



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

Dell Engineering  
September 2015

## Revisions

Date	Description
January 2014	Initial release
July 2015	Updated to support all DR Series systems
September 2015	Updated locations for downloading the Dell Rapid plugins as well as updated prerequisites for Linux.

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.

PRODUCT WARRANTIES APPLICABLE TO THE DELL PRODUCTS DESCRIBED IN THIS DOCUMENT MAY BE FOUND AT: <http://www.dell.com/learn/us/en/19/terms-of-sale-commercial-and-public-sector> 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 Boomi™, 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: <b>ru</b> and <b>rdnfs</b> .....	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)

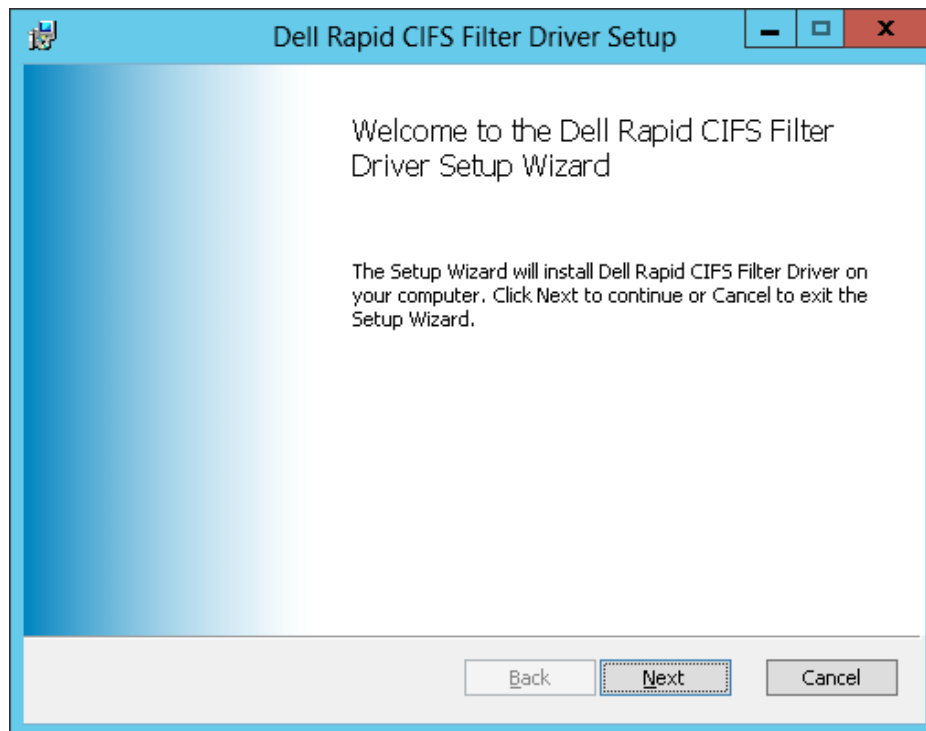
## 1.1 Prerequisites

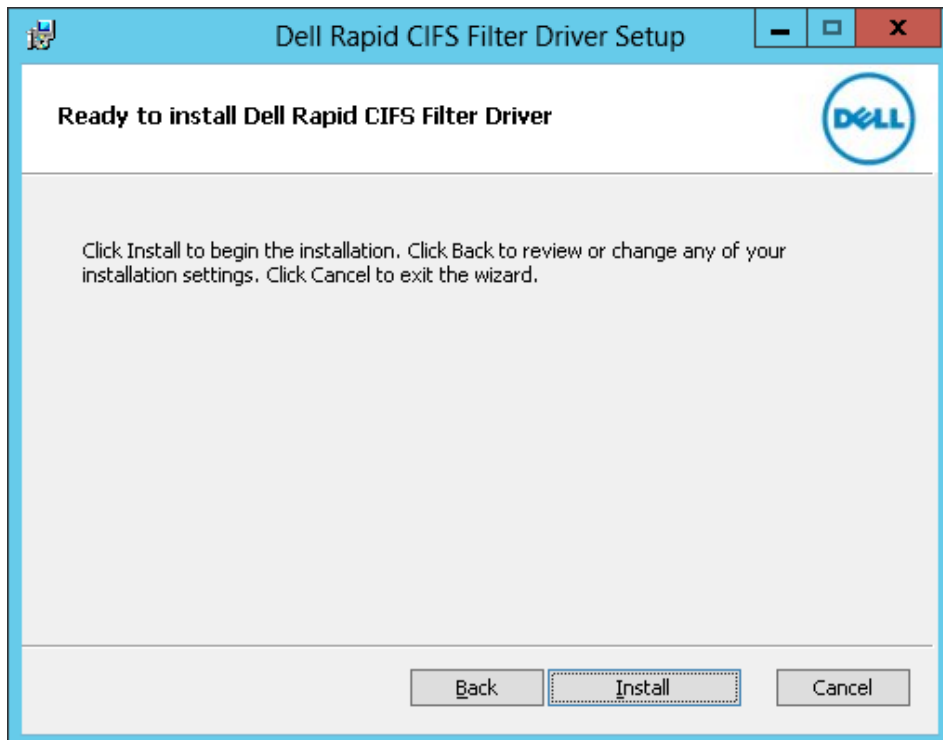
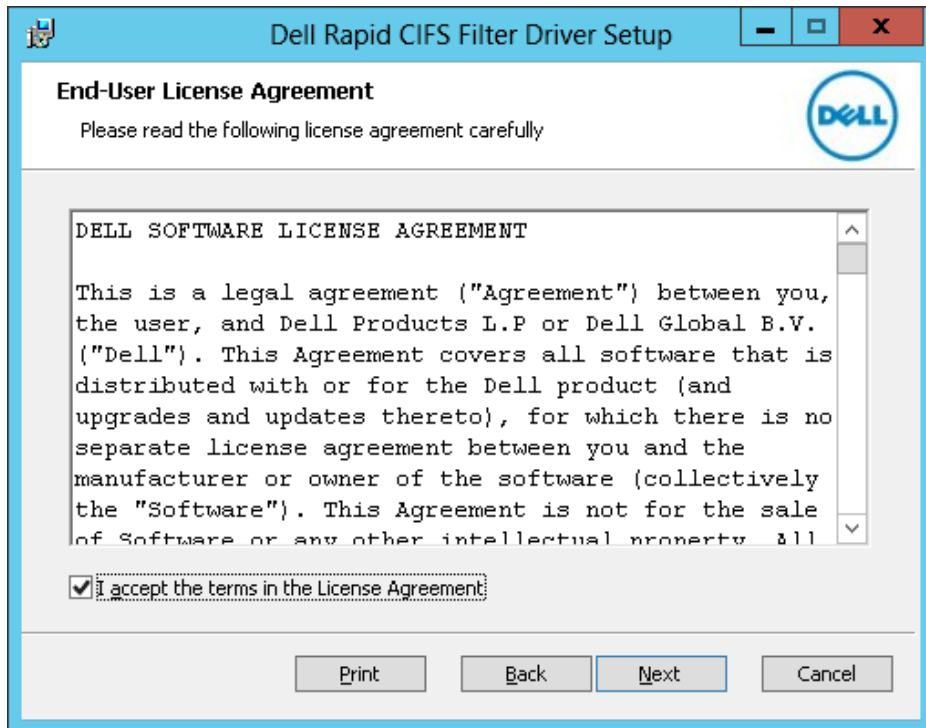
- The client OS must be the 64-bit version of Windows 2008 R2 or Windows 2012.
- The DR container share must be mapped on the client machine.

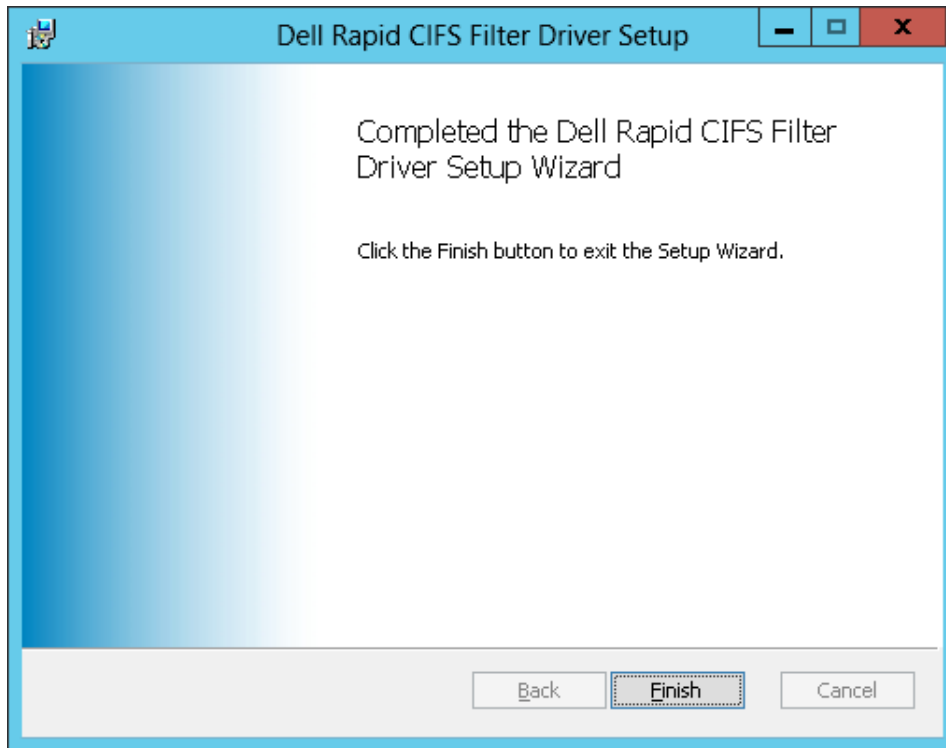
**NOTE:** For the accelerator to work properly, the backup traffic must go over CIFS directly to the DR Series system and not pass through a media server. If that is the case, you should install the RD CIFS on the media server.

## 1.2 Steps for installing Rapid CIFS

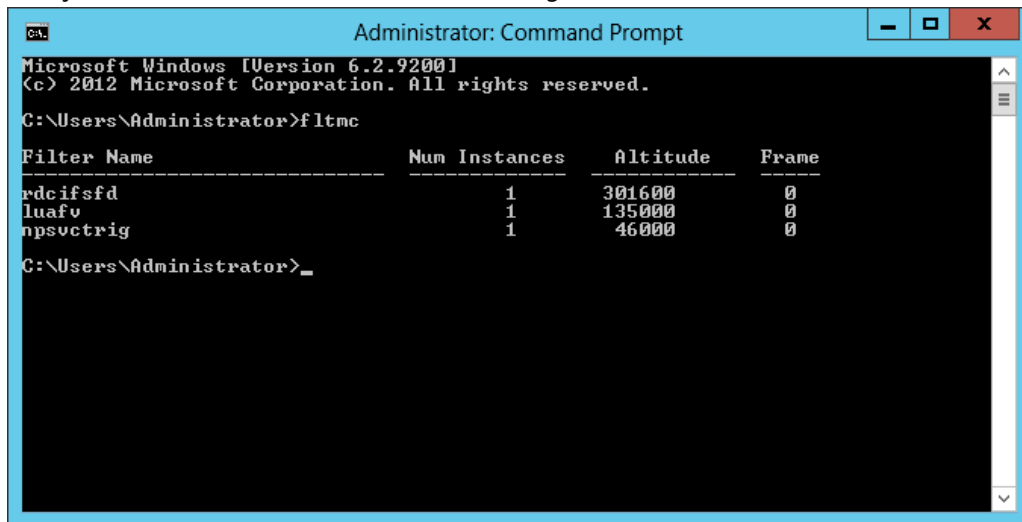
1. Download the MSI to the client box using the following steps:
  - a. Go to support.dell.com and navigate to your specific product, such as DR4100, DR6000, etc.
  - b. On the support page for your product, click **Drivers & Downloads**.
  - c. Expand the IDM category, and for the RDCIFS plugin for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





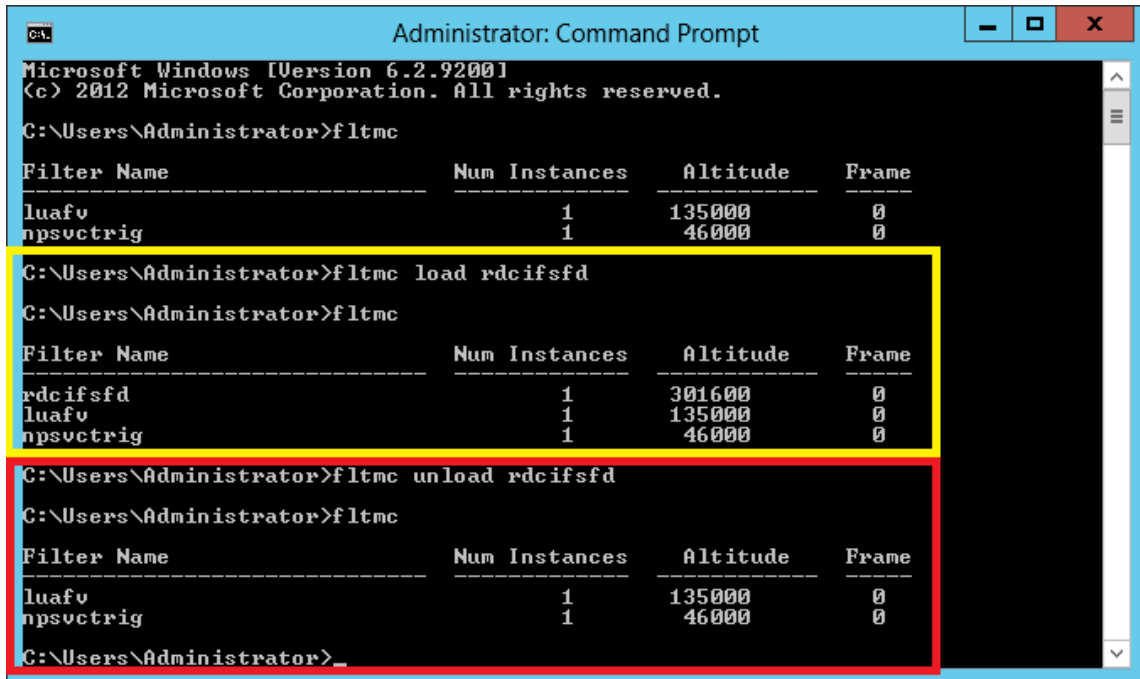


3. Verify that the "**rdcifsfd**" driver is loaded using the command **fltmc**.



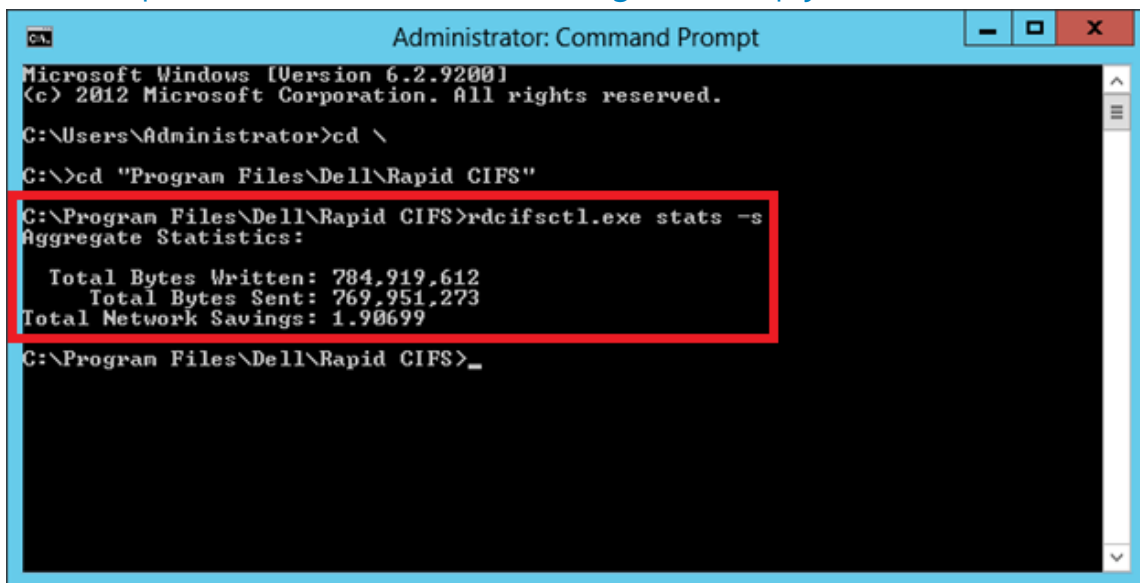
## 1.3 Features of Rapid CIFS

### 1.3.1 Load and unload Rapid CIFS



```
Administrator: Command Prompt
Microsoft Windows [Version 6.2.9200]
(c) 2012 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>fltmc
Filter Name                Num Instances  Altitude  Frame
-----
luaful                     1             135000    0
npsvcctrl                  1             46000    0
C:\Users\Administrator>fltmc load rdcifsf
C:\Users\Administrator>fltmc
Filter Name                Num Instances  Altitude  Frame
-----
rdcifsf                    1             301600    0
luaful                     1             135000    0
npsvcctrl                  1             46000    0
C:\Users\Administrator>fltmc unload rdcifsf
C:\Users\Administrator>fltmc
Filter Name                Num Instances  Altitude  Frame
-----
luaful                     1             135000    0
npsvcctrl                  1             46000    0
C:\Users\Administrator>_
```

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

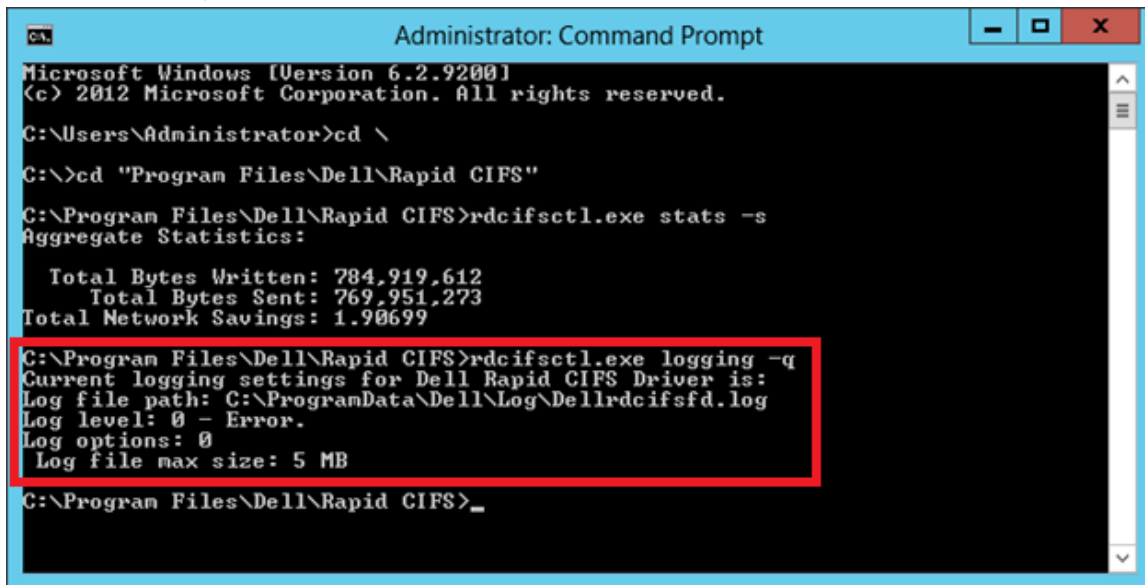


```
Administrator: Command Prompt
Microsoft Windows [Version 6.2.9200]
(c) 2012 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>cd \
C:\>cd "Program Files\Dell\Rapid CIFS"
C:\Program Files\Dell\Rapid CIFS>rdcifscctl.exe stats -s
Aggregate Statistics:
  Total Bytes Written: 784,919,612
  Total Bytes Sent: 769,951,273
  Total Network Savings: 1.90699
C:\Program Files\Dell\Rapid CIFS>_
```



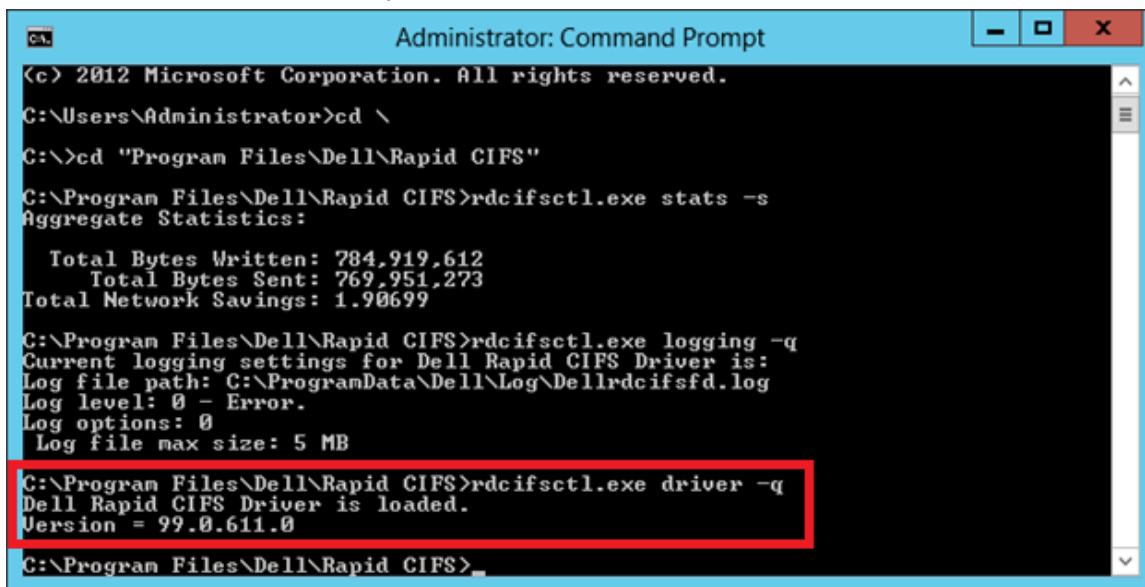


### 1.3.3 View the log of Rapid CIFS



```
Administrator: Command Prompt
Microsoft Windows [Version 6.2.9200]
(c) 2012 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>cd \
C:\>cd "Program Files\Dell\Rapid CIFS"
C:\Program Files\Dell\Rapid CIFS>rdcifsctl.exe stats -s
Aggregate Statistics:
    Total Bytes Written: 784,919,612
    Total Bytes Sent: 769,951,273
Total Network Savings: 1.90699
C:\Program Files\Dell\Rapid CIFS>rdcifsctl.exe logging -q
Current logging settings for Dell Rapid CIFS Driver is:
Log file path: C:\ProgramData\Dell\Log\Dellrdcifsfd.log
Log level: 0 - Error.
Log options: 0
Log file max size: 5 MB
C:\Program Files\Dell\Rapid CIFS>_
```

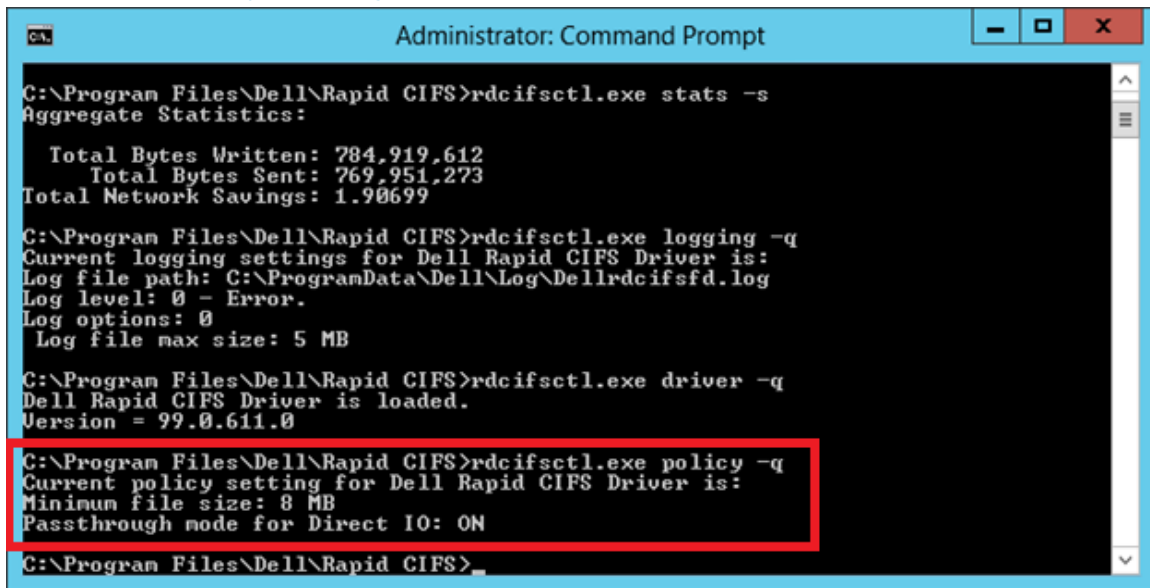
### 1.3.4 View the version of Rapid CIFS



```
Administrator: Command Prompt
(c) 2012 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>cd \
C:\>cd "Program Files\Dell\Rapid CIFS"
C:\Program Files\Dell\Rapid CIFS>rdcifsctl.exe stats -s
Aggregate Statistics:
    Total Bytes Written: 784,919,612
    Total Bytes Sent: 769,951,273
Total Network Savings: 1.90699
C:\Program Files\Dell\Rapid CIFS>rdcifsctl.exe logging -q
Current logging settings for Dell Rapid CIFS Driver is:
Log file path: C:\ProgramData\Dell\Log\Dellrdcifsfd.log
Log level: 0 - Error.
Log options: 0
Log file max size: 5 MB
C:\Program Files\Dell\Rapid CIFS>rdcifsctl.exe driver -q
Dell Rapid CIFS Driver is loaded.
Version = 99.0.611.0
C:\Program Files\Dell\Rapid CIFS>_
```



### 1.3.5 View the policy setting for Rapid CIFS



```
C:\Program Files\Dell\Rapid CIFS>rdcifsctl.exe stats -s
Aggregate Statistics:
    Total Bytes Written: 784,919,612
    Total Bytes Sent: 769,951,273
Total Network Savings: 1.90699

C:\Program Files\Dell\Rapid CIFS>rdcifsctl.exe logging -q
Current logging settings for Dell Rapid CIFS Driver is:
Log file path: C:\ProgramData\Dell\Log\Dellrdcifsfd.log
Log level: 0 - Error.
Log options: 0
Log file max size: 5 MB

C:\Program Files\Dell\Rapid CIFS>rdcifsctl.exe driver -q
Dell Rapid CIFS Driver is loaded.
Version = 99.0.611.0

C:\Program Files\Dell\Rapid CIFS>rdcifsctl.exe policy -q
Current policy setting for Dell Rapid CIFS Driver is:
Minimum file size: 8 MB
Passthrough mode for Direct IO: ON

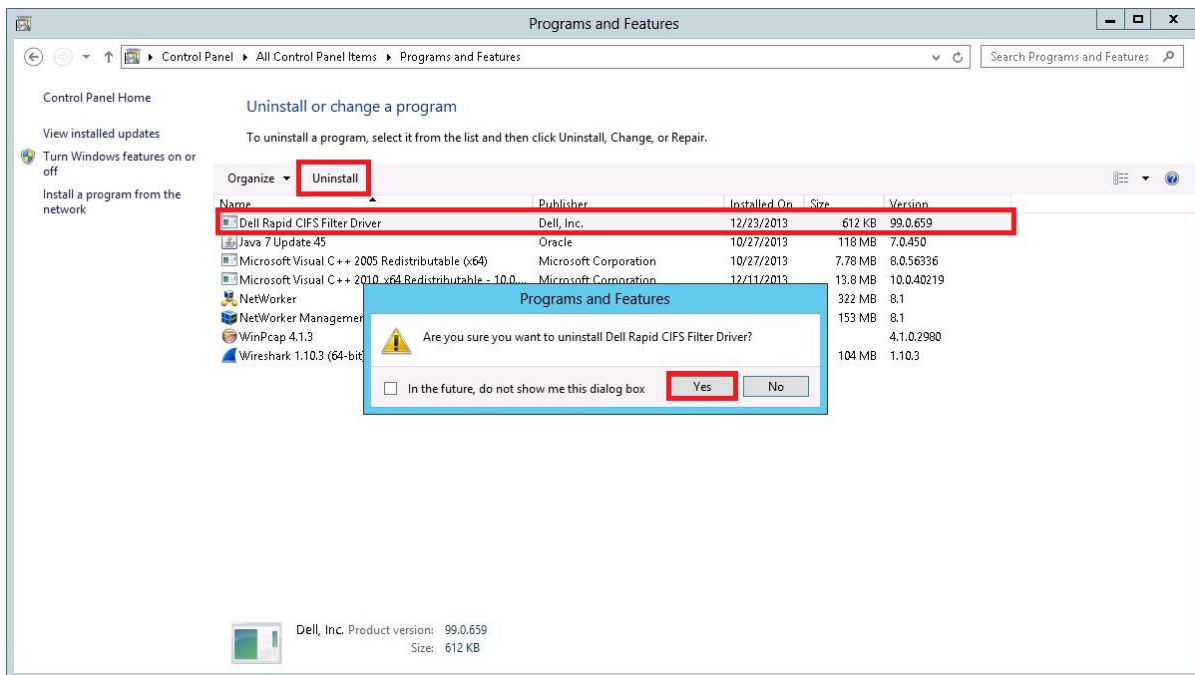
C:\Program Files\Dell\Rapid CIFS>
```

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](http://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... #####
oca-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]**



```
[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 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, arcserve, auto, cv, dump, hdm,
                hpdp, 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

usage: rdnfs -v
```



## 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
MKDIR:        137      0      5.390518
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
SETXATTR:     0        0      0.000000
GETXATTR:     0        0      0.000000
LISTXATTR:    0        0      0.000000
REMOVEXATTR:  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 nw 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**

