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# Important QTS Update for Potential Silent Data Corruption on NAS Using RAID 5/6

Release date: July 25, 2017 (Updated: 2017/07/27) Severity: Critical

# Scope

Update (2017/07/27): The following table contains a more complete list of unaffected models.

Question	Answer			
Question	Yes	No		
Are you using any of the following models?	Your NAS is not affected.	Proceed to the next question.		
1-bay:				
- TAS-168				
- TS-109 / TS-109 Pro / TS-109 II / TS-109 Pro II				
- TS-110				
- TS-112 / TS-112P				
- TS-119 / TS-119P+ / TS-119P II				
- TS-120				
- TS-121				
- TS-128				
- TS-131				
2-bay:				
- HS-210				
- TAS-268				
- TS-209 / TS-209 Pro / TS-209 Pro II / TS-209 II				
- TS-210				
- TS-212 / TS-212P / TS-212E				
- TS-219 / TS-219P / TS-219P+ / TS-219P II				
- TS-220				
- TS-221				
- TS-228				
- TS-231				
- TS-239H / TS-269H				
- TS-239 Pro / TS-239 Pro II / TS-239 Pro II+				
- TS-259 Pro / TS-259 Pro+				
- TS-269 Pro / TS-269L				
4-bay:				
- SS-439 Pro				
- TS-409 / TS-409 Pro / TS-409U				
- TS-410 / TS-410U				
- TS-412 / TS-412U				

<ul> <li>- TS-419P / TS-419P+ / TS-419P II / TS-419U / TS-419U+ / TS-419U II</li> <li>- TS-420 / TS-420-D / TS-420U</li> <li>- TS-421 / TS-421U</li> <li>- TS-431 / TS-431U</li> <li>- TS-439 Pro / TS-439 Pro II / TS-439 Pro II+ / TS-439U-RP/SP</li> <li>- TS-459 Pro / TS-459 Pro+ / TS-459 Pro II / TS-459U-RP/SP / TS-459U-RP+/SP+</li> <li>- TS-469 Pro / TS-469L / TS-469U-RP / TS-469U-SP</li> </ul>		
5-bay: - TS-509 Pro - TS-559 Pro / TS-559 Pro+ / TS-559 Pro II - TS-569 Pro / TS-569L		
6-bay: - TS-639 Pro - TS-659 Pro / TS-659 Pro+ / TS-659 Pro II - TS-669 Pro / TS-669L		
8-bay: - SS-839 Pro - TS-809 Pro / TS-809U-RP - TS-859 Pro / TS-859 Pro+ / TS-859U-RP / TS-859U-RP+ - TS-869 Pro / TS-869L / TS-869U-RP		
12-bay: - TS-1269U-RP		
Are you using RAID 5 or RAID 6?	Proceed to the next question.	Your NAS is not affected.
<ul> <li>Have you ever installed any of the following builds?</li> <li>4.2.x: Builds released between versions 4.2.0 and 4.2.6</li> <li>4.3.x: Builds released before version 4.3.3.0238 build 20170703</li> <li>Update (2017/07/27): 4.3.x: Builds released before version 4.3.3.0154 build 20170413</li> </ul>	Follow the recommended solution.	Your NAS is not affected.

## Summary

A RAID 5 and RAID 6 algorithm issue that was reported by IT expert Wayne Small has been resolved in QTS builds released after April 17, 2017.

Silent data corruption might have occurred on NAS devices with affected QTS builds and RAID 5 or RAID 6 configurations. The latest QTS builds already address this issue and users can recover corrupted data by installing a recent build and then performing RAID scrubbing. However, RAID scrubbing cannot recover corrupted data if the RAID is degraded.

For details, see the related FAQ: https://www.qnap.com/en/support/con\_show.php?cid=121

#### **Solution**

QNAP recommends installing any of the following QTS builds:

- QTS 4.3.3.0238 Build 20170703
- QTS 4.2.6 Build 20170628 (only for NAS devices that do not support 4.3.x)
- Update (2017/07/27): NAS devices that do not support QTS 4.3.x are not affected.

After installing the update, you must also perform RAID scrubbing in order to detect and repair silent data corruption. When RAID scrubbing is enabled, QTS automatically verifies all parity blocks and fixes all mismatched parities to ensure data integrity.

**Important:** Your NAS usage and RAID capacity greatly affects the RAID scrubbing completion time. It may take any time from several hours to several days, depending on how often the NAS is accessed and on the NAS capacity. QNAP recommends minimizing NAS access while RAID scrubbing is in progress.

Please contact QNAP Support at scrubbing\_support@qnap.com if you have any further questions.

## Installing the Update

- 1. Log on to QTS as administrator.
- 2. Go to Control Panel > System > Firmware Update.
- 3. Under Live Update, click Check for Update.

QTS downloads and installs the latest available update.

Tip: You can also download the build from the QNAP website. Go to Support > Download and then perform a manual update.

#### Performing RAID Scrubbing

- 1. Log on to QTS as administrator.
- 2. Go to "Storage Manager" > "Storage Space".
- 3. Select the storage pool or volume that contains the RAID 5 or RAID 6 group and then click "Manage".

Storage Manager							- + ×
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DASHBOARD	^	Total - Storage Pool: 2, Volume: 3, LUN: 1 🐧			Create New -	Snapshot -	Manage
Overview		Name/Alias	Status	Backup	Capacity	Percent Used	
ណ៍ Utilization		Storage Pool 1	🧭 Ready		3.62 TB		
STORAGE	^	- 🔜 Data	🔮 Ready	-	294.65 GB		<b>©</b> : 18
Disks/VJBOD		- 🞰 Locker	🔒 Locked	-	-	-	
Storage Space		- 🔜 System (System)	🔮 Ready	-	1.52 TB		<b>O</b> : 256
Cache Acceleration		- 🥃 Test1GB_0	🔮 Ready	-	1.00 GB		<b>10</b> : 6
Snapshot		- 📰 V_DataVol1 (172.17.30.10)	🔮 Ready	-	294.65 GB	-	<b>10</b> : 30
🚍 External Device		Storage Pool 2 (VJBOD 1)	🕑 Ready		1014.50 GB		
iscsi	^						
📾 iSCSI Storage							
EUN Backup							
VIRTUAL DISK	^						
Bemote Disk							

4. Select the RAID group, click "Manage", and then select "RAID Scrubbing".

Storage Manager							- + ×
	Storage Pool 1 Manager	nent				$+ \times$	<b>7</b> 🕸 ?
DASHBOARD							Manage
Overview	Name/Alias: Storage Pool 1 👌	/41.41 GB (20 %)	Remove	• Expa	nd Pool	Actions -	
ត់ពី Utilization	Snapshot used:	12.40 GB (0.33 %)					
STORAGE	Status:	Ready				e	<b>O</b> : 29
Disks/VJBOD						Managa	
Storage Space	RAID Group of Storage Pool 1					Manage 🔹	_
	Name/Alias	Capacity	RAID Type	BBM	Bitmap	Replace Disks One by On	e
	RAID Group 1	3.62 TB	RAID 5	Yes	Disabled	Add Disk	
Snapshot	NAS Host: Disk 1	1.82 TB	Good			Migrate	
💻 External Device	NAS Host: Disk 2	1.82 TB	Good Good			Configure Spare Dick	
	NAS Host: Disk 3	1.82 TB	Good			Configure Spare Disk	
ISCSI						Enable Bitmap	
📾 iSCSI Storage						Hecover	_
🔜 I I IN Backup						RAID Scrubbing	
						Close	
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QTS starts the RAID scrubbing process. To check the progress, go to **Control Panel > System > System Logs**, or click **Background Tasks** from the QTS task bar.

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System L	.ogs				Backgrou	und Tasks	-	+ ×
					- B/	AID Group: Scrubbing	-	?
	System Event Logs	System Conr	ection Logs	Online Users Sysle	og Client	AID Group 1		
All even	its 🔻 Clea	ar All Save	2			0.0	Scrubbing	>
Туре	Date	Time	Users	Source IP	Computer name	Content		
<u>(</u> )	2017/07/25	10:04:07	System	127.0.0.1	localhost	[Pool 1] Started RAID scrub	bing with RAID Group 1.	
<b>(i)</b>	2017/07/24	20:35:07	System	127.0.0.1	localhost	[Pool 1] RAID scrubbing don	e with RAID Group 1.	
í	2017/07/24	15:59:00	System	127.0.0.1	localhost	[Pool 1] Started RAID scrub	bing with RAID Group 1.	
(i)	2017/07/24	06:49:45	System	127.0.0.1	localhost	[Pool 1] RAID scrubbing don	e with RAID Group 1.	
(i)	2017/07/24	02:15:03	System	127.0.0.1	localhost	[Pool 1] Started RAID scrubb	bing with RAID Group 1.	
í	2017/07/17	06:28:18	System	127.0.0.1	localhost	[Pool 1] RAID scrubbing don	e with RAID Group 1.	
(i)	2017/07/17	02:15:01	System	127.0.0.1	localhost	[Pool 1] Started RAID scrub	bing with RAID Group 1.	
í	2017/07/11	01:09:55	System	127.0.0.1	localhost	[Pool 1] RAID scrubbing don	e with RAID Group 1.	
(i)	2017/07/10	20:34:00	System	127.0.0.1	localhost	[Pool 1] Started RAID scrub	bing with RAID Group 1.	
í	2017/07/10	06:31:38	System	127.0.0.1	localhost	[Pool 1] RAID scrubbing don	e with RAID Group 1.	
î	2017/07/10	02:15:01	Svstem	127.0.0.1	localhost	[Pool 1] Started RAID scrub	bing with RAID Group 1.	
<b>H</b>	Page 1	/1   >> >>>	S			Displa	y item: 1-13, Total: 13   Show 500 🔻	Item(s)

# Tip: To schedule RAID scrubbing, go to Global Settings > RAID Scrubbing and then click Edit.

Storage Manager			— <b>т</b> ^
	Glob	al Setting	× 🥑 🖗 ?
DASHBOARD	^	5	napshot - Manage
Overview		Edit	·
ណ៍ Utilization		Space Reclamation and SSD Trim Global SSD Trim settings.	
STORAGE	~	Close	<b>C</b> : 18
Disks/VJBOD		RAID Scrubbing	
Storage Space			<b>10</b> : 256
Cache Acceleration		O Daily 💿 Weekly O Monthly	<b>io</b> : 6
Snapshot		Time: 02 🔻 : 15 🔻 (hh:mm)	<b>io</b> : 30
📕 External Device			the second se
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📾 iSCSI Storage			<b>•</b>
🛃 LUN Backup		Finish Cancel	
VIRTUAL DISK	^		
🚍 Bemote Disk			

QIoT Suite Lite	DJ2 Live
QmailAgent	Qcontactz
WirelessAP Station	Qfiling
IFTTT Agent	QRM+

Q'center

Virtualization

Qsync

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