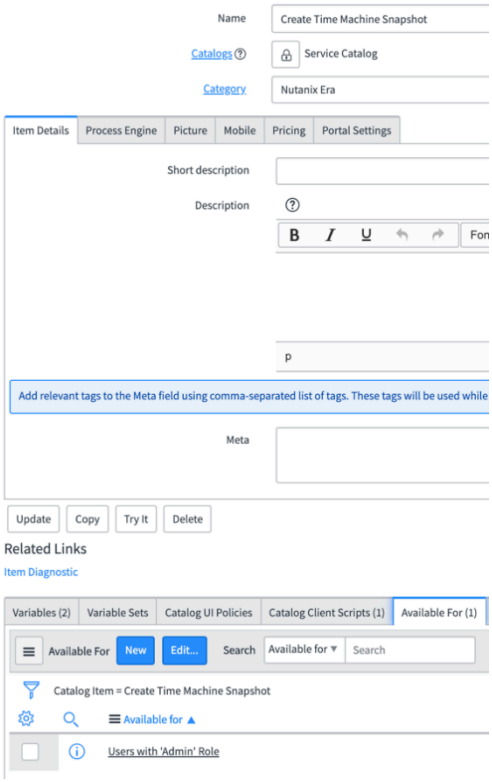

Figure 4: Create Time Machine Snapshot Catalog Item Configuration

Now, when a user without the Admin role accesses the Service Catalog for NDB, they only see two items, as shown in the following figure.

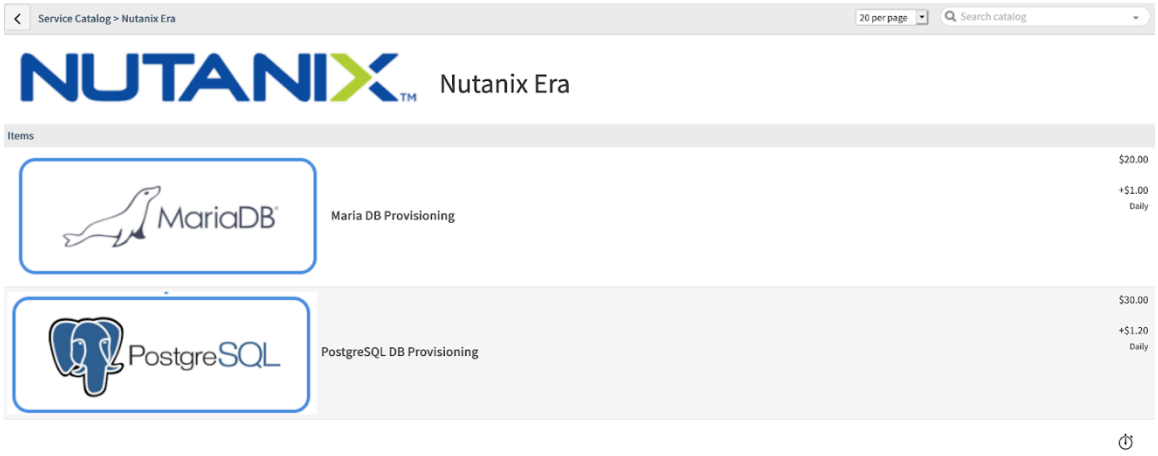

Figure 5: ServiceNow Catalog Items

6. Nutanix Database Service and ServiceNow RBAC Approach

From an automation and orchestration perspective, a common approach to managing RBAC is to control end-user access to service catalog items at the front-end layer, which means implementing ServiceNow RBAC. Because the appropriate configuration for ServiceNow RBAC varies based on your company's business and technical requirements, we don't provide guidance for it in this document.

To establish communication from ServiceNow to Nutanix NDB, use predefined service accounts configured in NDB with the appropriate role. When a ServiceNow workflow accesses NDB, it should use the NDB service account with the minimum required privileges to respect the least privileges principle.

The following table suggests a way to take advantage of both ServiceNow and NDB RBAC capabilities. Implementing RBAC in ServiceNow can be based on groups, roles, or user criteria records, among other categories. Only assign ServiceNow users and groups to or include them in a ServiceNow configuration element that matches their NDB privilege requirements.

Table: Logical Components

ServiceNow RBAC	NDB Role	ServiceNow to NDB Authentication
Era_super_admin	Super Administrator	NDB service account snow_superadmin
Era_infrastructure_admin	Infrastructure Administrator	NDB service account snow_infraadmin
Era_database_ infrastructure_admin	Database Infrastructure Administrator	NDB service account snow_dbinfraadmin
Era_database_admin	Database Administrator	NDB service account snow_dbadmin

When you use NDB service accounts, the objects created by the ServiceNow workflows have the NDB service account as the owner. If you must separate out the NDB objects—including database server, database, and time machine—per ServiceNow user, you can add an NDB tag with a ServiceNow user unique identifier (such as username or user email address) to the NDB objects during creation and deployment.

Nutanix recommends that you use ServiceNow to drive all the NDB tasks and operations that your end users require instead of directly using the deployed database VMs. Running NDB tasks and operations through ServiceNow ensures accurate traceability and activity logging as well as the highest level of security. This approach is particularly important in an environment where more than one database team shares the same NDB instance.

To ensure that requests go through ServiceNow, either disable SSH access to the database VM or take an additional step in the ServiceNow provisioning workflow to uninstall the NDB CLI in the VM. If you disallow SSH access to the database, DBAs must use remote database management tools for their databases.

About Nutanix

Nutanix is a global leader in cloud software and a pioneer in hyperconverged infrastructure solutions, making clouds invisible and freeing customers to focus on their business outcomes. Organizations around the world use Nutanix software to leverage a single platform to manage any app at any location for their hybrid multicloud environments. Learn more at www.nutanix.com or follow us on Twitter @nutanix.

List of Figures

Figure 1: NDB (Formerly Nutanix Era) and ServiceNow Logical Overview....6
Figure 2: ServiceNow Catalog Items....10
Figure 3: MariaDB Catalog Item Configuration....11
Figure 4: Create Time Machine Snapshot Catalog Item Configuration....12
Figure 5: ServiceNow Catalog Items....12