JBOD 擴充裝置

TL-R1200PES-RP
TL-R1600PES-RP
TL-R2400PES-RP

使用手冊

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1. 重要資訊

原包裝

請保留原包裝及包裝材料。當產品需要退回或送修時請使用原包裝，以免損壞產品。

若因包裝不當導致運送中產品發生之損壞，QNAP 恕不提供退款或保固服務。

硬體瑕疵

如果您的 QNAP 產品有硬體瑕疵，請將產品寄回 QNAP 或 QNAP 授權服務中心進行維修或換貨。只要您或未經授權的第三方嘗試修復產品或執行產品維修流程，皆會導致產品保固失效。

對於因未獲授權進行修改或安裝不支援之第三方應用程式所導致的任何損害或資料遺失，QNAP 一概不予負責。

如需詳細資訊，請參見：QNAP 產品保固服務條款。

安全資訊

以下指示幫助確保人身安全及環境安全。執行任何操作前，請仔細閱讀本安全指示。

一般指示

- 裝置應放置在實施進出管制的安全場所，控管方式包括工具、鎖鑰或其他安全機制。
- 唯有具技能且獲得授權的合格裝置管理員能夠存取裝置；合格裝置管理員必須熟悉所有管制方法、安全注意事項、安裝及保養程序。
- 為避免受傷或元件損壞，在觸碰硬碟及其他內部系統元件前，請先確認其是否已經冷卻。
- 請遵守靜電放電 (ESD) 程序以防止潛在傷害或元件損壞。

電源

- 為了降低走火或觸電風險，務必只將電源線連接至正確接地的電源插座。
-

  具有備援電源供應器的裝置可能配備一條或多條電源供應器 (PSU) 電源線。為防止嚴重傷害事故發生，在安裝或更換系統元件前，經訓練的維修技術人員必須先從裝置上拔除所有電源供應器的電源線。

移動的零件

-

  轉動的風扇葉片：裝置接上電源時，請使身體部位遠離正在轉動的風扇葉片。

-

  移動的元件：使身體部位遠離正在移動的其他元件。

- 該裝置不適合在兒童可能出現的地方使用。

2. 產品概觀

本章介紹 QNAP JBOD 擴充裝置的基本資訊。

關於 TL-Rx00PES-RP JBOD 系列

QNAP TL-Rx00PES-RP JBOD 擴充設備用於提升 NAS 的容量與利用率，支援大範圍的儲存應用。您可以獨立管理已安裝的硬碟，或透過主機 NAS 將其設定為軟體 RAID 群組。

TL-R1200PES-RP、TL-R1600PES-RP 與 TL-R2400PES-RP 有十二個、十六個及二十四個 3.5 吋 SATA 硬碟插槽以及兩個 SFF-8644 1x2 連接埠。

硬體規格

提示
型號規格如有變更，恕不另行通知。若要查看最新規格，請前往：https://www.qnap.com。

元件	TL-R1200PES-RP	TL-R1600PES-RP	TL-R2400PES-RP
儲存空間			
硬碟插槽	12 x 3.5 吋 SATA 6 Gbps	16 x 3.5 吋 SATA 6 Gbps	24 x 3.5 吋 SATA 6 Gbps
	注意 您可以向 QNAP 或授權經銷商購買硬碟托盤座。如需詳細資訊，請前往：https://shop.qnap.com/。		
硬碟相容性	3.5 吋插槽： • 3.5 吋 SATA 硬碟 • 2.5 吋 SATA 固態硬碟		
熱抽換	此裝置支援所有硬碟的熱抽換操作。		
外部 I/O 連接埠			
SFF 連接埠	2 x SFF-8644 1x2		
介面			
按鈕	電源		
LED 燈號			
系統	• 狀態 • 連結 • 風扇錯誤 • 硬碟 • 裝置 ID		
連接埠	• 連接器連結 • 連接器存取		
尺寸			
外觀規格	2U 機架式	3U 機架式	4U 機架式
尺寸 (高 x 寬 x 深)	88.65 x 482.2 x 423.8 mm (3.49 x 18.98 x 16.68 in)	131.3 x 482.2 x 425.3 mm (5.17 x 18.98 x 16.74 in)	176.15 x 480.74 x 672.05 mm (6.94 x 18.93 x 26.46 in)

元件	TL-R1200PES-RP	TL-R1600PES-RP	TL-R2400PES-RP
淨重	9.22 kg (20.33 lbs)	11.56 kg (25.49 lbs)	18.67 kg (41.16 lbs)
其他			
熱插拔	此裝置支援 QNAP NAS 的熱插拔。 如需詳細資訊，請參見：在 NAS 熱插拔 JBOD 擴充裝置。		
滑軌相容性	Rail-B02	Rail-B02	Rail-A02-90
	注意 • NAS 不含機架滑軌，必須另外購買。如需詳細資訊，請聯絡授權經銷商或前往 https://shop.qnap.com。 • 如需安裝機架滑軌的相關資訊，請參見機架滑軌包裝中的安裝手冊。如需詳細資訊，請前往：https://www.qnap.com/go/product/rail-kit。		
電源供應器	2 x 300W、100-240V AC、50/60 Hz	2 x 550W、100-240V AC、50/60 Hz	2 x 550W、100-240V AC、50/60 Hz
風扇	2 x 80 mm，12V DC 風扇	3 x 80 mm，12V DC 風扇	3 x 80 mm，12V DC 風扇
操作溫度	• 不凝結相對溼度：5% 至 95% • 溼球溫度：27˚C (80.6˚F)		

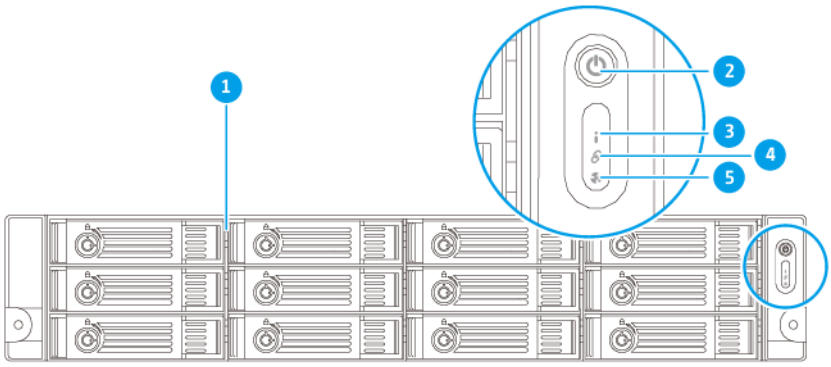
提示
請前往 https://www.qnap.com/compatibility 查看相容的硬碟機型清單。

包裝內容

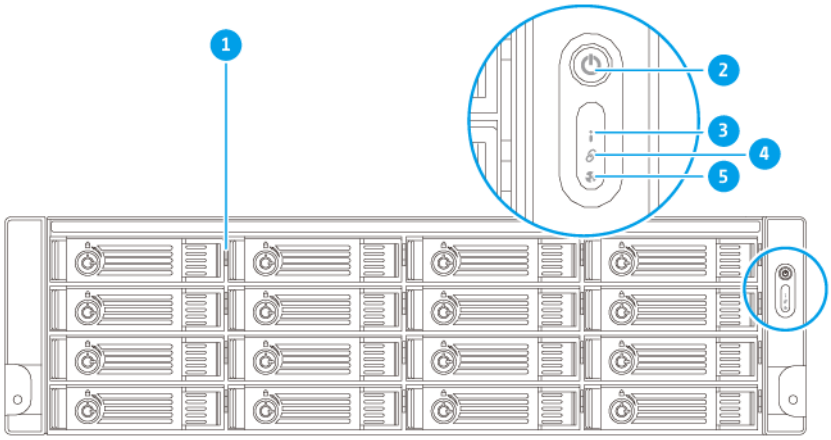
項目	數量
JBOD 擴充裝置	1
電源線	2
PCIe JBOD 專用傳輸線 (SFF-8644 1x2)	1 x CAB-PCIE10M-8644-8X
3.5 吋硬碟用螺絲	• TL-R1200PES-RP：48 • TL-R1600PES-RP：64 • TL-R2400PES-RP：96
2.5 吋硬碟用螺絲	• TL-R1200PES-RP：36 • TL-R1600PES-RP：48 • TL-R2400PES-RP：72
快速安裝手冊 (QIG)	1

元件

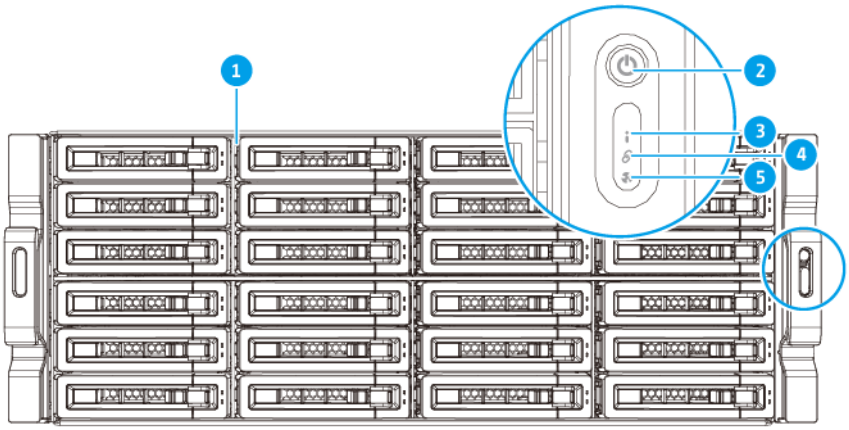
前面板



TL-R1200PES-RP



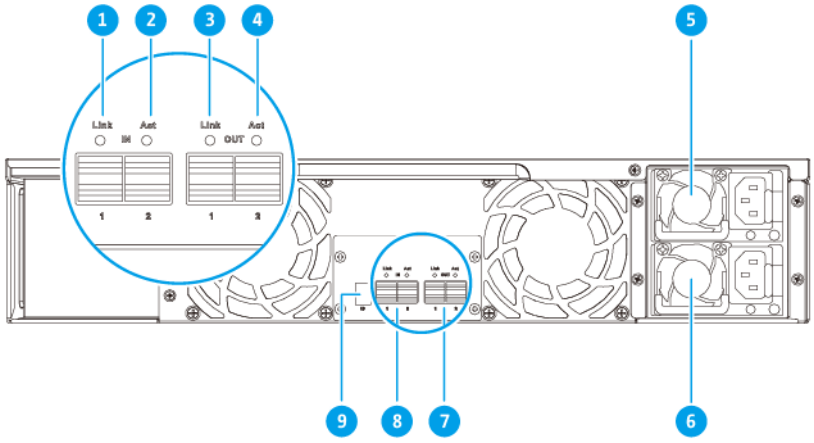
TL-R1600PES-RP



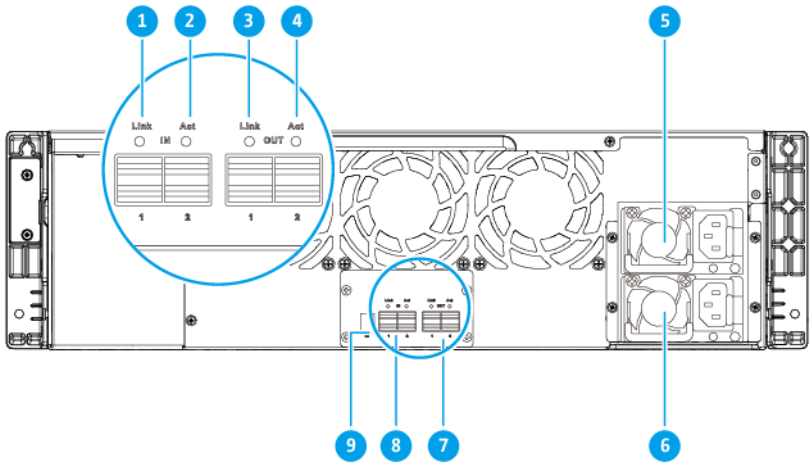
TL-R2400PES-RP

編號	元件	編號	元件
1	硬碟 LED 燈	4	連結 LED 燈
2	電源按鈕	5	風扇錯誤 LED 燈
3	狀態 LED 燈	-	-

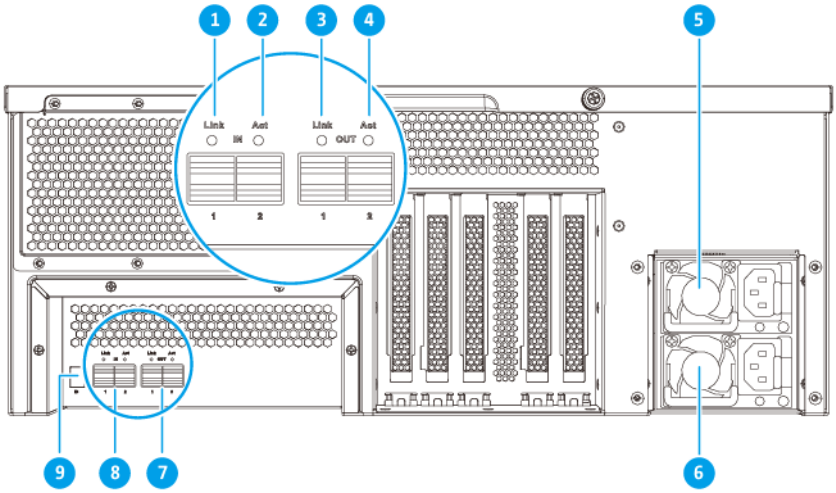
後面板



TL-R1200PES-RP



TL-R1600PES-RP

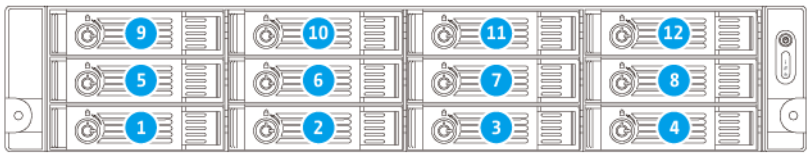


TL-R2400PES-RP

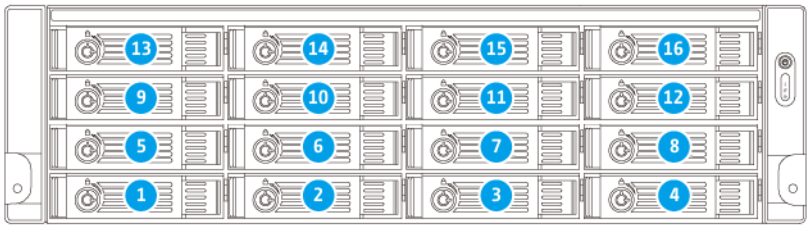
編號	元件	編號	元件
1	連接器連結 LED 燈 (上游)	6	電源供應器 2
2	連接器存取 LED 燈 (上游)	7	SFF-8644 1x2 連接埠 (下游) **注意** 此連接埠用於在串聯連線連接至下游 JBOD 擴充裝置。

編號	元件	編號	元件
3	連接器連結 LED 燈 (下游)	8	SFF-8644 1x2 連接埠 (上游) **注意** 此連接埠用於在串聯連線連接至主機 NAS 或上游 JBOD 擴充裝置。
4	連接器存取 LED 燈 (下游)	9	裝置 ID **注意** NAS 會指派設備 ID 給連接至 NAS 的每個擴充設備。前九個設備編號為 1 到 9。後續設備從字母 A 開始，並依序以字母順序接續。
5	電源供應器 1	-	-

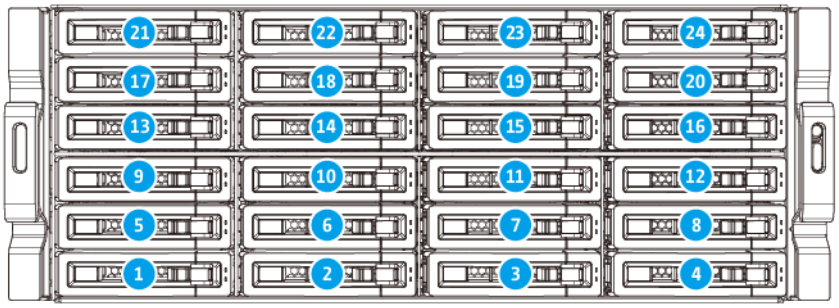
硬碟編號



TL-R1200PES-RP



TL-R1600PES-RP



TL-R2400PES-RP

安裝需求

類別	項目
環境	• 室溫：0˚C 至 40˚C (32˚F 至 104˚F) • 不凝結相對溼度：5% 至 95% • 溼球溫度：27˚C (80.6˚F) • 平坦且防靜電的表面，不受陽光直射，亦不與液體或化學物質接觸 進出管制 • 裝置應放置在實施進出管制的安全場所，控管方式包括工具、鎖鑰或其他安全機制。 • 唯有受過訓練且獲得授權的合格裝置管理員能夠存取裝置；合格裝置管理員必須熟悉所有管制方法、安全注意事項、安裝及保養程序。
硬體和週邊設備	• NAS **注意** • 如需相容 NAS 型號、各種 NAS 型號支援的最大 JBOD 擴充裝置數量，以及適用 PCIe 插槽的詳細資訊，請前往 https://www.qnap.com/go/compatibility-expansion/。 • NAS 必須執行 QTS 5.1.2 以上版本或 QuTS hero h5.1.2 以上版本。 • 儲存硬碟 **注意** 請前往 https://www.qnap.com/compatibility 查看相容的硬碟機型清單。 • 主機匯流排介面卡 **注意** 必須先在 NAS 安裝 QXP-3X4PES 或 QXP-3X8PES 主機匯流排介面卡。第三方主機匯流排介面卡可能與 QNAP JBOD 擴充裝置不相容。 • 一或多條 SFF-8644 接頭纜線 **注意** • QXP-3X4PES 主機匯流排介面卡需要 CAB-PCIE10M-8644-4X 傳輸線。 • QXP-3X8PES 主機匯流排介面卡需要 CAB-PCIE10M-8644-8X 傳輸線 (JBOD 擴充裝置包含一條傳輸線。)
工具	• 1 號或 2 號十字螺絲起子 • 防靜電腕帶

設定 JBOD 擴充裝置

重要
設定 JBOD 擴充裝置或安裝 JBOD 擴充裝置元件前，請詳閱 安全資訊 中所有安全要求及資訊。

1. 將 JBOD 擴充裝置放置於符合需求的環境。
   如需詳細資訊，請參見：安裝需求。
2. 將 JBOD 擴充裝置安裝到機架上。
   如需詳細資訊，請參見：機架滑軌。
3. 安裝硬碟。
   如需詳細資訊，請參見下列主題：
   - 在 TL-R1200PES-RP 或 TL-R1600PES-RP 安裝 3.5 吋硬碟
   - 在 TL-R2400PES-RP 安裝 3.5 吋硬碟
   - 在 TL-R1200PES-RP 或 TL-R1600PES-RP 安裝 2.5 吋固態硬碟
   - 在 TL-R2400PES-RP 安裝 2.5 吋固態硬碟
4. 連上電源線。
5. 連接 JBOD 擴充裝置至 NAS。
   如需詳細資訊，請參見：將 JBOD 擴充裝置連接至 NAS。
6. 開啟 JBOD 擴充裝置。

3. 硬體安裝

本節提供有關安裝硬碟、從 NAS 連接與斷開連接 JBOD 擴充裝置、熱抽換備援電源供應器，以及機架滑軌等資訊。

安裝硬碟

TL-Rx00PES-RP 相容 3.5 吋硬碟與 2.5 吋固態硬碟。

在 TL-R1200PES-RP 或 TL-R1600PES-RP 安裝 3.5 吋硬碟

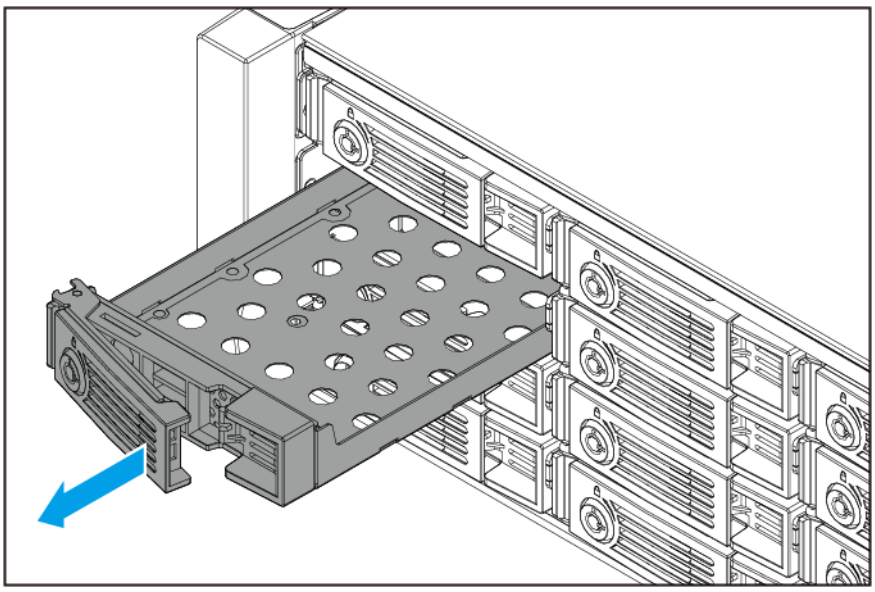
警告

- 安裝硬碟會刪除硬碟上的所有資料。
- 請遵守靜電放電 (ESD) 程序以防止元件損壞。
-

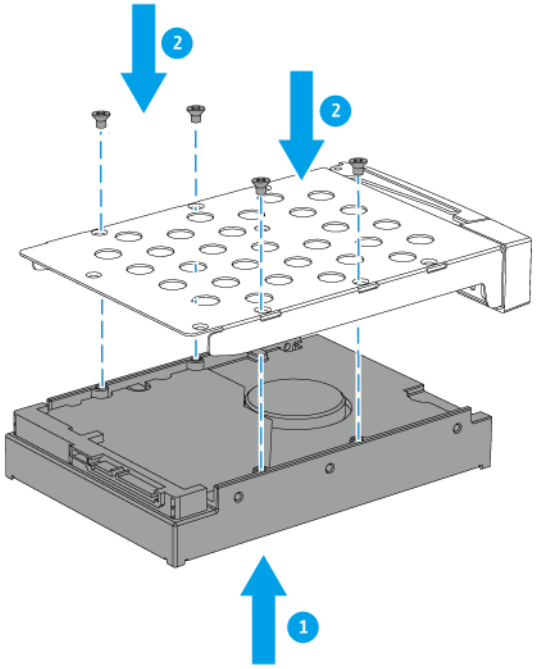
  轉動的風扇葉片：使雙手及身體其他部位遠離正在轉動的風扇葉片。
-

  其他移動的元件：使雙手及身體其他部位遠離正在移動的其他元件。

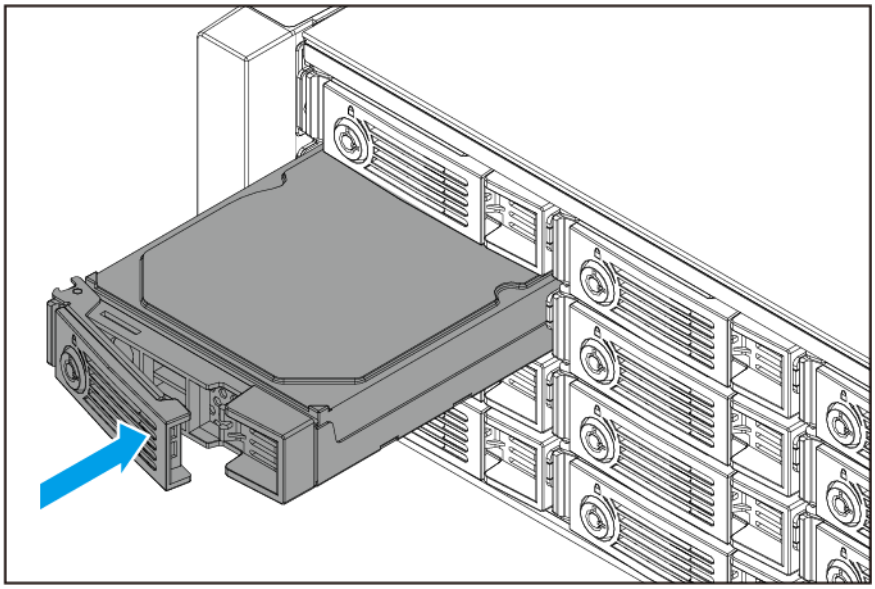
1. 關閉 JBOD 擴充裝置電源。
2. 取出硬碟托盤。
   a. 拉把手以鬆開托盤。
   b. 將托盤拉出。



3. 在托盤上安裝硬碟。
   a. 將硬碟放在托盤上，讓硬碟底部的孔洞與托盤底部的孔洞對齊。
   b. 鎖上螺絲。



4. 將托盤裝入插槽。
   a. 將托盤插入插槽。
   b. 推入把手。



5. 開啟 JBOD 擴充裝置電源。

注意
JBOD 擴充裝置可能需要長達 30 秒的時間，才能偵測到新的裝置。

在 TL-R2400PES-RP 安裝 3.5 吋硬碟

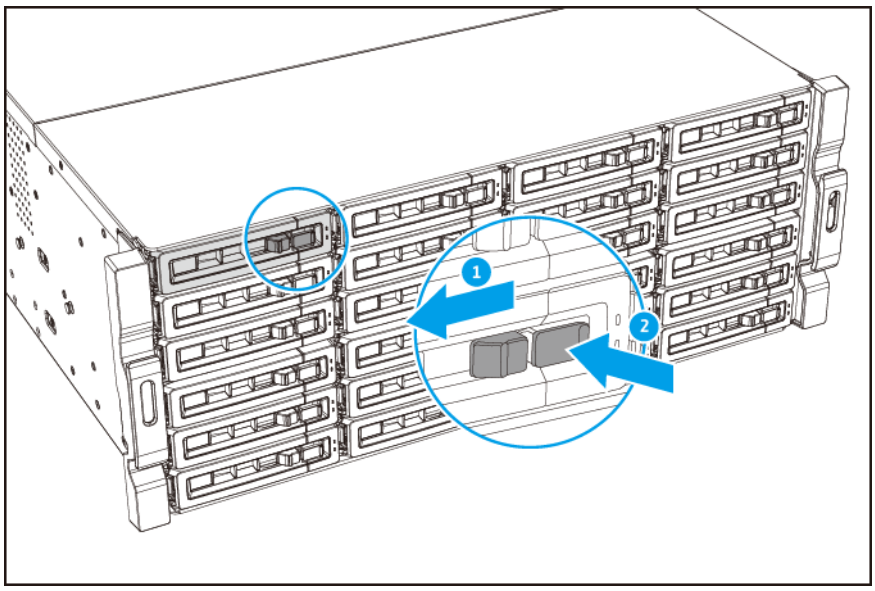
警告

- 安裝硬碟會刪除硬碟上的所有資料。
- 請遵守靜電放電 (ESD) 程序以防止元件損壞。
-

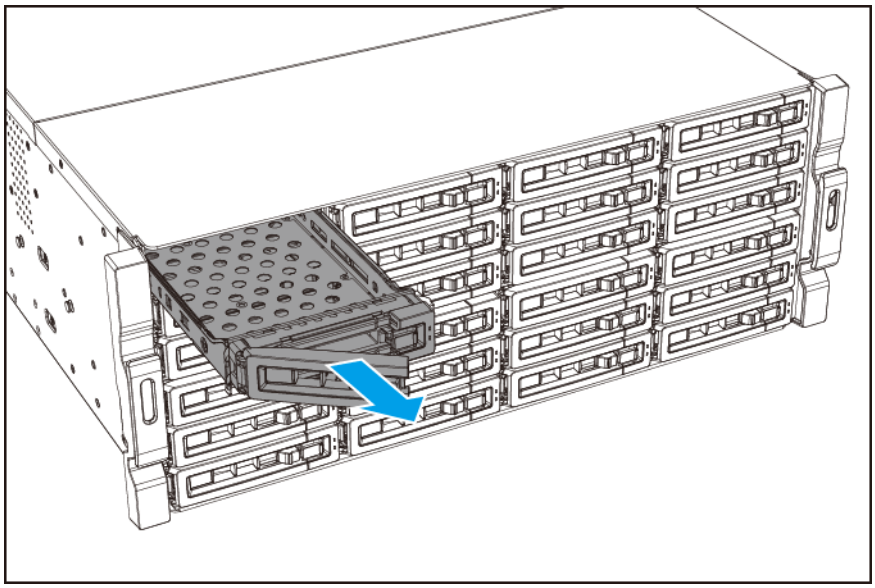
  轉動的風扇葉片：使雙手及身體其他部位遠離正在轉動的風扇葉片。
-

  其他移動的元件：使雙手及身體其他部位遠離正在移動的其他元件。

1. 關閉 JBOD 擴充裝置電源。
2. 取出硬碟托盤。
   a. 將固定鎖向左推。
   b. 按下按鈕以鬆開托盤把手。



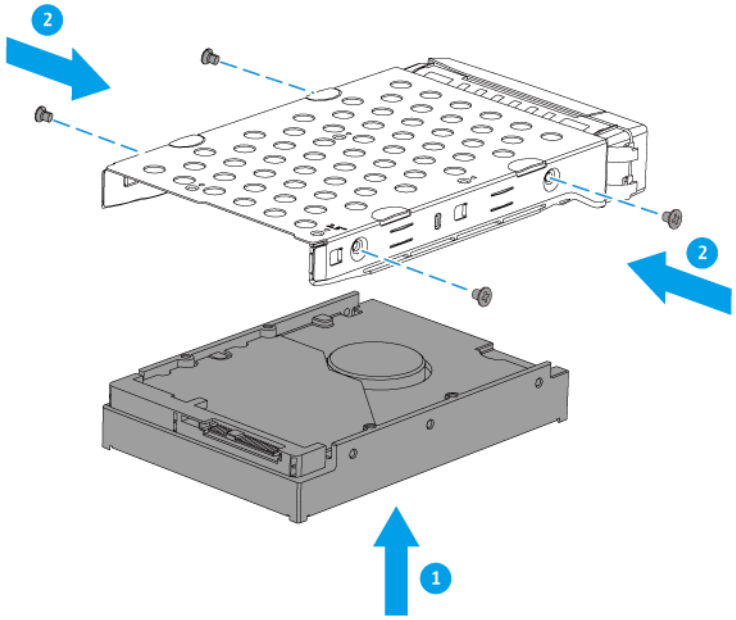
c. 將托盤拉出。



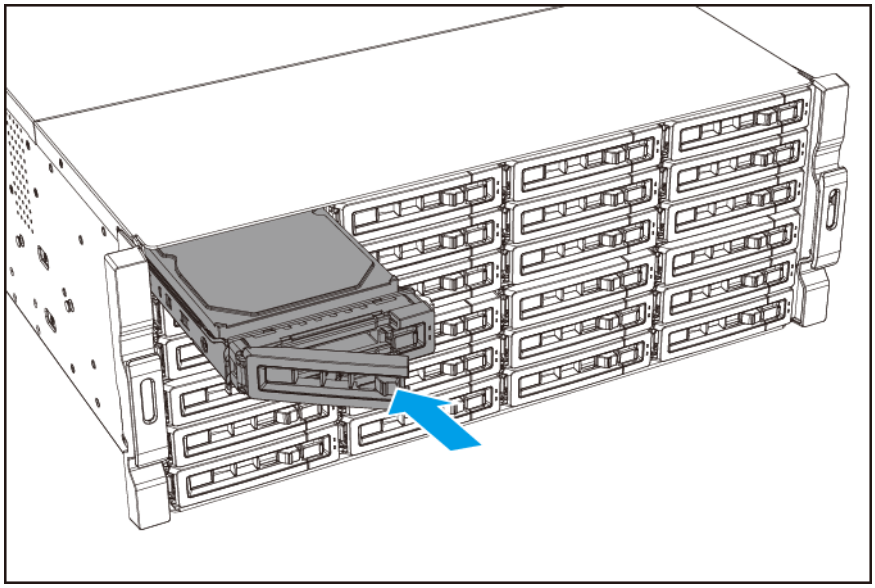
3. 在托盤上安裝硬碟。

a. 將硬碟放在托盤上，讓硬碟兩側的孔洞與托盤兩側的孔洞對齊。

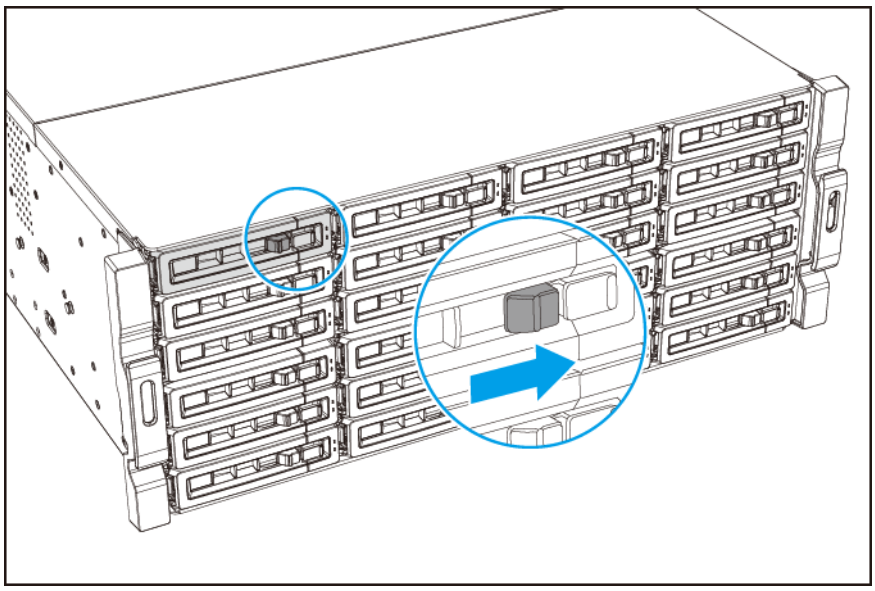
b. 鎖上螺絲。



4. 將托盤裝入插槽。
   a. 將托盤插入插槽。
   b. 推入把手。



   c. 將固定鎖向右推。



5. 開啟 JBOD 擴充裝置電源。

注意
JBOD 擴充裝置可能需要長達 30 秒的時間，才能偵測到新的裝置。

在 TL-R1200PES-RP 或 TL-R1600PES-RP 安裝 2.5 吋固態硬碟

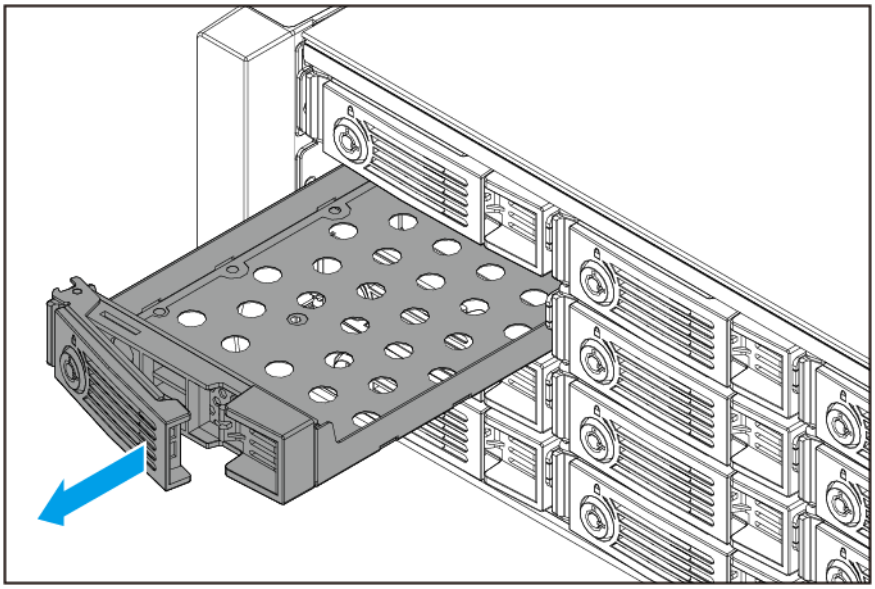
警告

- 安裝硬碟會刪除硬碟上的所有資料。
- 請遵守靜電放電 (ESD) 程序以防止元件損壞。
-

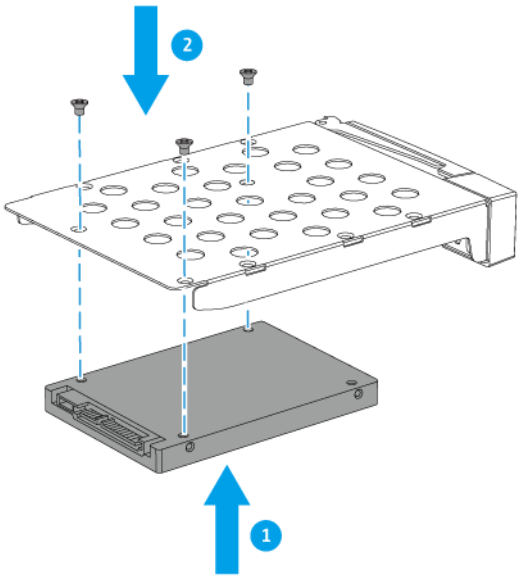
  轉動的風扇葉片：使雙手及身體其他部位遠離正在轉動的風扇葉片。
-

  其他移動的元件：使雙手及身體其他部位遠離正在移動的其他元件。

1. 關閉 JBOD 擴充裝置電源。
2. 取出硬碟托盤。
   a. 拉把手以鬆開托盤。
   b. 將托盤拉出。

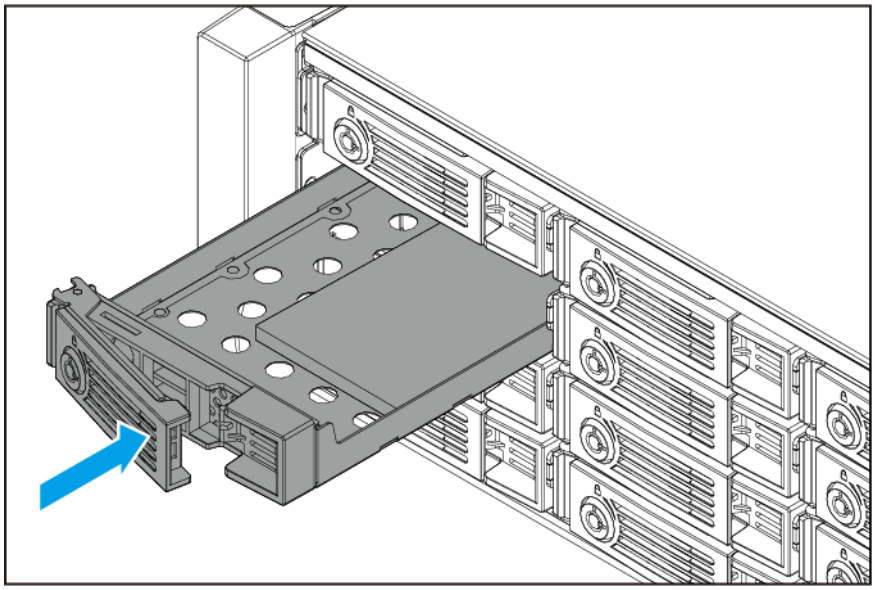


3. 在托盤上安裝硬碟。
   a. 將硬碟放在托盤上，讓硬碟底部的孔洞與托盤底部的孔洞對齊。
   b. 鎖上螺絲。



4. 將托盤裝入插槽。
   a. 將托盤插入插槽。

b. 推入把手。



5. 開啟 JBOD 擴充裝置電源。

注意
JBOD 擴充裝置可能需要長達 30 秒的時間，才能偵測到新的裝置。

在 TL-R2400PES-RP 安裝 2.5 吋固態硬碟

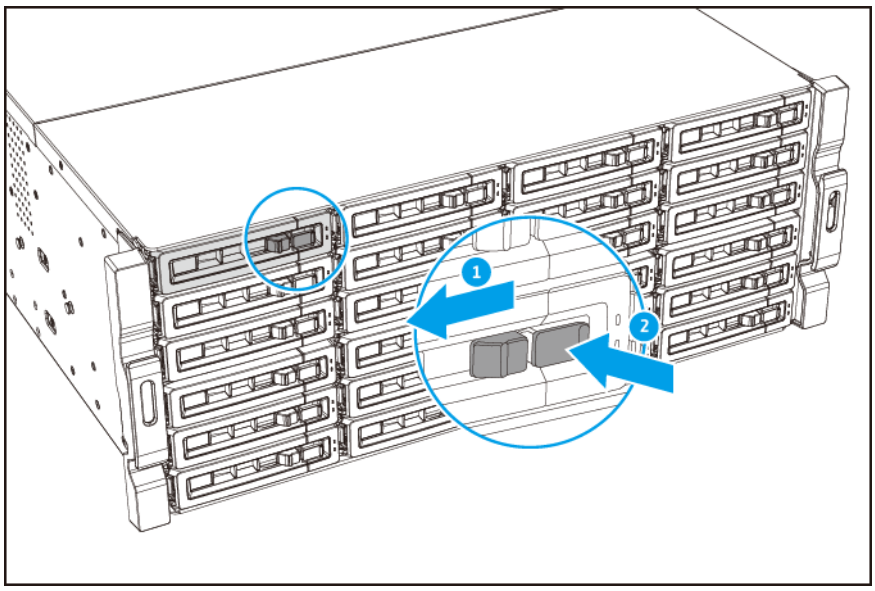
警告

- 安裝硬碟會刪除硬碟上的所有資料。
- 請遵守靜電放電 (ESD) 程序以防止元件損壞。
-

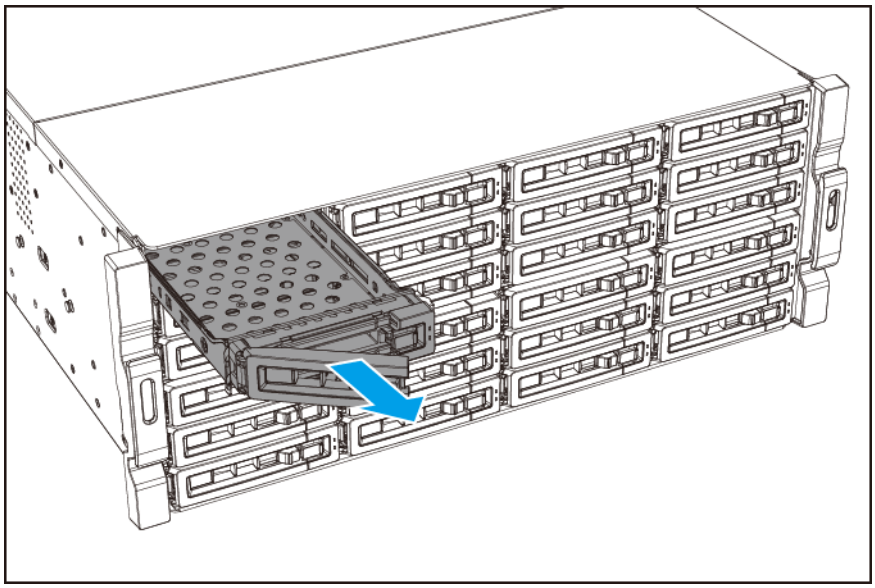
  轉動的風扇葉片：使雙手及身體其他部位遠離正在轉動的風扇葉片。
-

  其他移動的元件：使雙手及身體其他部位遠離正在移動的其他元件。

1. 關閉 JBOD 擴充裝置電源。
2. 取出硬碟托盤。
   a. 將固定鎖向左推。
   b. 按下按鈕以鬆開托盤把手。



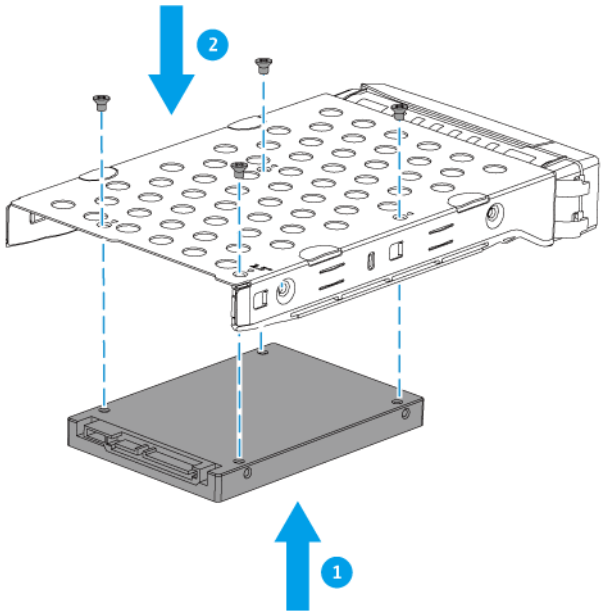
c. 將托盤拉出。



3. 在托盤上安裝硬碟。

a. 將硬碟放在托盤上，讓硬碟底部的孔洞與托盤底部的孔洞對齊。

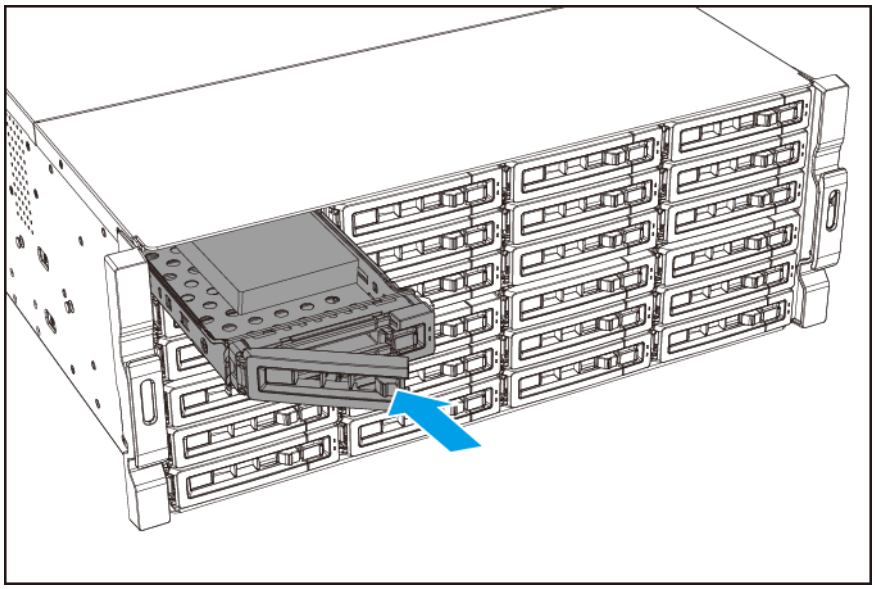
b. 鎖上螺絲。



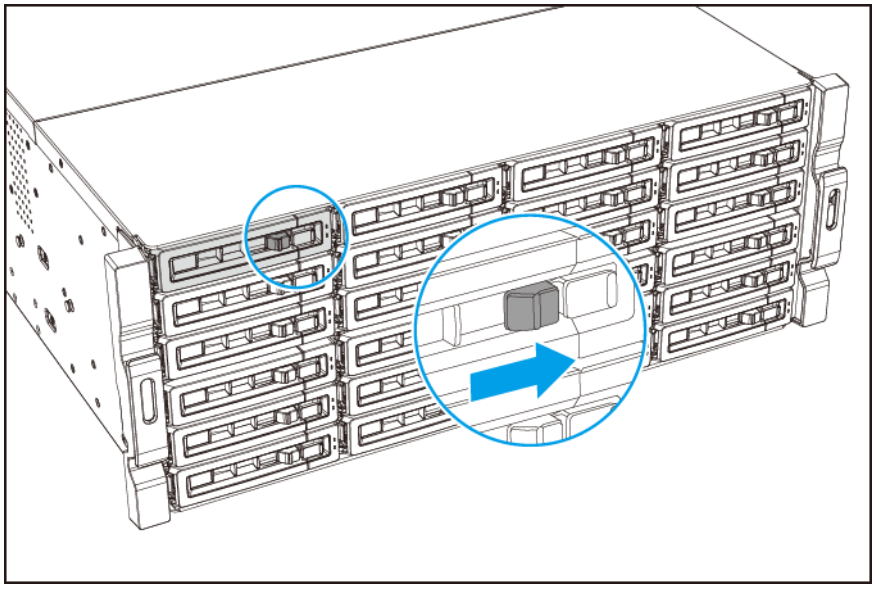
4. 將托盤裝入插槽。

   a. 將托盤插入插槽。

   b. 推入把手。



   c. 將固定鎖向右推。



5. 開啟 JBOD 擴充裝置電源。

注意
JBOD 擴充裝置可能需要長達 30 秒的時間，才能偵測到新的裝置。

連接與移除連接 JBOD 擴充裝置

TL-Rx00PES-RP 支援連接 QNAP NAS 進行儲存擴充。此外，JBOD 擴充裝置支援熱插拔與串聯設定。

在 NAS 熱插拔 JBOD 擴充裝置

TL-Rx00PES-RP 支援 QNAP NAS 熱插拔。您可以在 NAS 開機時連接 JBOD 擴充裝置或斷開與 NAS 的連接，但有以下限制與注意事項：

- 當僅透過安裝於 JBOD 擴充裝置的磁碟，並於 JBOD 擴充裝置建立儲存池時，才支援熱插拔。
- 在使用 JBOD 擴充裝置的磁碟擴充 NAS 的儲存池時，不支援熱插拔。
- 若已在 JBOD 擴充裝置建立儲存池或 RAID 群組，請勿熱斷開 JBOD 擴充裝置，以防止資料遺失或其他損壞。如果在此情況，您仍必須斷開 JBOD 擴充裝置，請聯絡授權的管理員來執行此操作。
- 在中斷 JBOD 擴充裝置與 NAS 的連接時，請務必先安全卸載 JBOD 擴充裝置與 NAS 作業系統的連接，然後再斷開任何傳輸線。
  如需詳細資訊，請參見：將 JBOD 擴充裝置與 NAS 中斷連線。

將 JBOD 擴充裝置連接至 NAS

您必須使用建議的 QNAP 作業系統版本與最新 BIOS 韌體版本相容的 NAS 型號，將 JBOD 擴充裝置連接至 NAS。依據 NAS 的 PCIe 插槽，您也必須在 NAS 安裝相容的主機匯流排介面卡，並且使用相容的接頭纜線。

NAS 需求

需求	說明
NAS 型號	確認您的 QNAP NAS 與 JBOD 擴充裝置相容。 請前往 https://www.qnap.com/go/compatibility-expansion/ 查看相容的 NAS 型號清單。
NAS 作業系統	• QTS 5.1.2 以上版本 • QuTS hero h5.1.2 以上版本 有關 NAS 型號適用的最新 QNAP 作業系統的資訊，請前往 https://download.qnap.com/。
NAS BIOS	NAS 必須安裝最新的 BIOS 韌體版本。 有關 NAS 型號適用的最新 BIOS 韌體的資訊，請前往 https://download.qnap.com/。

NAS 記憶體與 JBOD 儲存空間	• QTS
	  • JBOD 擴充裝置最大的儲存池容量：304 TB
	• QuTS hero
	  • 最小 NAS 記憶體：16 GB
	  • 建議用於 1–2 PB JBOD 儲存空間的 NAS 記憶體：≥ 128 GB
	  • 建議用於 3–5 PB JBOD 儲存空間的 NAS 記憶體：≥ 256 GB

主機匯流排介面卡與傳輸線需求

NAS PCIe 插槽	主機匯流排介面卡與傳輸線
PCIe x4 插槽	• 主機匯流排介面卡：QXP-3X4PES • 傳輸線：CAB-PCIE10M-8644-4X • 最高 32 Gbps (使用 PCIe Gen 3 以上版本) **重要** 包裝內的 CAB-PCIE10M-8644-8X 傳輸線不能與 QXP-3X4PES 主機匯流排介面卡一起使用。
PCIe x8 插槽	• 主機匯流排介面卡：QXP-3X8PES • 傳輸線：CAB-PCIE10M-8644-8X (包含在包裝) • 最高 64 Gbps (使用 PCIe Gen 3 以上版本) **注意** 您可以將 CAB-PCIE10M-8644-4X 傳輸線與 QXP-3X8PES 一起使用，但其最高連線速度將限制為 32 Gbps。

注意

- QXP-3X4PES 與 QXP-3X8PES 主機匯流排介面卡各有兩個連接埠，最多支援兩個 JBOD 連接。您可以透過串聯設定來連接額外的 JBOD 擴充裝置。
- 有關 NAS 型號支援的擴充卡與 JBOD 擴充裝置最大數量的資訊，請前往 https://www.qnap.com/go/compatibility-expansion/。
- 您可以從 https://shop.qnap.com/ 或授權經銷商購買 QNAP 擴充卡與傳輸線。

1. 確認 NAS 已關閉。
   如果您熱連接 JBOD 擴充裝置至 NAS，請跳過此步驟。如需詳細資訊，請參見：在 NAS 熱插拔 JBOD 擴充裝置。

2. 在 NAS 安裝 QXP-3X4PES 或 QXP-3X8PES 主機匯流排介面卡。
   請參照 NAS 使用手冊的硬體安裝一節，其有關安裝擴充卡之指示。

3. 準備 SFF-8644 接頭纜線。
   使用主機匯流排介面卡相容的傳輸線：

主機匯流排介面卡	傳輸線
QXP-3X4PES	CAB-PCIE10M-8644-4X (32 Gbps 連線速度)
QXP-3X8PES	CAB-PCIE10M-8644-8X (64 Gbps 連線速度) **注意** 您可以將 CAB-PCIE10M-8644-4X 傳輸線與 QXP-3X8PES 一起使用，但是最高連線速度將限制為 32 Gbps。

4. 連接 JBOD 擴充裝置至 NAS。

重要

- 請在連接 CAB-PCIE10M-8644-8X 傳輸線時，確保電纜插頭快速插入連接埠。請勿扭動插頭或插入得太慢，否則保護模式將啟動，且連線速度將降低。
- 當保護模式啟動時，連接兩端的連接器連結 LED 燈會閃爍橙燈。若要再次建立一般連接，請安全地將 JBOD 擴充裝置從 QTS 或 QuTS hero 卸載、斷開接頭纜線、重新啟動 NAS，然後重新連接 JBOD 擴充裝置。

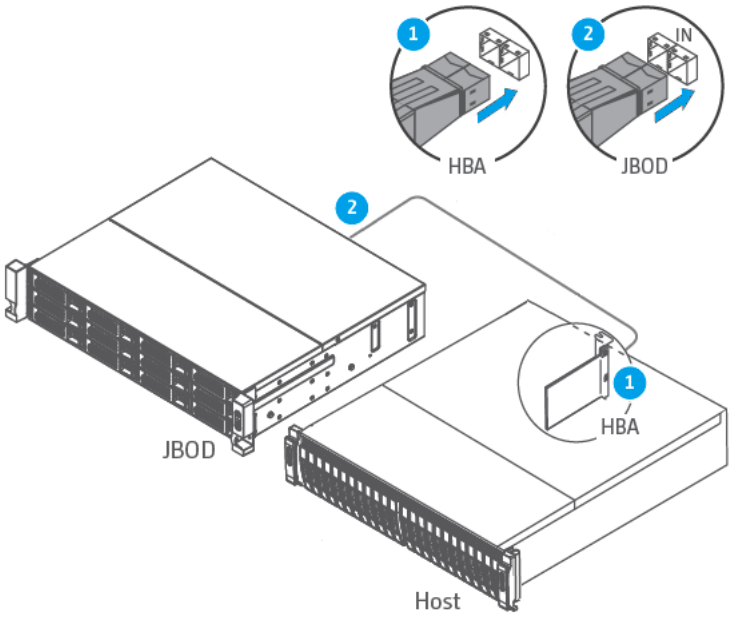
a. 將 SFF-8644 接頭纜線連接至安裝在 NAS 的主機匯流排介面卡 (HBA) 的 SFF-8644 連接埠。

注意
若要將 CAB-PCIE10M-8644-4X 傳輸線連接至 QXP-3X8PES 主機匯流排介面卡，必須將纜線插頭插入介面卡的 A1 連接埠或 B1 連接埠，最高連線速度將被限制為 32 Gbps。請勿將纜線插頭插入介面卡的 A2 連接埠或 B2 連接埠。
如需介面卡連接埠的位置，請檢查介面卡的標籤。

b. 將 SFF-8644 接頭纜線連接至 JBOD 擴充裝置的上游 SFF-8644 連接埠。

注意

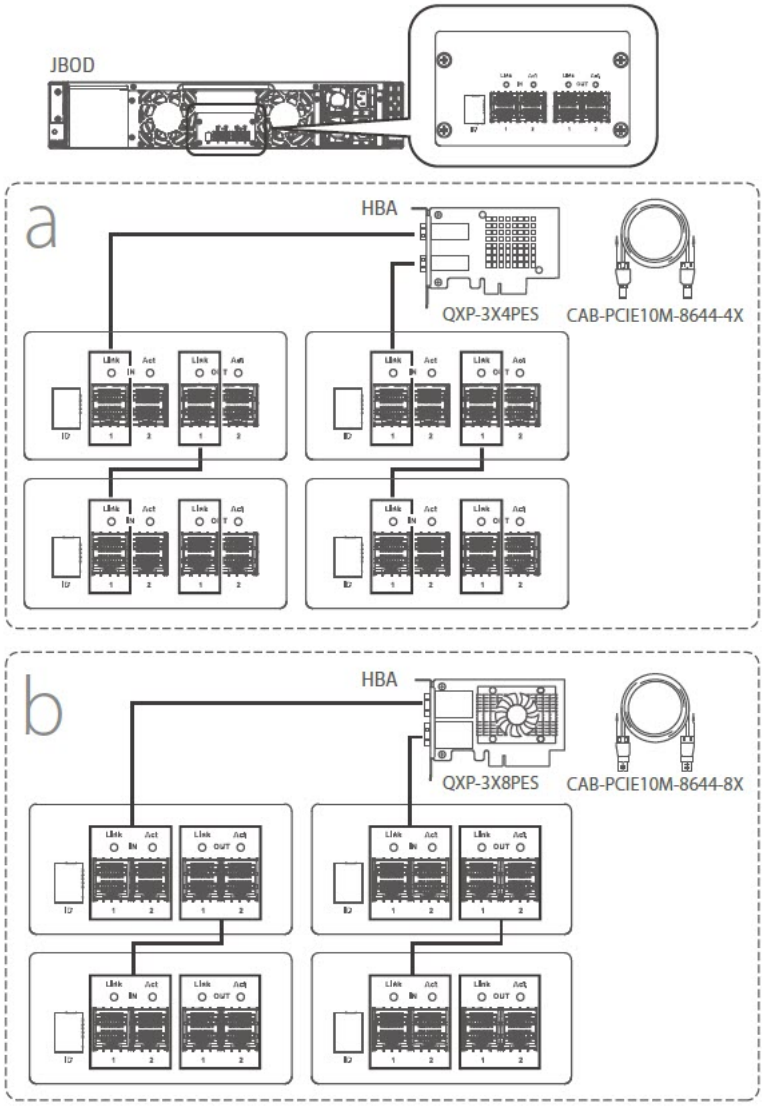
- 使用 CAB-PCIE10M-8644-4X 傳輸線時，請連接至連接埠左側。
- 如需上游連接埠的位置資訊，請參見：後面板。



5. 選擇性: 連接額外 JBOD 擴充裝置至 NAS。

重要
請在連接多個 JBOD 擴充裝置時，確認電源線與 CAB-PCIE10M-8644-4X 傳輸線均正確連接至第一個 JBOD，然後向下連接其餘 JBOD 擴充裝置。

根據主機匯流排介面卡，連接多個 JBOD 擴充裝置至 NAS 時，請使用下列其中一個拓樸圖。



注意

- 在使用 CAB-PCIE10M-8644-4X 傳輸線時，請務必連接至上游連接埠與下游連接埠的連接埠左側。
- 當主機匯流排介面卡的兩個連接埠都已連接，NAS PCIe 插槽的總頻寬會在兩個連線之間共用。
- 僅在連線至 NAS 或串聯設定的上游 JBOD 擴充裝置時，才使用上游連接埠。
- 僅在連線至串聯設定的下游 JBOD 擴充裝置時，才使用下游連接埠。
- 如需上游與下游連接埠的位置，請參見：後面板。

6. 開啟 JBOD 擴充裝置。
7. 開啟 NAS。
   如果 NAS 已開啟，且您正在熱連接 JBOD 擴充裝置，請跳過此步驟。

8. 確認 NAS 已辨識 JBOD 擴充裝置。
   a. 請以管理員身分登入 QTS 或 QuTS hero。
   b. 前往 **[主選單]** > **[儲存與快照]** > **[總覽]** > **[儲存空間]** 。
   c. 確認畫面列出 JBOD 擴充裝置。

注意

- NAS 可能需要長達 30 秒的時間，才能偵測到 JBOD 擴充裝置與已安裝的硬碟。
- 連接的擴充裝置與安裝的硬碟數量越多，NAS 需要偵測的時間就越長。
- 在 NAS 偵測到 JBOD 擴充裝置前，JBOD 擴充裝置的狀態 LED 燈會顯示橙燈，表示處於待命模式。當 JBOD 擴充裝置處於待命模式時，擴充裝置的風扇與硬碟 LED 燈將保持關閉狀態。

將 JBOD 擴充裝置與 NAS 中斷連線

在中斷 JBOD 擴充裝置與 NAS 的連接時 (包含熱斷開)，請務必先安全卸載 JBOD 擴充裝置與 NAS 作業系統的連接，然後再斷開任何傳輸線。

在未安全卸載 JBOD 擴充裝置的情況斷開傳輸線，可能會導致資料遺失或其他損壞。

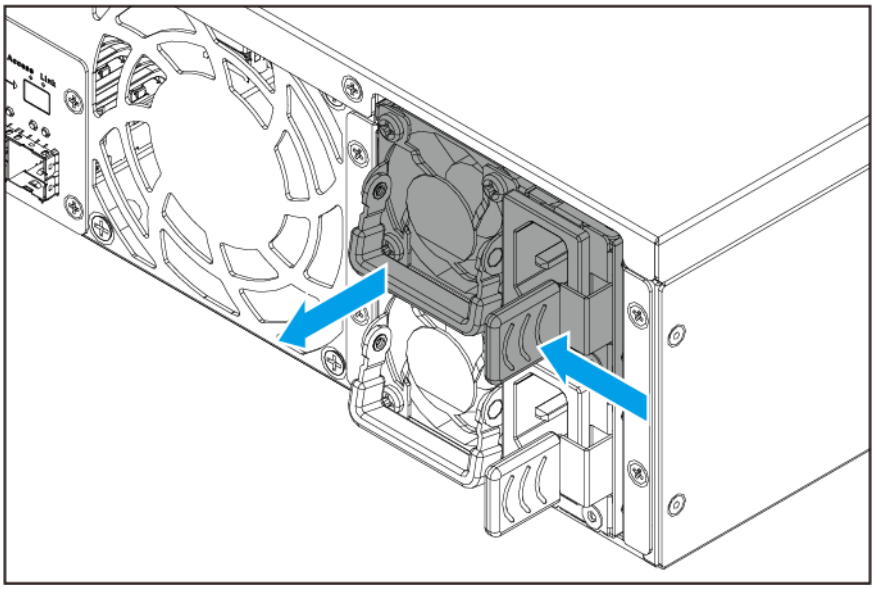
警告
如果已在 JBOD 擴充裝置建立儲存池或 RAID 群組，請勿熱斷開 JBOD 擴充裝置。如果在此情況，您仍必須斷開 JBOD 擴充裝置，請聯絡授權的管理員來執行此操作。

1. 登入 NAS 的 QTS 或 QuTS hero。
2. 前往 **[儲存與快照總管]** > **[儲存空間]** > **[磁碟/VJBOD]** > **[NAS 與擴充裝置]** 。
3. 選擇 JBOD 擴充裝置。
4. 按一下 **[動作]** ，然後選擇 **[安全卸載]** 。
   JBOD 擴充裝置已安全卸離。
5. 將接頭纜線從 NAS 斷開。

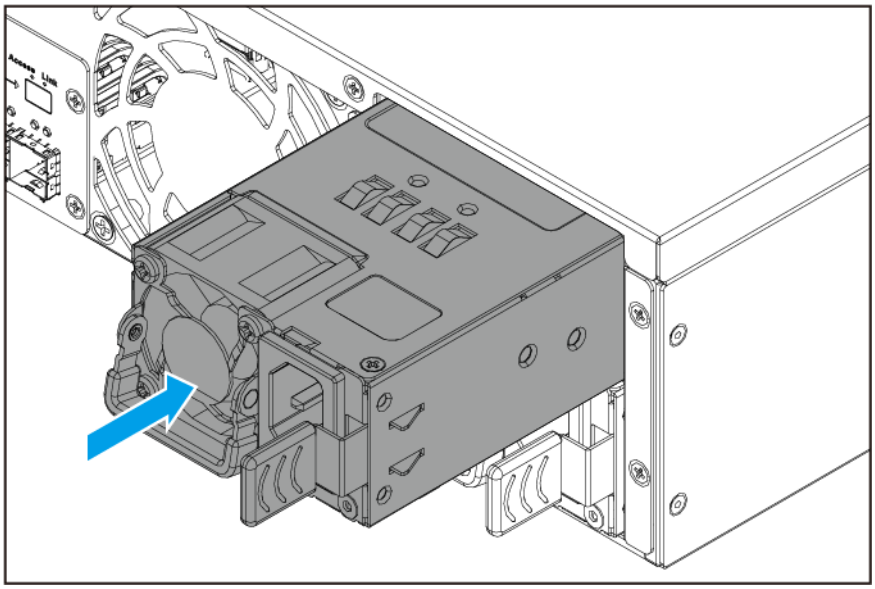
重要
將多個 JBOD 擴充裝置連線斷開時，請確保從最後一個 JBOD 開始，並正確斷開電源線以及 CAB-PCIE10M-8644-4X，然後向上繼續斷開其餘的 JBOD 擴充裝置。

熱抽換備援電源供應器

1. 從電源插座和您要更換的電源供應器 (PSU) 拔下電源線。
2. 朝把手方向按住門閂，然後拉出電源供應器。



3. 插入新的電源供應器。



4. 將電源線連上電源供應器並插入電源插座。

機架滑軌

裝置不含機架滑軌，必須另外購買。如需詳細資訊，請聯絡授權經銷商或前往 http://shop.qnap.com。

型號	相容機架滑軌
TL-R1200PES-RP	RAIL-B02
TL-R1600PES-RP	
TL-R2400PES-RP	RAIL-A02-90

您可以在機架滑軌的包裝中找到安裝資訊。

4. 基本操作

本章說明 JBOD 擴充裝置的基本操作。

電源按鈕

操作	使用者操作	結果
開啟電源	按一下按鈕。	裝置開機或從待命模式喚醒。
待命模式	按住按鈕 1.5 秒。	硬碟與風扇關閉，裝置進入待命模式。
強制關機	按住按鈕 5 秒。	裝置關機。 **注意** • 請在裝置沒有回應時才使用此方法。 • 當裝置關閉時，主機 NAS 無法控制裝置的電源狀態。

LED 燈

系統狀態 LED 燈

狀態	說明
紅燈	• 系統風扇異常。 • 系統溫度超過 65°C。 • 一個或多個電源供應器異常。
綠燈	裝置就緒。
橙燈	裝置處於待命狀態。
熄滅	• 所有硬碟處於待命模式。 • 裝置已關機。

硬碟 LED 燈

狀態	說明
綠燈	• 裝置已開機。 • 硬碟可供存取。
綠燈閃爍	正在存取資料。
紅燈	硬碟讀寫錯誤。
以 4 Hz 的頻率閃爍琥珀色燈	作業系統正在尋找硬碟。
所有硬碟 LED 燈以 1 Hz 的頻率閃爍綠燈與紅燈	作業系統正在尋找裝置。
熄滅	未偵測到硬碟。

連結 LED 燈

狀態	說明
綠燈	連接的連接埠已確實連接。
熄滅	沒有連接的纜線。

連接器連結 LED 燈

狀態	說明
綠燈	裝置已確實連結。
橙燈	裝置未確實連結。
熄滅	• 裝置未連結。 • 裝置沒有連接纜線。

連接器存取 LED 燈

狀態	說明
綠燈	正在存取資料。
熄滅	• 資料未被存取。 • 未偵測到硬碟。

風扇錯誤 LED 燈

狀態	說明
紅燈	系統風扇異常。
熄滅	系統風扇正常運作中。

警示音

持續時間	頻率	說明
短嗶 (0.5 秒)	1	• JBOD 硬碟托盤連結已連線。 • JBOD 硬碟托盤連結已中斷連線。 • 主機已連接至 JBOD。 • JBOD 已串接至 JBOD。
長嗶 (2 秒)	3 次 (每 5 分鐘)	• 系統風扇異常。 • 系統溫度超過臨界值。 **注意** 預設溫度警示臨界點為 65°C。您可以使用 QNAP JBOD Manager 將臨界溫度設定為 55°C 和 69°C 之間。
長嗶	1 Hz	裝置正在定位或解除定位。

5. 疑難排解

本章介紹基本的疑難排解資訊。

強制儲存與快照總管辨識 JBOD 擴充裝置

如果儲存與快照總管於運作中無法找到 JBOD 擴充裝置，表示 JBOD 擴充裝置的硬碟或資料可能損壞。

1. 關閉 JBOD 擴充裝置。
2. 將 JBOD 擴充裝置與 NAS 中斷連線。
3. 從 JBOD 擴充裝置移除所有硬碟。
4. 將 JBOD 擴充裝置重新連接到 NAS。
5. 開啟 JBOD 擴充裝置。
6. 使用儲存與快照總管來尋找 JBOD 擴充裝置。
7. 重新插入硬碟。
8. 繼續操作。

熱抽換故障硬碟

在連接 QTS 或 QuTS hero NAS 時，JBOD 擴充裝置在下列情況支援熱抽換硬碟：

RAID 類型	磁碟數目	情況
QTS 與 QuTS hero		
RAID 1	2	有一個硬碟故障。
RAID 5	≥ 3	有一個硬碟故障。
RAID 6	≥ 4	有一或兩個硬碟故障。
RAID 10	≥ 4 (必須是偶數)	在兩個不同組的硬碟中有一或兩個硬碟故障。 • 有一個硬碟故障。 • 在兩個不同組的硬碟中有兩個硬碟故障。
RAID 50	≥ 6	每個子群組有一個硬碟故障。
RAID 60	≥ 8	每個子群組有兩個硬碟故障。
僅 QuTS hero		
Triple Mirror	3 的倍數。(例如，3、6、9、12 個硬碟等。)	有一或兩個硬碟故障。
RAID-TP	≥ 5	一、二或三個硬碟故障。

1. 登入 QTS 或 QuTS hero。
2. 前往 **[主選單]** > **[儲存與快照總管]** > **[儲存空間]** > **[磁碟/VJBOD]** 。
3. 找出故障的硬碟。
4. 準備一個新的硬碟，且容量至少與故障硬碟相同。
5. 將故障硬碟從 JBOD 擴充裝置取下。

6. 等待 30 秒或等到 JBOD 擴充裝置發出兩次嗶聲。
7. 將故障硬碟從硬碟托盤取下。
8. 將新的硬碟插入硬碟托盤。
9. 安裝新的硬碟。
   JBOD 擴充裝置發出兩次嗶聲。
10. 等待 30 秒或等到 JBOD 擴充裝置發出兩次嗶聲。
11. 前往 **[主選單]** > **[儲存與快照總管]** > **[儲存空間]** > **[儲存空間／快照]** 。
12. 找出新硬碟所在的儲存集區，然後確認其狀態為〔重建中〕。

支援及其他資源

QNAP 提供下列資源：

資源	網址
文件	https://download.qnap.com
相容性列表	https://www.qnap.com/compatibility
NAS 遷移相容性	https://www.qnap.com/go/nas-migration
擴充設備相容性	https://www.qnap.com/go/compatibility-expansion
服務入口網站	https://service.qnap.com
產品支援狀態	https://www.qnap.com/go/product/eol.php
下載	https://download.qnap.com
社群論壇	https://forum.qnap.com
QNAP 配件商店	https://shop.qnap.com

6. 詞彙

QTS

QNAP NAS 作業系統

QuTS hero

QNAP NAS 作業系統配備 ZFS 檔案系統

儲存與快照總管

QTS 應用工具可讓您檢視並設置與 QNAP NAS 相連的 QNAP JBOD 擴充裝置

7. 聲明

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Version 3, 29 June 2007

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conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

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d. Convey the object code by offering access from a designated place (gratis or for a charge), and offer equivalent access to the Corresponding Source in the same way through the same place at no further charge. You need not require recipients to copy the Corresponding Source along with the object code. If the place to copy the object code is a network server, the Corresponding Source may be on a different server (operated by you or a third party) that supports equivalent copying facilities, provided you maintain clear directions next to the object code saying where to find the Corresponding Source. Regardless of what server hosts the Corresponding Source, you remain obligated to ensure that it is available for as long as needed to satisfy these requirements.

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