


## Migrating from RHEL 7 to RHEL 9: A Comprehensive Guide

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Migrating from Red Hat Enterprise Linux 7 (RHEL 7) to Red Hat Enterprise Linux 9 (RHEL 9) is a crucial step for organizations to ensure they remain supported, secure, and benefit from the latest features and improvements. This guide outlines the necessary steps and considerations to successfully transition from RHEL 7 to RHEL 9.

### Understanding the Migration Path

Directly upgrading from RHEL 7 to RHEL 9 is not supported due to significant changes in system architecture and underlying technologies. Therefore, the migration typically involves an intermediary step:

1. Upgrade from RHEL 7 to RHEL 8.
2. Upgrade from RHEL 8 to RHEL 9.

### Prerequisites

#### Backup Your System

Before beginning any migration, ensure that you have a complete backup of your system, including important configuration files and data. This step is crucial to avoid data loss in case something goes wrong during the migration process.

#### Review System Requirements

Verify that your hardware meets the requirements for RHEL 8 and RHEL 9. Check Red Hat's official documentation for the latest hardware compatibility lists.

## Assess Installed Applications

Evaluate the compatibility of your applications with RHEL 8 and RHEL 9. Some applications might require updates or replacements to function correctly on the newer operating system versions.

## Update RHEL 7

Ensure your RHEL 7 system is fully updated. Run the following commands to update all packages:

```
sudo yum update -y  
sudo reboot
```

## Step-by-Step Migration Process

### Step 1: Upgrade from RHEL 7 to RHEL 8

1. Install the leapp utility: The Leapp utility helps automate the upgrade process.

```
sudo yum install leapp-upgrade
```

2. Review Pre-Upgrade Report: Leapp generates a report that identifies potential issues that could affect the upgrade. Run the pre-upgrade command:

```
sudo leapp preupgrade
```

2. Review the report located at `/var/log/leapp/leapp-preupgrade.log`.
3. Address Issues: Resolve any issues identified in the pre-upgrade report. This might involve updating configurations, replacing unsupported packages, or performing manual interventions.
4. Perform the Upgrade: Once all issues are addressed, start the upgrade process:

```
sudo leapp upgrade
```

```
sudo reboot
```

4. The system will reboot and begin the upgrade process. This might take some time, and the system will reboot again once the upgrade is complete.

## Step 2: Upgrade from RHEL 8 to RHEL 9

1. Install the leapp utility:

```
sudo dnf install leapp-upgrade
```

2. Review Pre-Upgrade Report:

```
sudo leapp preupgrade
```

2. Check the report at `/var/log/leapp/leapp-preupgrade.log` and address any identified issues.

3. Perform the Upgrade:

```
sudo leapp upgrade
```

`sudo reboot`

3. The system will go through a similar process as before, rebooting and completing the upgrade to RHEL 9.

## Post-Migration Tasks

### Verify System Functionality

After the system boots into RHEL 9, verify that all services and applications are running correctly. Check system logs for any errors or warnings that might indicate issues.

### Update SELinux Policies

SELinux policies might need updating after the upgrade. Run the following command to ensure policies are updated:

```
sudo restorecon -Rv /
```

### Reconfigure Third-Party Repositories

If you are using third-party repositories, you will need to update them to versions compatible with RHEL 9.

### Performance Testing

Conduct performance and regression testing to ensure that the system meets your performance expectations and that no functionality has been lost during the migration.

## Conclusion

Migrating from RHEL 7 to RHEL 9 involves a two-step upgrade process that requires careful planning, thorough testing, and a keen eye on compatibility issues. By following this comprehensive guide, organizations can successfully transition to RHEL 9, ensuring their systems remain secure, supported, and capable of leveraging the latest advancements in enterprise Linux technology.