

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

## Technical White Paper

Quest Engineering

October 2017



© 2017 Quest Software Inc.

## ALL RIGHTS RESERVED.

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

This guide contains proprietary information protected by copyright. The software described in this guide is furnished under a software license or nondisclosure agreement. This software may be used or copied only in accordance with the terms of the applicable agreement. No part of this guide may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording for any purpose other than the purchaser's personal use without the written permission of Quest Software Inc.

The information in this document is provided in connection with Quest Software products. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document or in connection with the sale of Quest Software products. EXCEPT AS SET FORTH IN THE TERMS AND CONDITIONS AS SPECIFIED IN THE LICENSE AGREEMENT FOR THIS PRODUCT, QUEST SOFTWARE ASSUMES NO LIABILITY WHATSOEVER AND DISCLAIMS ANY EXPRESS, IMPLIED OR STATUTORY WARRANTY RELATING TO ITS PRODUCTS INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT SHALL QUEST SOFTWARE BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, BUSINESS INTERRUPTION OR LOSS OF INFORMATION) ARISING OUT OF THE USE OR INABILITY TO USE THIS DOCUMENT, EVEN IF QUEST SOFTWARE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Quest Software makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Quest Software does not make any commitment to update the information contained in this document.

If you have any questions regarding your potential use of this material, contact:

Quest Software Inc.

Attn: LEGAL Dept

4 Polaris Way

Aliso Viejo, CA 92656

Refer to our Web site (<https://www.quest.com>) for regional and international office information.

## Patents

Quest Software is proud of our advanced technology. Patents and pending patents may apply to this product. For the most current information about applicable patents for this product, please visit our website at <https://www.quest.com/legal>.

## Trademarks

Quest, the Quest logo, and Join the Innovation are trademarks and registered trademarks of Quest Software Inc. For a complete list of Quest marks, visit <https://www.quest.com/legal/trademark-information.aspx>. 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. Zmanda is a trademark of Zmanda Incorporated in the USA. All other trademarks and registered trademarks are property of their respective owners.

## Legend

 **WARNING:** A WARNING icon indicates a potential for property damage, personal injury, or death

 **CAUTION:** A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.

 **IMPORTANT, NOTE, TIP, MOBILE, or VIDEO:** An information icon indicates supporting information.

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

Updated: December 22, 2017

# Contents

<b>Installing Rapid CIFS (RDCIFS)</b> .....	<b>6</b>
Prerequisites .....	6
Installing Rapid CIFS .....	6
Loading and unloading Rapid CIFS .....	9
Viewing Rapid CIFS status while running a backup job on the DMA .....	10
Viewing the Rapid CIFS log .....	10
Viewing the Rapid CIFS version .....	11
Viewing the policy setting for Rapid CIFS.....	11
Uninstalling Rapid CIFS .....	12
<b>Installing Rapid NFS (RDNFS)</b> .....	<b>13</b>
Prerequisites .....	13
Installing Rapid NFS .....	13
Using the main commands: ru and rd nfs .....	14
Viewing Rapid NFS statistics .....	15
Viewing the Rapid NFS log .....	16
Viewing the Rapid NFS version .....	16
Uninstalling Rapid NFS .....	16

# Executive Summary

---

This document provides information about installing Quest DR Series system CIFS and NFS protocol accelerators (called Rapid CIFS and Rapid NFS, respectively) on Windows and/or Linux client machines. This document 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:

<https://support.quest.com/dr-series/DR6300/technical-documents>



**NOTE:** The DR Series system/ RDCIFS and RDNFS build version and screenshots used in this document might vary slightly, depending on the version of the DR Series system/ RDCIFS and RDNFS software version you are using.

# Revisions

---

Date	Description
January 2014	Initial release
July 2015	Updated to support all DR Series systems
September 2015	Updated locations for downloading the Quest Rapid plugins as well as updated prerequisites for Linux.
October 2017	Updated screenshots and content with rebranding changes and new locations for downloading the Quest Rapid plugins.

# Installing Rapid CIFS (RDCIFS)

## Prerequisites

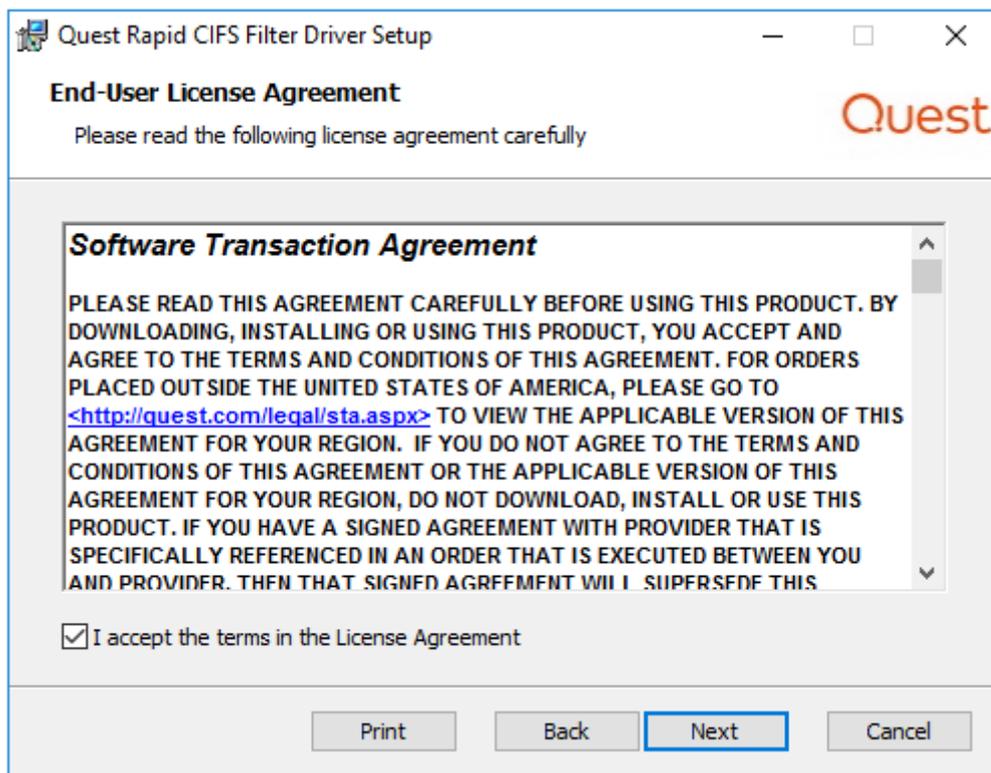
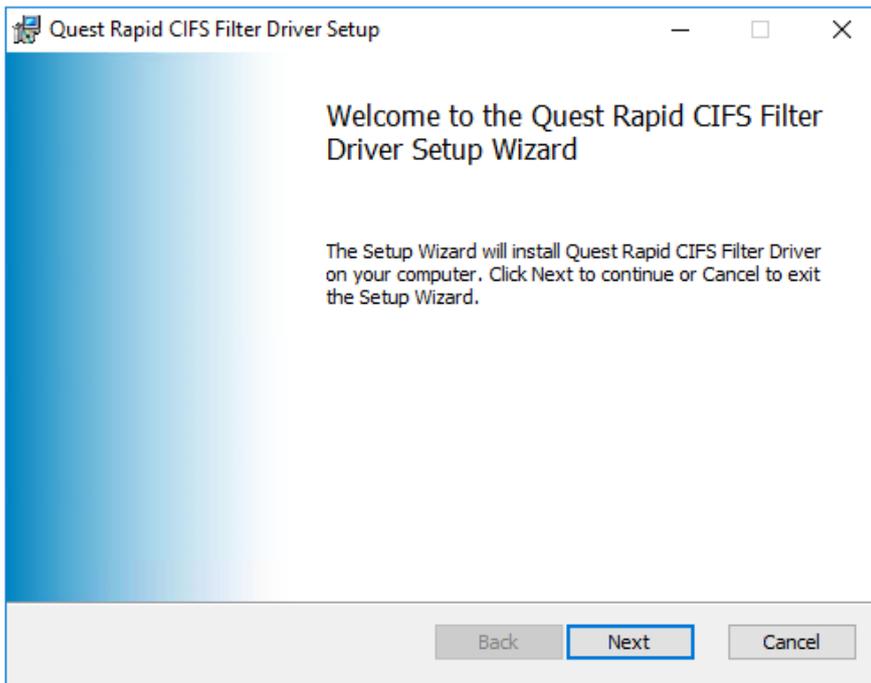
- The client OS must be the 64-bit version of Windows 2008 R2 or Windows 2012.
- The DR Series system container share must be mapped on the client machine.
- Hardware requirements include a minimum 4-core CPU, 2GB memory and aggregate CPU power of 3GHz.
- Rapid CIFS cannot be installed on a Domain Controller.

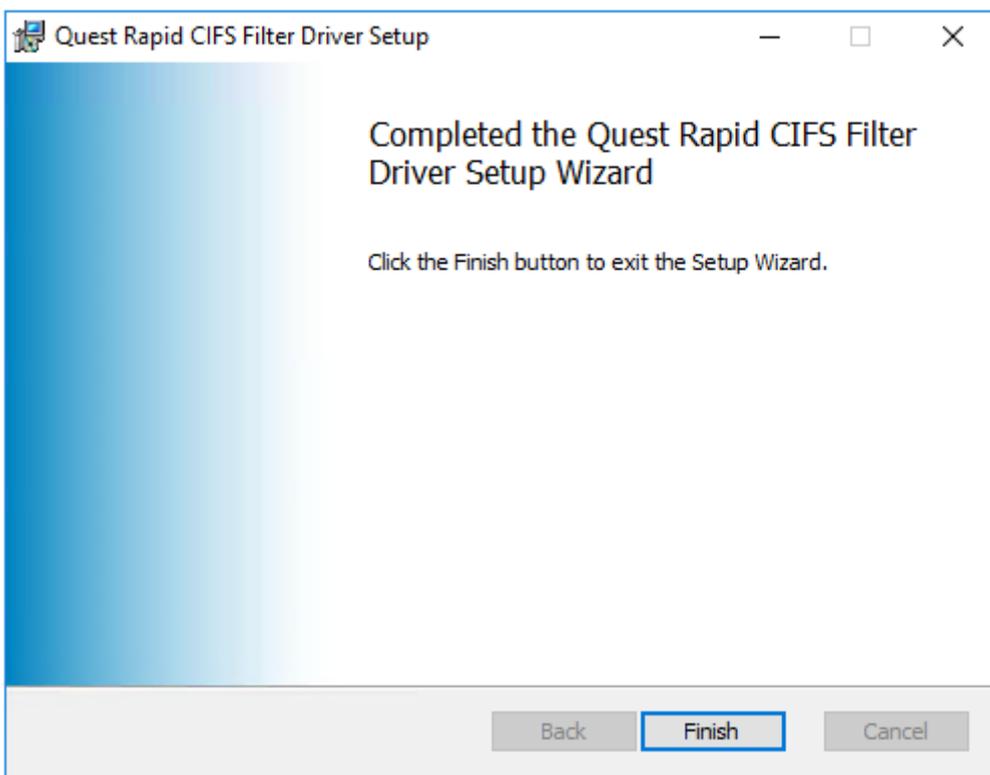
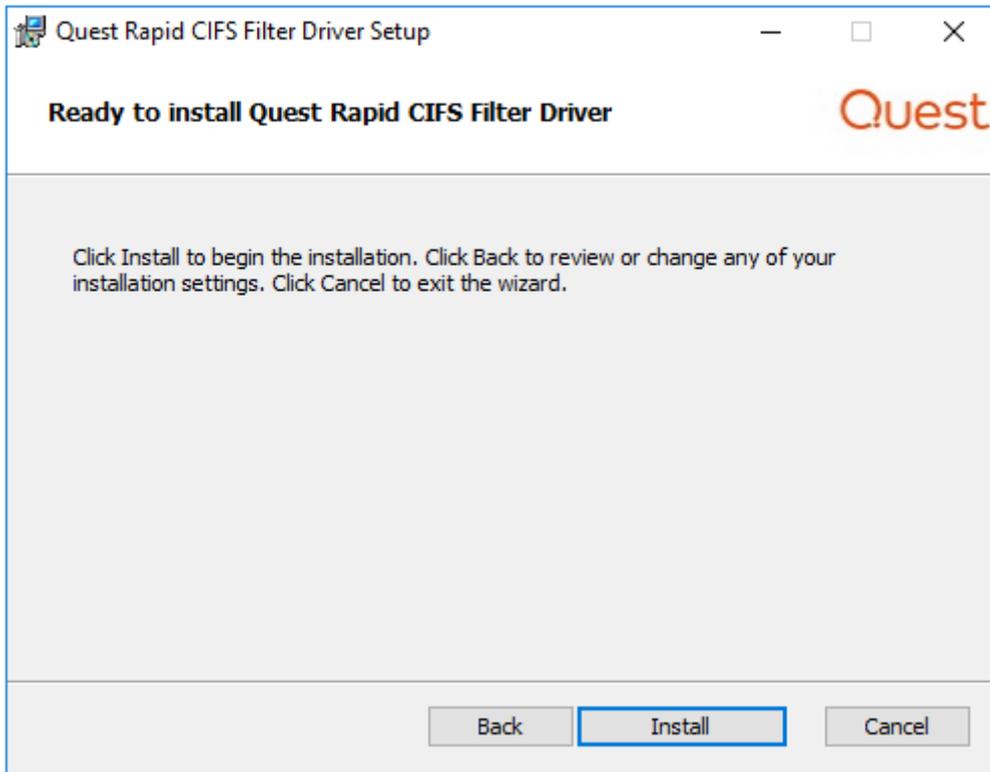


**NOTE:** For the accelerator to work properly, the backup traffic must go over CIFS directly to the DR Series system and not pass through a media server. If that is the case, you should install the RD CIFS on the media server.

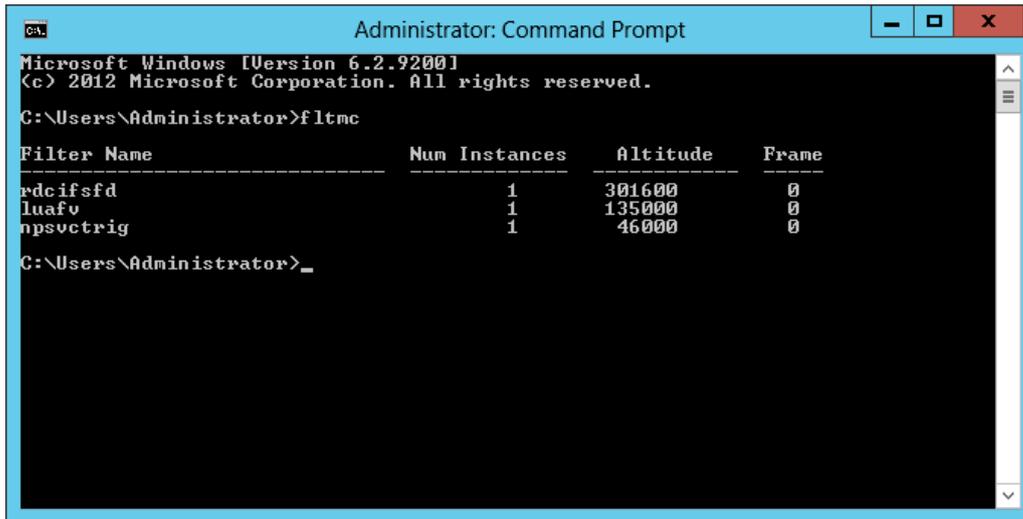
## Installing Rapid CIFS

1. Download the MSI to the client box using the following steps:
  - a Go to [support.quest.com](http://support.quest.com) and navigate to your specific product, such as DR4100, DR6000, etc.
  - b On the support page for your product, click all downloads from Download Software.
  - c Download RDCIFS plugin for your DR Series system OS version.
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`.



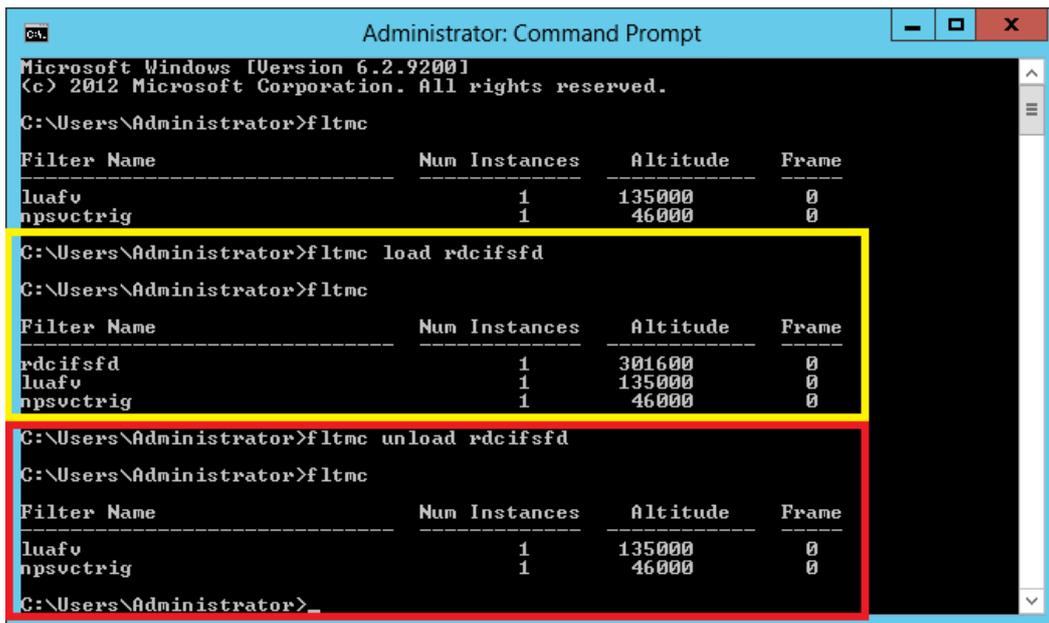
```
Administrator: Command Prompt
Microsoft Windows [Version 6.2.9200]
(c) 2012 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>fltmc

Filter Name                Num Instances  Altitude  Frame
-----
rdcifsfd                   1             301600    0
luafv                      1             135000    0
npsvctrig                  1             46000     0

C:\Users\Administrator>_
```

## Loading and unloading 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
-----
luafv                      1             135000    0
npsvctrig                  1             46000     0

C:\Users\Administrator>fltmc load rdcifsfd
C:\Users\Administrator>fltmc

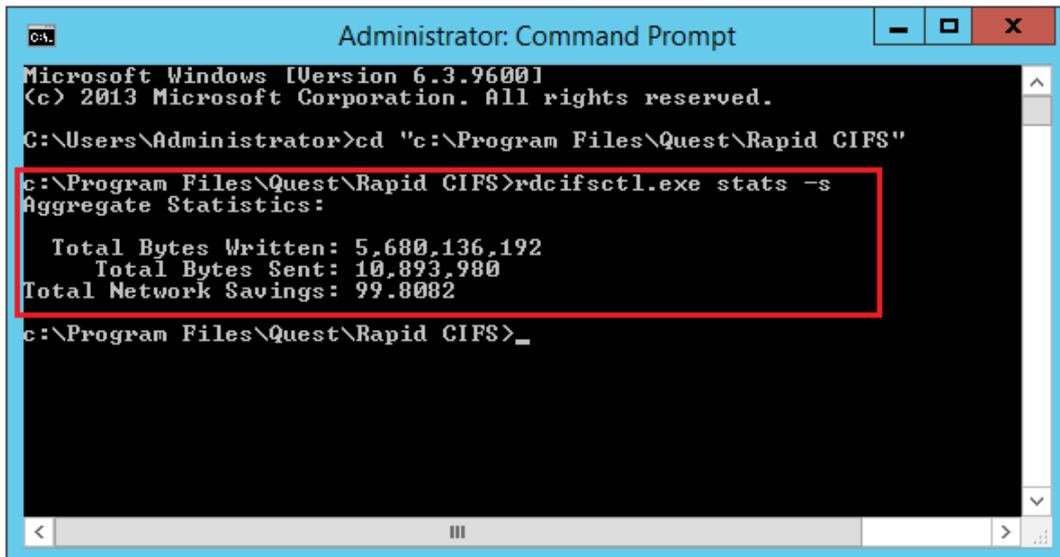
Filter Name                Num Instances  Altitude  Frame
-----
rdcifsfd                   1             301600    0
luafv                      1             135000    0
npsvctrig                  1             46000     0

C:\Users\Administrator>fltmc unload rdcifsfd
C:\Users\Administrator>fltmc

Filter Name                Num Instances  Altitude  Frame
-----
luafv                      1             135000    0
npsvctrig                  1             46000     0

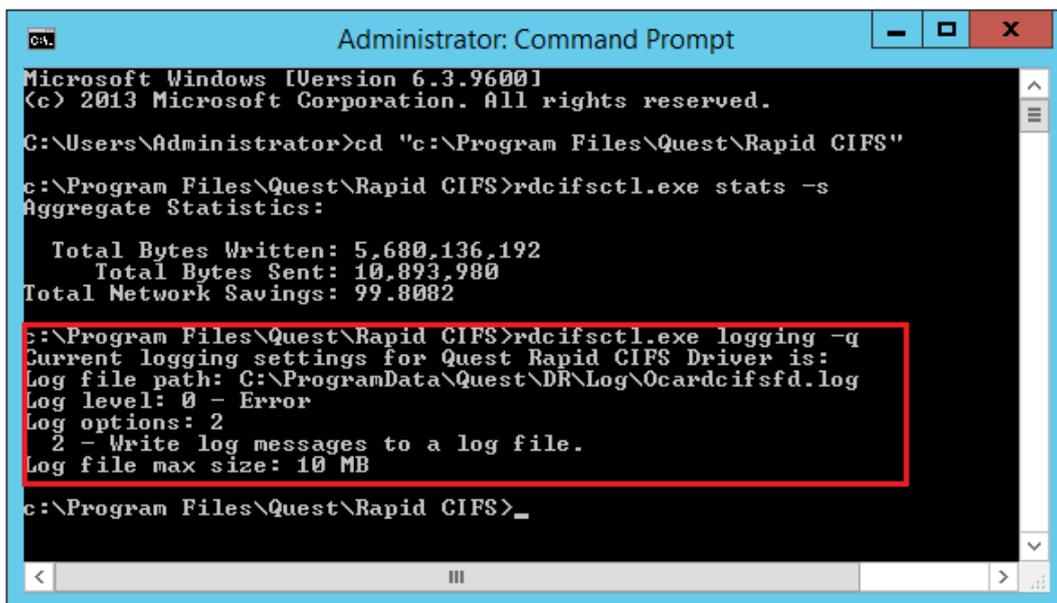
C:\Users\Administrator>_
```

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



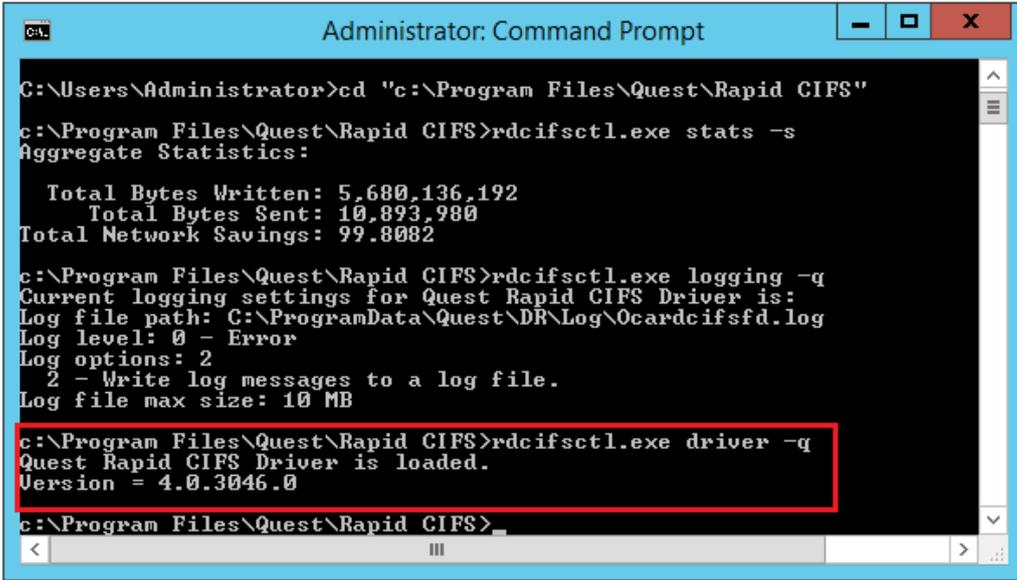
```
Administrator: Command Prompt
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>cd "c:\Program Files\Quest\Rapid CIFS"
c:\Program Files\Quest\Rapid CIFS>rdcifsctl.exe stats -s
Aggregate Statistics:
    Total Bytes Written: 5,680,136,192
    Total Bytes Sent: 10,893,980
    Total Network Savings: 99.8082
c:\Program Files\Quest\Rapid CIFS>_
```

# Viewing the Rapid CIFS log



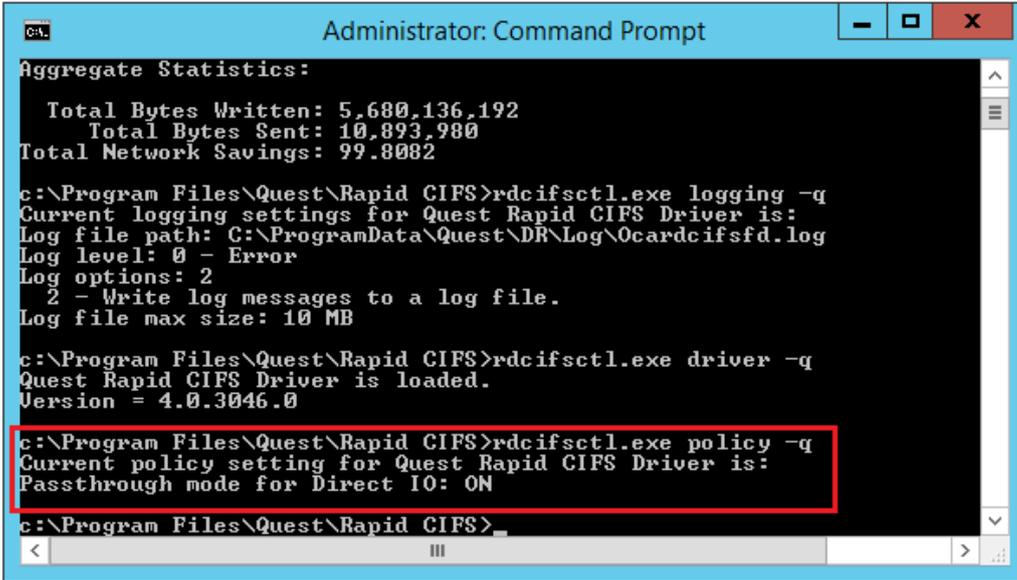
```
Administrator: Command Prompt
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.
C:\Users\Administrator>cd "c:\Program Files\Quest\Rapid CIFS"
c:\Program Files\Quest\Rapid CIFS>rdcifsctl.exe stats -s
Aggregate Statistics:
    Total Bytes Written: 5,680,136,192
    Total Bytes Sent: 10,893,980
    Total Network Savings: 99.8082
c:\Program Files\Quest\Rapid CIFS>rdcifsctl.exe logging -q
Current logging settings for Quest Rapid CIFS Driver is:
Log file path: C:\ProgramData\Quest\DR\Log\0cardcifsfd.log
Log level: 0 - Error
Log options: 2
    2 - Write log messages to a log file.
Log file max size: 10 MB
c:\Program Files\Quest\Rapid CIFS>_
```

# Viewing the Rapid CIFS version



```
Administrator: Command Prompt
C:\Users\Administrator>cd "c:\Program Files\Quest\Rapid CIFS"
c:\Program Files\Quest\Rapid CIFS>rdcifsctl.exe stats -s
Aggregate Statistics:
    Total Bytes Written: 5,680,136,192
    Total Bytes Sent: 10,893,980
Total Network Savings: 99.8082
c:\Program Files\Quest\Rapid CIFS>rdcifsctl.exe logging -q
Current logging settings for Quest Rapid CIFS Driver is:
Log file path: C:\ProgramData\Quest\DR\Log\Ocardcifsfd.log
Log level: 0 - Error
Log options: 2
    2 - Write log messages to a log file.
Log file max size: 10 MB
c:\Program Files\Quest\Rapid CIFS>rdcifsctl.exe driver -q
Quest Rapid CIFS Driver is loaded.
Version = 4.0.3046.0
c:\Program Files\Quest\Rapid CIFS>
```

# Viewing the policy setting for Rapid CIFS

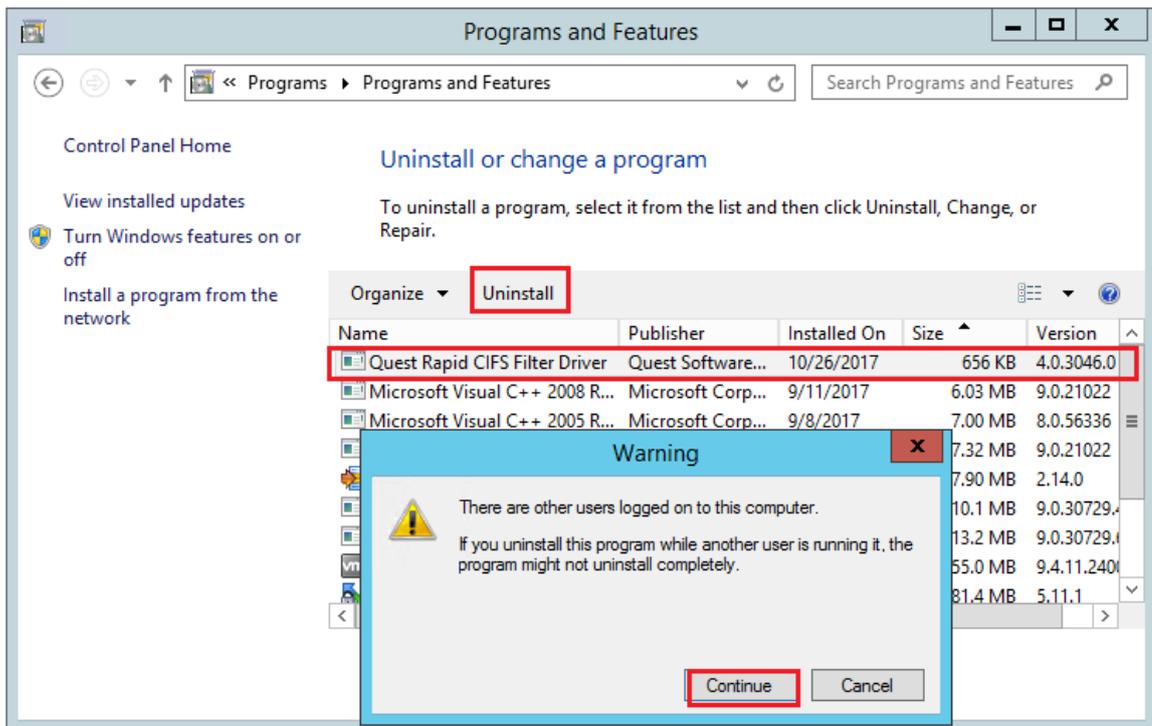


```
Administrator: Command Prompt
Aggregate Statistics:
    Total Bytes Written: 5,680,136,192
    Total Bytes Sent: 10,893,980
Total Network Savings: 99.8082
c:\Program Files\Quest\Rapid CIFS>rdcifsctl.exe logging -q
Current logging settings for Quest Rapid CIFS Driver is:
Log file path: C:\ProgramData\Quest\DR\Log\Ocardcifsfd.log
Log level: 0 - Error
Log options: 2
    2 - Write log messages to a log file.
Log file max size: 10 MB
c:\Program Files\Quest\Rapid CIFS>rdcifsctl.exe driver -q
Quest Rapid CIFS Driver is loaded.
Version = 4.0.3046.0
c:\Program Files\Quest\Rapid CIFS>rdcifsctl.exe policy -q
Current policy setting for Quest Rapid CIFS Driver is:
Passthrough mode for Direct IO: ON
c:\Program Files\Quest\Rapid CIFS>
```

**i** NOTE: These settings should not be changed, unless requested by the DR Series system engineering team.

# Uninstalling Rapid CIFS

- Open Programs and Features, select the CIFS accelerator, and then click **Uninstall**. At the Warning prompt, click **Continue**.



---

# Installing Rapid NFS (RDNFS)

## Prerequisites

- The client OS must be the 64-bit version of CentOS or SUSE.
- Hardware requirements include a minimum 4-core CPU, 2GB memory and aggregate CPU power 3GHz.
- The FUSE module should already be installed, as follows. On the 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/opensv/lib/`.

## Installing Rapid NFS

4. Download the installation package to the client box using the following steps:
  - a Go to [support.quest.com](http://support.quest.com) and navigate to your specific product, such as DR4100, DR6000, etc.
  - b On the support page for your product, click all downloads from Download Software.
  - c Download RDNFS plugin for your DR Series system OS version.
  - d 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/opensv/lib/`.
5. On the NFS client machine, assuming that the current working directory has the installation package named **QuestRapidNFS-4.0.3026.0-x86\_64-RHEL.bin.gz**, run the following commands in order:
  - `gunzip ./QuestRapidNFS-4.0.3026.0-x86_64-RHEL.bin.gz`
  - `chmod a+x ./QuestRapidNFS-4.0.3026.0-x86_64-RHEL.bin`

- a Run the installer: `./QuestRapidNFS-4.0.3026.0-x86_64-RHEL.bin -install`

```
[root@IvanW-RHEL6-02 ~]# ./QuestRapidNFS-4.0.3026.0-x86_64-RHEL.bin -install
Starting, please wait...
RDNFS file systems are not mounted, proceeding with installation...
2 processors with 4 cores each running at average 2500 MHz ...
Total computing power 20000 MHz ...
Preparing... #####
Updating / installing...
QuestRapidNFS-403026.0-64846 #####
oca-libs-403026.0-64846 #####

Installation successful!

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

Cleaning up, please wait...
[root@IvanW-RHEL6-02 ~]#
```

- b Create a directory on client machine: `mkdir /mnt/backup`

- c 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)
```

## Using the 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 4.0.3026 [Built Sep 14 2017 19:39:11]
[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, tsm or acronis

       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
[root@IvanW-RHEL6-02 ~]#
```

# Viewing Rapid NFS statistics

```
[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
```

## Viewing the Rapid NFS log

```
[root@IvanW-RHEL6-02 ~]# tail -f /var/log/rdnfs.log
2017-10-27 06:18:02 rdnfs [/mnt/backup]: Log level set to [0]2017-10-27 06:18:
02 rdnfs [/mnt/backup]: RDNFS: Processor evaluation
2017-10-27 06:18:02 rdnfs [/mnt/backup]: Physical processors: 2
2017-10-27 06:18:02 rdnfs [/mnt/backup]: Cores per physical processors: 4
2017-10-27 06:18:02 rdnfs [/mnt/backup]: Hyperthreading is off
2017-10-27 06:18:02 rdnfs [/mnt/backup]: Each core is running at 2500 MHz
2017-10-27 06:18:02 rdnfs [/mnt/backup]: Total computing power: 20000 MHz
2017-10-27 06:18:02 rdnfs [/mnt/backup]: Version: (EAR-4.0.3026) Build:
64846
Replication Protocol ver: 6
Built: Sep 14 2017 19:38:26
```

## Viewing the Rapid NFS version

```
[root@IvanW-RHEL6-02 ~]# rdnfs -v
(EAR-4.0.3026) Build: 64846
Replication Protocol ver: 6
Built: Sep 14 2017 19:38:26
[root@IvanW-RHEL6-02 ~]# ru --mpt=/mnt/backup --show=version
(EAR-4.0.3026) Build: 64846
Replication Protocol ver: 6
Built: Sep 14 2017 19:38:26
[root@IvanW-RHEL6-02 ~]#
```

## Uninstalling Rapid NFS

Run the installer with the uninstall option.

- `./QuestRapidNFS-4.0.3026.0-x86_64-RHEL.bin --uninstall`