Installing Dell DR Series System Rapid CIFS and Rapid NFS on Windows and Linux Client Machines

Dell Engineering
September 2015

A Dell Technical White Paper
Revisions

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2014</td>
<td>Initial release</td>
</tr>
<tr>
<td>July 2015</td>
<td>Updated to support all DR Series systems</td>
</tr>
<tr>
<td>September 2015</td>
<td>Updated locations for downloading the Dell Rapid plugins as well as updated prerequisites for Linux.</td>
</tr>
</tbody>
</table>

THIS WHITE PAPER IS FOR INFORMATIONAL PURPOSES ONLY, AND MAY CONTAIN TYPOGRAPHICAL ERRORS AND TECHNICAL INACCURACIES. THE CONTENT IS PROVIDED AS IS, WITHOUT EXPRESS OR IMPLIED WARRANTIES OF ANY KIND.

© 2015 Dell Inc. All rights reserved. Reproduction of this material in any manner whatsoever without the express written permission of Dell Inc. is strictly forbidden. For more information, contact Dell.


Performance of network reference architectures discussed in this document may vary with differing deployment conditions, network loads, and the like. Third party products may be included in reference architectures for the convenience of the reader. Inclusion of such third party products does not necessarily constitute Dell’s recommendation of those products. Please consult your Dell representative for additional information.

Trademarks used in this text:
Dell™, the Dell logo, Dell Precision™, OptiPlex™, Latitude™, PowerEdge™, PowerVault™, PowerConnect™, OpenManage™, EqualLogic™, Compellent™, KACE™, FlexAddress™, Force10™ and Vostro™ are trademarks of Dell Inc. Other Dell trademarks may be used in this document. Microsoft®, Windows®, Windows Server®, Internet Explorer®, MS-DOS®, Windows Vista® and Active Directory® are either trademarks or registered trademarks of Microsoft Corporation in the United States and/or other countries. Red Hat® and Red Hat® Enterprise Linux® are registered trademarks of Red Hat, Inc. in the United States and/or other countries. Novell® and SUSE® are registered trademarks of Novell Inc. in the United States and other countries. VMware®, Virtual SMP®, vMotion®, vCenter® and vSphere® are registered trademarks or trademarks of VMware, Inc. in the United States or other countries. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and/or names or their products and are the property of their respective owners. Dell disclaims proprietary interest in the marks and names of others.
Table of contents

Executive summary .......................................................................................................................... 4

1 Installing Rapid CIFS (RD CIFS) .............................................................................................. 5
   1.1 Prerequisites .......................................................................................................................... 5
   1.2 Steps for installing Rapid CIFS ............................................................................................ 5
   1.3 Features of Rapid CIFS .......................................................................................................... 8
      1.3.1 Load and unload Rapid CIFS ........................................................................................... 8
      1.3.2 View Rapid CIFS status while running a backup job on the DMA ........................................ 8
      1.3.3 View the log of Rapid CIFS ............................................................................................ 9
      1.3.4 View the version of Rapid CIFS ...................................................................................... 9
      1.3.5 View the policy setting for Rapid CIFS ........................................................................... 10
   1.4 Uninstalling Rapid CIFS ....................................................................................................... 11

2 Installing Rapid NFS (RDNFS) ................................................................................................. 12
   2.1 Prerequisites ........................................................................................................................ 12
   2.2 Steps for installing Rapid NFS ............................................................................................ 12
   2.3 Features of Rapid NFS .......................................................................................................... 13
      2.3.1 Main commands: ru and rdnfs ....................................................................................... 13
      2.3.2 View Rapid NFS stats .................................................................................................... 14
      2.3.3 View Rapid NFS log ....................................................................................................... 14
      2.3.4 View the Rapid NFS version ......................................................................................... 15
   2.4 Uninstalling Rapid NFS ....................................................................................................... 15
Executive summary

This document provides information about installing Dell DR Series system CIFS and NFS protocol accelerators (called Rapid CIFS and Rapid NFS, respectively) on Windows and/or Linux client machines. This paper is a quick reference guide and does not include all DR Series system deployment best practices.

For additional data management application (DMA) best practice whitepapers, see the DR Series system documentation by selecting your specific product at:

http://dell.com/powervaultmanuals

NOTE: The DR Series system versions and screenshots used for this document may vary slightly, depending on the version of the DR Series system firmware version you are using.
1 Installing Rapid CIFS (RD CIFS)

1.1 Prerequisites

- The client OS must be the 64-bit version of Windows 2008 R2 or Windows 2012.
- The DR container share must be mapped on the client machine.

**NOTE**: For the accelerator to work properly, the backup traffic must go over CIFS directly to the DR Series system and not pass through a media server. If that is the case, you should install the RD CIFS on the media server.

1.2 Steps for installing Rapid CIFS

1. Download the MSI to the client box using the following steps:
   a. Go to support.dell.com and navigate to your specific product, such as DR4100, DR6000, etc.
   b. On the support page for your product, click **Drivers & Downloads**.
   c. Expand the IDM category, and for the RDCIFS plugin for your DR Series system OS version, click **Download File**.

2. Run the MSI and follow the instructions in the installation wizard as shown in the screenshots below.
Installing Dell DR Series System Rapid CIFS and Rapid NFS on Windows and Linux Client Machines | September 2015

Dell Rapid CIFS Filter Driver Setup

End-User License Agreement

Please read the following license agreement carefully.

DELL SOFTWARE LICENSE AGREEMENT

This is a legal agreement ("Agreement") between you, the user, and Dell Products L.P or Dell Global B.V. ("Dell"). This Agreement covers all software that is distributed with or for the Dell product (and upgrades and updates thereto), for which there is no separate license agreement between you and the manufacturer or owner of the software (collectively the “Software”). This Agreement is not for the sale of Software or any other intellectual property, all

I accept the terms in the License Agreement.

Print Back Next Cancel

Dell Rapid CIFS Filter Driver Setup

Ready to install Dell Rapid CIFS Filter Driver

Click Install to begin the installation. Click Back to review or change any of your installation settings. Click Cancel to exit the wizard.

Back Install Cancel
3. Verify that the "rdcifsfd" driver is loaded using the command `fltmc`.

![Command Prompt screenshot showing the driver status]

`rdcifsfd` is the driver that enables the rapid CIFS functionality on Windows and Linux client machines. After verifying its presence with `fltmc`, you can proceed with other configurations as needed.
1.3 Features of Rapid CIFS

1.3.1 Load and unload Rapid CIFS

![Image of Load and Unload Rapid CIFS]

1.3.2 View Rapid CIFS status while running a backup job on the DMA

![Image of Viewing Rapid CIFS Status]
1.3.3 View the log of Rapid CIFS

1.3.4 View the version of Rapid CIFS
1.3.5 View the policy setting for Rapid CIFS

Note: These settings should not be changed, unless requested by the DR Engineering team.
1.4 Uninstalling Rapid CIFS

Open Programs and Features, select CIFS accelerator, and then click Uninstall.
2 Installing Rapid NFS (RDNFS)

2.1 Prerequisites

- The client OS must be the 64-bit version of CentOS or SUSE.
- The FUSE module should already be installed, as follows:
  
  On NFS client machine, run the command below and verify the command output:
  ```
  # rpm -qa | grep fuse
  fuse-2.8.3-4.el6.x86_64
  gvfs-fuse-1.4.3-15.el6.x86_64
  fuse-libs-2.8.3-4.el6.x86_64
  ```
- The plug-in must be installed on the designated Linux-based media server in the following directory, /usr/openv/lib/.

2.2 Steps for installing Rapid NFS

1. Download the installation package to the client box using the following steps:
   a. Go to support.dell.com and navigate to your specific product, such as DR4100, DR6000, etc. On the support page for your product, click Drivers & Downloads.
   b. Expand the IDM category, and for the RDNFS plugin for your DR Series system OS version, click Download File.
   c. Use WinSCP or similar utility to copy the package to the NFS client machine. The plug-in must be installed on the NFS client machine in the following directory, /usr/openv/lib/.

2. On the NFS client machine, assuming that the current working directory has the installation package named `DellRapidNFS-3.0.0101.1-centos5.7-x86_64.bin.gz`, run the following commands in order:

   - `gunzip ./DellRapidNFS-3.0.0101.1-centos5.7-x86_64.bin.gz`
   - `chmod a+x ./DellRapidNFS-3.0.0101.1-centos5.7-x86_64.bin`
   - Run the installer: `./DellRapidNFS-3.0.0101.1-centos5.7-x86_64.bin –install`

```
[root@IvanW-RHEL6-02 ~]# ./DellRapidNFS-3.0.0101.1-centos5.7-x86_64.bin -install
Starting, please wait...
RDNFS file systems are not mounted, proceeding with installation...
2 processors with 2 cores each running at 2899.999 MHz ...
Total computing power 11590 MHz ...
Preparing...
oa-libs
DellRapidNFS

Installation successful!

Log for this operation is /var/log/rdnfs_installer.log

Cleaning up, please wait...
```

- Create a directory on client machine: `mkdir /mnt/backup`
- Mount DR NFS container on client machine:
  ```
  mount -t rdnfs DR6000-09:/containers/backup /mnt/backup -o marker=[MarkerType]
  ```
2.3 Features of Rapid NFS

2.3.1 Main commands: ru and rdnfs

```
[root@IvanW-RHEL6-02 ~]# ru
ru
  --mpt=<rdnfs mount point> | --pid=<process ID of rdnfs>
  --show=<name|version|parameters|stats|performance>

Version 3.0.0101 [Built Feb 14 2014 17:06:14]
[root@IvanW-RHEL6-02 ~]# rdnfs
usage: rdnfs <nfs mount point> <roach mount point> -o marker=<marker>
  <nfs mount point>: already mounted nfs mountpoint
  <roach mount point>: a new mount point
  <marker>: appassure, arccserve, auto, cv, dump, hds, hpcp, nw, or tsm

e.g rdnfs /mnt/dr6000-00-backup /mnt/dr6000-00-roach

rdnfs /mnt/dr6000-01-backup /mnt/dr6000-02-roach -o marker=cv
```

```bash
[root@IvanW-RHEL6-02 ~]# mount -t rdnfs dr6000-09:/containers/backup /mnt/backup -o marker=nw
Starting rdnfs [/mnt/.backup.19375] [ container fsid: 10001:0 ] [ server: dr6000-09 ]
[root@IvanW-RHEL6-02 ~]# mount | grep backup
dr6000-09:/containers/backup on /mnt/.backup.19375 type nfs (rw,addr=10.250.243.89)
rdnfs:/mnt/.backup.19375 on /mnt/backup type fuse (rw,nosuid,nodev,allow_other)
```
2.3.2 View Rapid NFS stats

```
[root@IvanW-RHEL6-02 ~]# ru --mpt=/mnt/backup --show=stats
Operation        Num  Errors  Avg (ms)  Total Bytes  Accelerated
GETATTR:         2570  397  0.440459
READLINK:        0  0  0.000000
MKNOD:           0  0  0.000000
MKNOD:           0  0  0.000000
UNLINK:          0  0  0.000000
RMDIR:           0  0  0.000000
SYMLINK:         0  0  0.000000
RENAME:          0  0  0.000000
LINK:            0  0  0.000000
CHMOD:           0  0  0.000000
CHOWN:           0  0  0.000000
TRUNCATE:        0  0  0.000000
UTIME:           0  0  0.000000
OPEN:            95  0  2.961252
READ:            0  0  0.000000  0
WRITE:           5250018  0  0.162996  172029137688  171804549600
STATFS:          0  0  0.000000
FLUSH:           132  0  157.818909
RELEASE:         132  0  0.668830
FSYNC:           0  0  0.000000
GETATTR:         0  0  0.000000
GETXATTR:        0  0  0.000000
LSTATXATTR:      0  0  0.000000
REMOVEDATTR:     0  0  0.000000
OPENDIR:         0  0  0.000000
READDIR:         0  0  0.000000
RELEASEDIR:      0  0  0.000000
FSYNCDIR:        0  0  0.000000
ACCESS:          0  0  0.000000
CREATE:          37  0  14.244973
FTRUNCATE:       95  0  201.554794
FGETATTR:        37  0  0.001636
LOCK:            0  0  0.000000
```

2.3.3 View Rapid NFS log

```
[root@IvanW-RHEL6-02 ~]# tail -F /var/log/rdnfs.log
2013-09-20 15:44:47 rdnfs [/mnt/backup]: Physical processors: 2
2013-09-20 15:44:47 rdnfs [/mnt/backup]: Cores per physical processors: 2
2013-09-20 15:44:47 rdnfs [/mnt/backup]: Hyperthreading is off
2013-09-20 15:44:47 rdnfs [/mnt/backup]: Each core is running at 2899 MHz
2013-09-20 15:44:47 rdnfs [/mnt/backup]: Total computing power: 11596 MHz
2013-09-20 15:44:47 rdnfs [/mnt/backup]: Marker mm enabled ...
2013-09-20 15:44:47 rdnfs [/mnt/backup]: version: (EAR-3.0.0101) Build: 50814
Replication Protocol ver: 5
Built: Feb 14 2014 17:04:50
```
2.3.4 View the Rapid NFS version

```
[root@IvanW-RHEL6-02 ~]# rdnfs -v
(EAR-3.0.0101) Build: 50814
Replication Protocol ver: 5
Built: Feb 14 2014 17:04:50
[root@IvanW-RHEL6-02 ~]# ru --mpt=/mnt/backup --show-version
(EAR-3.0.0101) Build: 50814
Replication Protocol ver: 5
Built: Feb 14 2014 17:04:50
```

2.4 Uninstalling Rapid NFS

Run the installer with the uninstall option.

- `./DellRapidNFS-3.0.0101.1-centos5.7-x86_64.bin --uninstall`