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|  | **2014** |
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| **[Linux Upgrading]** |
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# Introduction

This document collects and describes upgrade and backout strategies for Linux systems.

# BTRFS

Ref: <https://btrfs.wiki.kernel.org/index.php/Main_Page>   
Btrfs is a new copy on write (CoW) filesystem for Linux aimed at implementing advanced features while focusing on fault tolerance, repair and easy administration.   
  
Btrfs support YUM transactions through snaphot & rollback.  
<https://btrfs.wiki.kernel.org/index.php/UseCases#Snapshots_and_subvolumes>

To use Btrfs with YUM you need to install the yum-fs-snaphot package  
Ref: <http://man7.org/linux/man-pages/man1/yum-fs-snapshot.1.html>  
[yum-fs-snapshot(1)](http://man7.org/linux/man-pages/man1/yum-fs-snapshot.1.html) is a Yum plugin for taking snapshots of your

filesystems before running a yum transaction. By default it will

take a snapshot of any filesystem that can be snapshotted, which

currently is limited to BTRFS filesystems. However, all filesystems

built on LVM logical volumes may be snapshotted at the block level

using LVM snapshots. LVM snapshot support is provided for the

purpose of system rollback. As such LVM snapshots will only be

created if the kernel supports the "snapshot-merge" DM target.

# Yum based upgrade and backout

If you plan update, is a backout to be supported. This link discusses backout strategies  
<http://www.unix.com/red-hat/242658-yum-update-backout-strategy.html>

# YUM Update and baselines

Open issue:  
If you do an “yum update”, you pull the latest packages, which can put every system in the field into a different baseline.

# YUP Updates and Data

Transaction handling in Yum is a powerful and useful features. But an upgrade process may also impact data (configuration and application). Transaction handling may be able to cope with configuration data, but application data (e.g. on file system or in a DB (local or remote)) is out of scope. However, an upgrade procedure where application data is affected, needs to be prepared for a backout. This can be as simple as making a backup prior to the upgrade and restore that in case of a backout.

# References

Article that discusses upgrading issues and solution for embedded systems  
<http://www.linuxsymposium.org/archives/OLS/Reprints-2005/ben-yossef-Reprint.pdf>

Stackoverflow article on linux firmware upgrades  
<http://stackoverflow.com/questions/5167226/linux-based-firmware-how-to-implement-a-good-way-to-update>