



Turbo NAS 疑難排解手冊

©Copyright 2011. QNAP Systems, Inc. All Rights Reserved.

此手冊提供排除 QNAP Turbo NAS 產品之軟硬體問題時可能需要的相關資訊，內容適用於韌體版本為 V3.0.0 或以上的 Turbo NAS 型號。

法律聲明

本公司保留變更產品規格的權利，如有變更，恕不另行通知。本文件中的資訊如有變更，恕不另行通知。

威聯通、QNAP 及其商標為威聯通科技股份有限公司所有。所有其他在本文提及的商標、註冊商標，商品名稱均為其相關持有人所有。另外，本文將省略®或™符號。

有限保證責任

威聯通保證所有出廠的網路伺服器皆通過嚴格而完整的測試，在一般的使用情況下，都可以正常地運作。在保固期限內及正常使用的狀況下，如果發生系統故障，威聯通將負責維修。除此之外，威聯通不保證負責所有因為本產品而造成的資料遺失、毀損、或營業上及執行業務的損失。在任何情況下，威聯通所負擔的賠償責任，不超過本產品的售價。

請務必定期備份硬碟中的資料，以避免任何意外、人為操作疏失或硬碟故障所造成的資料毀損。威聯通不負責任何資料遺失或復原。

如要把 NAS 或任何包裝內零件退回或維修，請確定貨品妥善包裝以確保運送無誤。若貨品運送期間因不妥善包裝造成任何損壞，威聯通一概不予負責。



本產品已通過測試並符合 FCC 規則第 15 部分 B 級數位裝置之限制。此等限制旨在為家用裝置提供免於有害干擾之合理保護所設計。本產品產生、使用、並可能放射無線電頻率能量，若未依據指示安裝及使用，可能對無線電通訊造成有害干擾。但特定之安裝並不保證免於發生干擾。若本產品對收音機、電視之收訊造成有害干擾(可開關設備之電源確認)，建議使用者以下列一種或多種方式改善干擾狀況：

- 重新調整或放置接收天線。
- 增加本產品與接收器之間的距離。
- 將本產品連接到與接收器不同的電源插座上。
- 如需協助，請洽詢經銷商或專業的收音機或電視技術人員。

未經製造廠商許可的變更或修改可能導致使用者喪失操作本產品的權利。應使用遮蔽線纜以符合 FCC 規則第 15 條 B 款所載之 B 級限制。



本產品符合 CE Class B 規範。

目錄

目錄	4
1. 一般資訊	5
2. 安全須知	6
3. 排除硬體問題.....	7
4. 機身更換	8
5. 排除硬碟問題.....	9
6. 排除電源問題.....	11
7. 排除軟體問題.....	12
8. ARM 系統 NAS 型號之韌體回復說明	14
9. Intel x86 系統 NAS 型號之韌體回復說明.....	29
技術支援.....	37
GNU GENERAL PUBLIC LICENSE	38

1. 一般資訊

您可以在威聯通網站或以下連結取得 Turbo NAS 最新的產品相容資訊、韌體更新、技術文件及其他產品資訊。

軟硬體相容資訊：

http://www.qnap.com/pro_compatibility.asp

NAS 產品更新韌體：

<http://www.qnap.com/download.asp>

應用說明：

http://www.qnap.com/pro_features.asp

FAQ 及 QNAP Wiki：

<http://www.qnap.com/faq.asp>

http://wiki.qnap.com/wiki/Main_Page

2. 安全須知

1. 本產品的工作溫度介於 0°C–40°C，相對濕度為 0%–95%。請確保其放置場所通風良好。
2. 與本產品所連接的線路和裝置必須能提供本產品正常的電量(100W, 90–264V)，以確保其運作正常。
3. 切勿將產品放置在直接受陽光曝曬或靠近化學藥劑的場所。請確保其所在環境恆定溫度與溼度的維持。
4. 清潔時，先將電源插頭及所有線路拔下，再以乾布擦拭即可。切勿使用任何化學藥劑或噴霧式清潔劑。
5. 為確保機器正常運作，以及避免機器過熱，切勿將任何物品或重物放置於機器上。
6. 安裝硬碟時，請務必使用平頭螺絲將硬碟固定在硬碟抽取盒上，以確保其運作正常。
7. 切勿使產品靠近水源。
8. 切勿將產品放置在不平穩的桌子或檯面上，以避免產品滑落而損壞。
9. 使用本產品時，請留意當地的電壓指示。若您無法確定，請洽詢經銷商或當地電力公司。
10. 切勿放置任何物品於電源線上。
11. 切勿自行修護本產品。因為不當的拆裝，可能導致觸電或其他不良後果。若有任何維修問題，請洽當地經銷商。
12. 機架式系統只適用於機房，並應由授權之系統管理員管理及維護。機房必須上鎖，並只允許授權人員進入。
13. TS-809U 有兩個電源供電，為避免電擊危險，操作時需要加倍小心，只有當這兩個電源完全斷開時才可以安全操作(進行維修)。



警告：

如錯誤更換電池，可能會有導致爆炸的危險。更換電池時，請務必更換同類型之電池，或更換製造商建議的類型。請依照當地廢棄物管理辦法規定，處理使用過之電池組。

切勿觸摸系統內之風扇，以避免嚴重性傷害。

3. 排除硬體問題

Q1. 如何檢查及確定系統已故障？

如您的 NAS 無法正常運作，請依照以下步驟檢查系統：

將系統的硬碟移除，然後開機。按下電源按鈕後，您會聽到一聲嗶聲，並在大約兩分鐘後聽到另一聲嗶聲。如您沒有聽到第二次嗶聲，代表系統的硬體可能故障，請聯絡您的經銷商或代理商。

注意：請於 NAS 的[系統管理]>[硬體設定]頁面啟動系統程序（開機、關機及韌體更新）的蜂鳴器警示功能。



注意：系統必須由專業的技術人員維修，請勿自行維修系統。

Q2. 系統的自動備份按鈕 (USB one touch copy button) 無法使用。

請檢查以下項目：

1. 自動備份按鈕只適用於系統前方的 USB 介面，請確定 USB 外接裝置已連接至 NAS 前方的 USB 介面。
2. 以管理者身份登入系統管理頁面，在[資料備份] > [USB 單鍵備份]頁面設定備份模式。
3. 在相容性列表上檢查系統是否支援該外接裝置：

http://www.qnap.com/pro_compatibility.asp

Q3. 若系統風扇、LCD 螢幕或其他硬件不正常運作，該如何處理？

請勿自行維修或更換系統任何硬件，您應立即聯絡經銷商或代理商，以安排維修或更換服務。

4. 機身更換

Q1. 如 NAS 的機身損毀，該如何處理？

若 NAS 的機身損毀，您可能需要向威聯通授權的經銷商或代理商購買新的 NAS，然後將原有的硬碟安裝至新的系統，所有硬碟資料將被保留。請依照以下程序操作：

1. 確定原來的 NAS 的硬碟並未損毀。
2. 準備與原來的系統相同型號的 NAS，您可以向經銷商或代理商查詢。
3. 關閉機身損毀的系統。
4. 移除機身損毀之系統內的所有硬碟（包含原來的硬碟抽換盒）。
5. 將硬碟連硬碟抽換盒按原來的次序順序安裝至新的 NAS 內。
6. 將新的 NAS 接上電源並開機，檢查系統是否可正常運作。



注意：NAS 必須由專業的技術人員維修，請勿自行維修系統。

5. 排除硬碟問題

Q1. NAS 顯示硬碟錯誤，該如何處理？

1. 以管理者身份登入 NAS 管理頁面，於[系統管理] > [系統記錄]頁面檢查是否有這項記錄：
“disk drive x failed or is unplugged”
2. 檢查系統的 LCD 螢幕（如有）是否顯示：disk drive x failed or is unplugged
3. 在系統的[磁碟管理] > [硬碟管理]系統檢視是否有硬碟錯誤資訊，如[沒有硬碟]。

解決方法：

1. 如硬碟組態為 RAID 1、RAID 5 或 RAID 6：請將 NAS 關機，更換損毀的硬碟，裝上新硬碟，然後重新啟動系統。NAS 會自動重建 RAID 磁碟組態，成功重建後，NAS 可以回復正常運作，RAID 資料保護功能亦會回復。
2. RAID 10：如 RAID 10 磁碟組態內的其中一顆硬碟或兩顆來自不同 RAID 1 組態的硬碟損毀，請將 NAS 關機，更換損毀的硬碟，裝上新硬碟後，重新開啟系統，NAS 便會開始重建 RAID 磁碟組態。如 RAID 磁碟組態成功重建，系統將可正常運作，RAID 資料保護功能亦會回復。如 RAID 10 內同一組 RAID 1 組態的兩顆硬碟同時損毀，資料將無法回復。請更換硬碟並重新建立磁碟組態。

注意：建議您選用相同品牌及型號的硬碟取代損毀之硬碟。

如 RAID 磁碟陣列內損毀之硬碟數目超過上限，磁碟組態將無法重建，硬碟資料亦會遺失。

3. 如硬碟組態為單獨硬碟、JBOD 或 RAID 0：將 NAS 關機，更換損毀的硬碟，然後重新啟動 NAS。系統完成開機程序後，請以管理者身份登入系統的管理頁面，在[磁碟管理] > [系統管理]頁面設定硬碟，新安裝的硬碟將被格式化，硬碟原來的資料亦將被清除。

注意：損毀硬碟內的資料將無法回復。

更換損毀的硬碟：

1. 從系統內取出硬碟連硬碟抽取盒。
2. 移除硬碟抽取盒內的硬碟，檢查硬碟是否損毀。您可以將可能損毀的硬碟抽入其他 QNAP NAS（如有）並檢查硬碟是否可被讀取。
3. 更換損毀的硬碟。
4. 檢查新硬碟的 master 及 slave 設定。

更換硬碟後之硬碟檢查：

1. 啟動 NAS。
2. 檢查 LCD 螢幕（如有）是否出現硬碟錯誤訊息。
3. 以管理者身份登入 NAS。
4. 在[磁碟管理] > [硬碟管理] 檢查硬碟狀態，如硬碟的狀態為[未格式化]，代表硬碟已正確安裝。
5. 要設定新硬碟為單獨硬碟，請透過網頁管理介面格式化硬碟。
6. 如硬碟組態為 RAID 1、RAID 5 或 RAID 6，NAS 會在重新啟動後自動重建磁碟組態。請確定在 RAID 組態重建後可以正確存取 NAS 的資料。

Q2. 系統無法偵測到硬碟，管理頁面上顯示：hard disk failed or unplugged

可能原因：

1. 系統不支援該硬碟型號，請參考硬碟相容性列表：
http://www.qnap.com/pro_compatibility.asp
2. 硬碟可能損毀，請更換硬碟。
3. 硬碟插槽可能損毀，請將硬碟插入另一個插槽（如有），然後再試一次。

6. 排除電源問題

Q. 按下電源按鈕後，系統仍無法關機。

請確定系統的電源線、變壓器及電源供應器已正確連接以及供電正常，如問題仍持續，請聯絡您的經銷商或代理商洽詢維修或更換服務。

Q. 我已在 NAS 系統安裝兩組電源供應器，但當移除其中一組電源供應器時，系統並未記錄錯誤訊息。

請於[系統管理] > [硬體設定]頁面檢查備援電源供應選項是否已啟動。啟動後，NAS 將會於[系統記錄]頁面開始記錄有關電源供應器的錯誤訊息。

Q. NAS 的電源供應器上的紅色按鈕作用為何？

此紅色按鈕用於電源供應器錯誤發生時，重設電源供應器。若您已在[系統管理] > [硬體設定]頁面啟動備援電源選項，當系統電源供應器無法正常運作時，您可以按下電源供應器上的紅色按鈕，並檢查電源供應是否運作正常。如電源供應器錯誤持續，請聯絡經銷商或代理商的技術人員。

7. 排除軟體問題

Q. 我已連接 NAS 及電腦至相同的網域，但 Finder 仍無法找到系統。

請確定您的 NAS 及電腦已連接至相同的網域。如您使用 Windows XP SP1，請依照以下步驟操作：

1. 在[控制台] (Control Panel)的[類別檢視] (Category View)模式下選擇 [網路連線設定] (Network and Internet Connections)或在[控制台] (Control Panel)的[傳統檢視] (Classic View) 模式下選擇[網路設定] (Network Settings)。
2. 點選 Network Connections，然後雙擊網路連線圖示。
3. 點選 Properties，然後選擇 Advanced。
4. 取消 Internet Connection Firewall 選項。
5. 重新安裝 Finder 並再次尋找系統。

如您使用 Windows XP SP2，在執行 Finder 時，按一下[解除封鎖] (Unblock) 即可。Windows 7 使用者可按[Allow access]解除 Windows 防火牆的封鎖。如仍無法找到系統，請檢查是否仍有其他防毒程式或防火牆正在使用，請關閉這些程式，然後再次執行 Finder。

如仍無法透過 Finder 找到 NAS，或在網頁瀏覽器輸入 NAS IP 後仍無法連線，請執行以下步驟：

1. 檢查您的網路線以及 NAS 的 LAN LED 是否正在閃爍。
2. 檢查系統的狀態 LED (或電源 LED)是否亮綠色。
如狀態或電源 LED 閃爍紅色或紅綠色交叉閃爍，代表系統仍未被初始代或硬碟未預備好。
3. 按 NAS 的重設按鈕 3-4 秒重設系統，系統的管理者密碼及網路設定將回復至出廠值（使用 DHCP 連線，登入名稱及密碼為 admin）。
系統重新啟動並發出兩次嗶聲後，請再次執行 Finder 尋找 NAS，或開啟網頁瀏覽器並輸入 `http://NAS_IP:8080`。如您的 NAS 直接連接至電腦，可以輸入預設 IP 位址：`169.254.100.100:8080`
4. 如在第 3 步後仍無法連線至 NAS，請依照以下步驟操作。
 - a. 將 NAS 關機。
 - b. 取出系統內所有硬碟，重新啟動 NAS。

按下電源按鈕後，系統會發出一聲嗶聲，兩分鐘後會再發出兩聲嗶聲。如您無法聽到第二次的嗶聲，代表系統發生錯誤，請聯絡您的經銷商或代理商安排維修及更換服務。

8. ARM系統NAS型號之韌體回復說明

適用 QNAP NAS 型號：TS-110、TS-112、TS-119、TS-210、TS-212、TS-219、TS-219P、TS-410、TS-410U、TS-412、TS-412U、TS-419P、TS-419U、TS-419U+、TS-119P+、TS-219P+及 TS-419P+。

如使用者在更新系統韌體時因停電或網路連線中斷導致韌體更新失敗，可參考此說明回復系統韌體。要確定本說明適用於您的 NAS，請先照以下步驟檢查系統狀態。

1. 將 NAS 關機。
2. 移除系統內所有硬碟。
3. 啟動 NAS。
4. 等候約十秒，您會聽到一聲短嗶聲。
5. 短嗶聲後兩分鐘，系統會再發出一聲長嗶聲。
6. 如您只聽到短嗶聲，或沒有聽到任何嗶聲，請依照此說明回復 NAS。

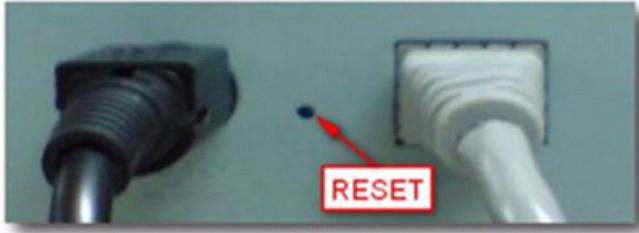
請依照以下步驟回復 NAS：

1. 請透過以下連結下載系統的 CD ISO（光碟映像檔）：
 - a. TS-110、TS-119、TS-210、TS-219 或 TS-219P
[ftp://csdread:csdread@ftp.qnap.com.tw/NAS/live_cd/Flash_Reburn_live-cd-2009-09-24\(TS-110&119&210&219&219P\).iso](ftp://csdread:csdread@ftp.qnap.com.tw/NAS/live_cd/Flash_Reburn_live-cd-2009-09-24(TS-110&119&210&219&219P).iso)
 - b. 一、二或四顆硬碟 NAS 型號
[ftp://csdread:csdread@ftp.qnap.com.tw/NAS/live_cd/Flash_Reburn_live-cd-2009-12-09\(TS-410&410U&419P&419U\).iso](ftp://csdread:csdread@ftp.qnap.com.tw/NAS/live_cd/Flash_Reburn_live-cd-2009-12-09(TS-410&410U&419P&419U).iso)
 - c. TS-119P+、TS-219P+或 TS-419P+
[http://us1.qnap.com/Storage/tsd/live-cd-2010-10-08.\(TS-x19P+ Recovery\).iso](http://us1.qnap.com/Storage/tsd/live-cd-2010-10-08.(TS-x19P+ Recovery).iso)
 - d. TS-112/212/412/412U/419U/419U+
[http://us1.qnap.com/Storage/tsd/live-cd-2011-03-02\(TS-x12_412U_419U_419U+\).iso](http://us1.qnap.com/Storage/tsd/live-cd-2011-03-02(TS-x12_412U_419U_419U+).iso)

注意：如使用一或二顆硬碟的 NAS 型號 (TS-110/210/119/219/219P)，請使用 CD ISO (a)。如無法回復 NAS 韌體，請使用 CD ISO (b)再試一次。
--

2. 將 ISO 映像檔燒成 CD 光碟片。
3. 將 CD 光碟片插入電腦，並透過光碟片開機。

4. 登入視窗顯示時，請直接前往下一步，無需輸入任何登入資訊。
5. 關閉 NAS 及移除所有硬碟。
6. 使用網路線將 NAS 直接連接至電腦。如您的 NAS 提供兩個網路介面，請透過 LAN 2 將 NAS 連線至電腦。
7. 以筆尖或其他尖物按壓系統的重設按鈕（如下圖示）。



8. 按壓 NAS 的電源按鈕約 5-8 秒，直至聽到兩聲短嗶聲，系統的狀態 LED 會交叉閃爍紅綠色，然後亮紅色。
9. NAS 的 LAN LED 會閃爍幾秒，然後亮紅色。
10. 此時，請勿對 NAS 進行任何操作、關機或拔除電源線。請等候約五分鐘。
11. 待 NAS 發出一聲長嗶聲或兩聲短嗶聲，以及狀態 LED 閃爍綠色。系統會重新啟動，此時，您無需進行任何操作。
12. 重新啟動系統約需三分鐘，之後會聽到一聲長嗶聲。
13. 將 NAS 連接至 switch 或 router，然後使用 QNAP Finder 尋找 NAS。

如問題持續，該如何處理？

如系統啟動問題仍無法解決，請儘快聯絡經銷商或代理商安排維修服務。

適用 QNAP NAS 型號：TS-239 Pro、TS-239 Pro II、TS-239 Pro II+、TS-439 Pro、TS-439 Pro II、TS-439 Pro II+、TS-259 Pro、TS-259 Pro+、TS-459 Pro、TS-459 Pro+、TS-459 Pro II、TS-459U、TS-459U+、TS-559 Pro、TS-559 Pro+、TS-559 Pro II、TS-659 Pro、TS-659 Pro+、TS-659 Pro II、TS-859 Pro、TS-859 Pro+、TS-859U、TS-859U+、TS-509,TS-809、TS-809U、SS-439 及 SS-839。

如使用者在更新系統韌體時因停電或網路連線中斷導致韌體更新失敗，可參考此說明回復系統韌體。要確定本說明適用於您的 NAS，請先照以下步驟檢查系統狀態。

1. 將 NAS 關機。
2. 移除系統內所有硬碟。
3. 連接一個 VGA 螢幕及一個 USB 鍵盤至 NAS。



4. 啟動 NAS。

AMI BIOS ...: 以下螢幕顯示 NAS 的 BIOS 可正確地開機。
1023MB OK: DRAM 已被偵測 (DRAM 大小視 NAS 型號而定。)
128MB ATA Flash Disk ADAA408J: DOM 已被偵測 (DOM 大小視 NAS 型號而定。)



如 BIOS 無法開機或任何組件，如 DRAM 或 DOM 無法被偵測，請即聯絡經銷商或代理商進行維修。如移除硬碟後 NAS 可正常開機，請更換硬碟並再次啟用 NAS。

5. 如螢幕顯示“Uncompressing Linux...”，代表 DOM 正在開機。但若系統已損毀，將會在開機過程出現錯誤訊息。您可以依照以下說明回復系統。



6. 要回復在 DOM 上的系統檔案，請依照以下 A 及 B 的說明操作。

A. 建立可開機的 USB 磁碟

B. 使用 USB 開機磁碟重燒 NAS 的 DOM

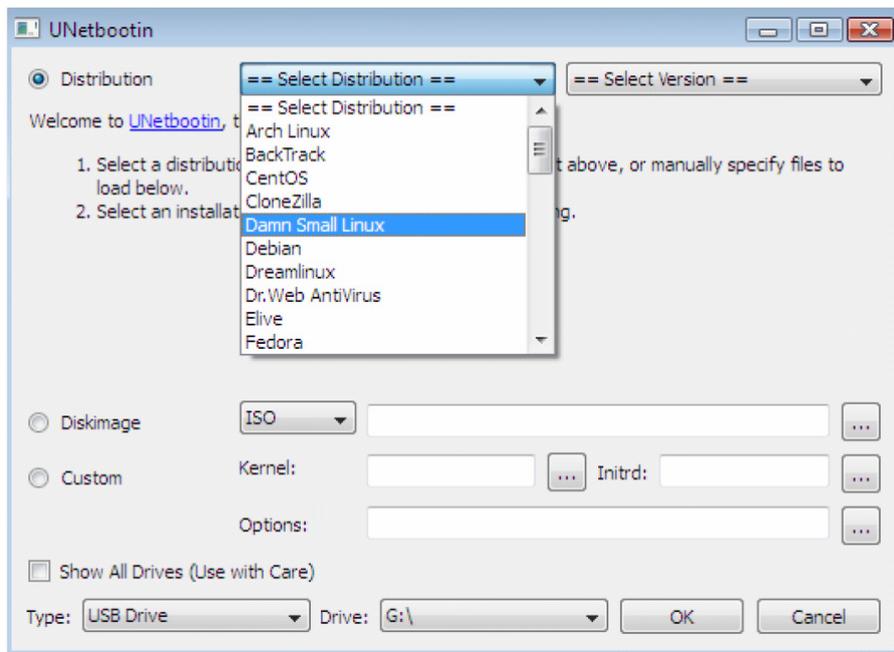
A. 建立可開機的 USB 磁碟

1. 由<http://unetbootin.sourceforge.net>下載UNetbootin。

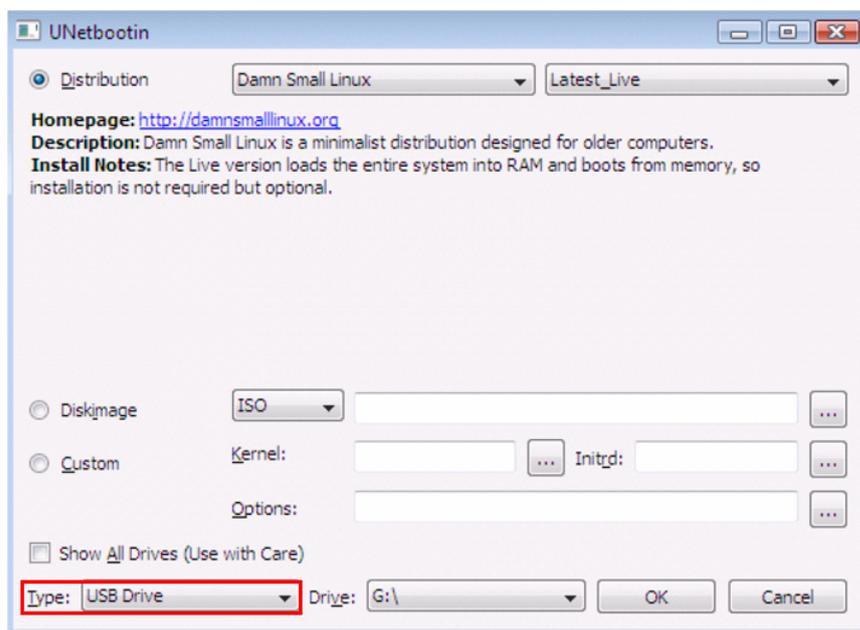
2. 將 USB 磁碟連接至電腦，磁碟須包含 1GB 或以上容量，格式須為 FAT32。

3. 執行 UNetbootin。

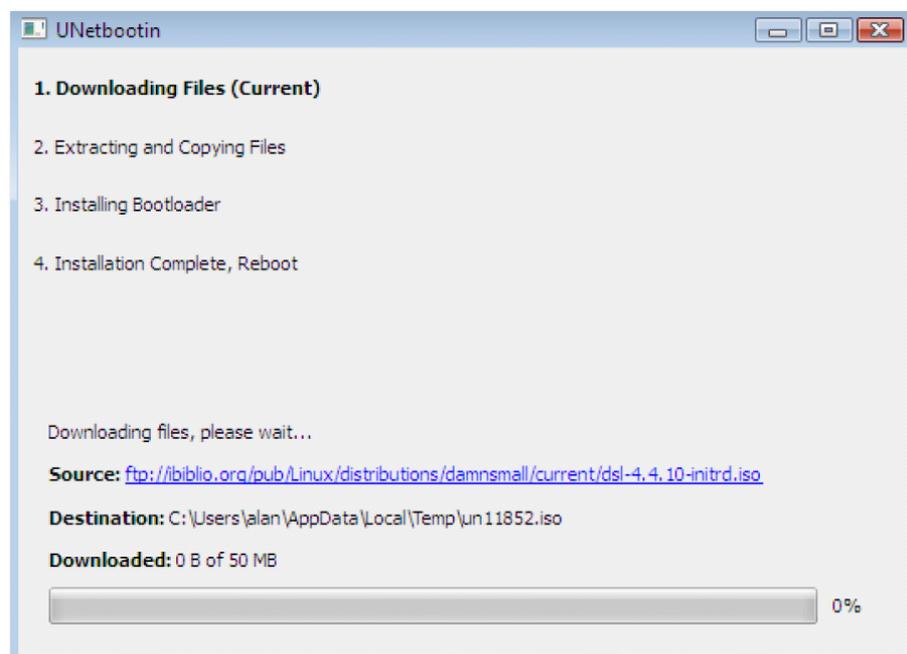
4. 點選“Distribution”，然後選取“Damn Small Linux”。



5. 在類型選項選擇 “USB Drive”，然後指定磁碟路徑。按“OK”。



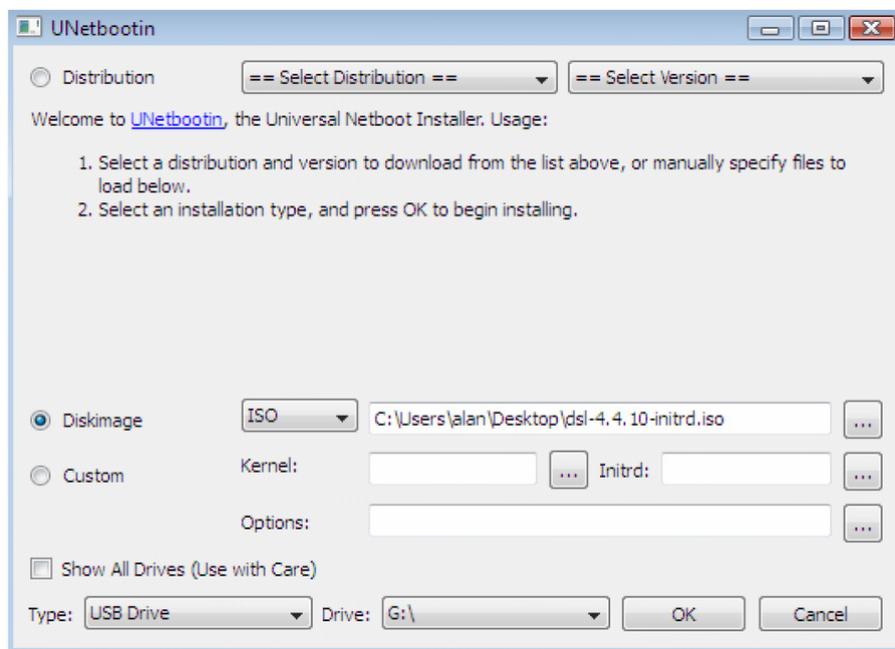
6. 程式會自動將 Damn Small Linux 下載至 USB 磁碟。



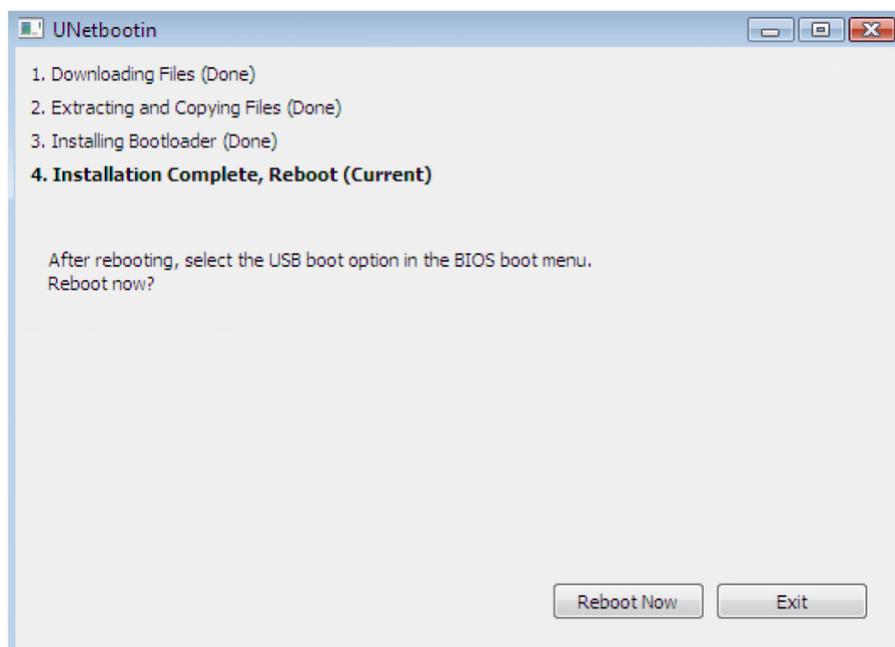
7. 您亦可以透過以下連結手動下載 Damn Small Linux :

<http://distro.ibiblio.org/damnsmall/current/dsl-4.4.10-initrd.iso>

點選“Diskimage”並指定檔案位置，然後按“OK”。



8. 完成安裝後，按“Exit”。



9. 複製 DOM 映像檔至 USB 磁碟（開機磁碟）。

影像檔案：

TS-239 Pro

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-239_20091014-3.1.2.img

TS-239 Pro II

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-239PROII_20100928-1.0.6.img

TS-239 Pro II+

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-239PROII+_20110118-1.0.9.img

TS-259 Pro

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-259_20101129-1.0.9.img

TS-439 Pro

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-439_20091014-3.1.2.img

TS-439 Pro II

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-439PROII_20100928-1.0.6.img

TS-439 Pro II+

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-439PROII+_20101119-1.0.9.img

TS-439U

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-439U_20091014-3.1.2.img

TS-459 Pro, TS-459 Pro+, TS-459 Pro II

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-459_20101118-1.0.9.img

TS-459U, TS-459U+

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-459U_20101118-1.0.9.img

TS-509

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-509_20100302-1.0.1.img

TS-559 Pro, TS-559 Pro+, TS-559 Pro II

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-559_20101118-1.0.9.img

TS-639 Pro

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-639_20091014-3.1.2.img

TS-659 Pro, TS-659 Pro+, TS-659 Pro II

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-659_20101118-1.0.9.img

TS-809

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-809_20101119-1.0.9.img

TS-809U

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-809U_20101119-1.0.9.img

TS-859 Pro, TS-859 Pro+

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-859_20101118-1.0.9.img

TS-859U, TS-859U+

http://eu1.qnap.com/Storage/tsd/fullimage/F_TS-859U_20101118-1.0.9.img

SS-439

[http://eu1.qnap.com/Storage/tsd/fullimage/F SS-439 20090627-3.1.0.img](http://eu1.qnap.com/Storage/tsd/fullimage/F_SS-439_20090627-3.1.0.img)

SS-839

[http://eu1.qnap.com/Storage/tsd/fullimage/F SS-839 20091014-3.1.2.img](http://eu1.qnap.com/Storage/tsd/fullimage/F_SS-839_20091014-3.1.2.img)

B. 使用 USB 開機磁碟重燒 NAS 的 DOM

1. 請確定 NAS 已關機並移除所有硬碟。
2. 連接一個 VGA 螢幕、一個 USB 鍵盤及 USB 開機磁碟至 NAS。



3. 啟動 NAS 並連續按 F11 鍵。

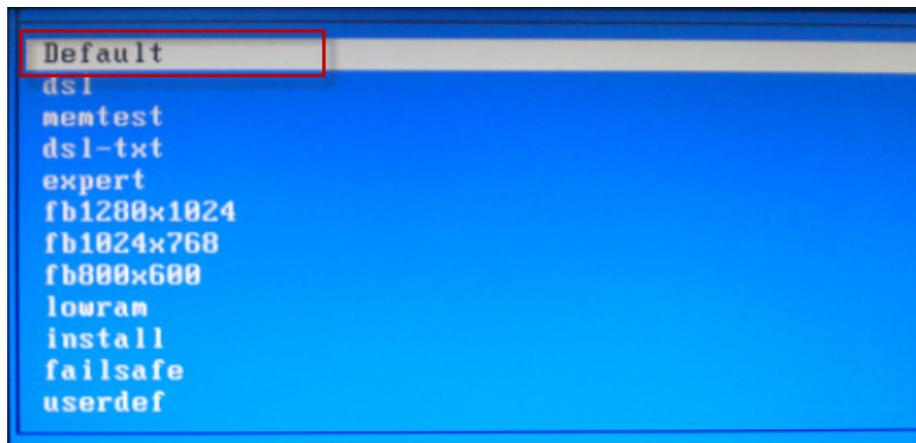


4. 選擇 USB 磁碟作為開機裝置 (boot device)，如螢幕沒有顯示選單，請重新啟動 NAS 並重複上一個步驟。

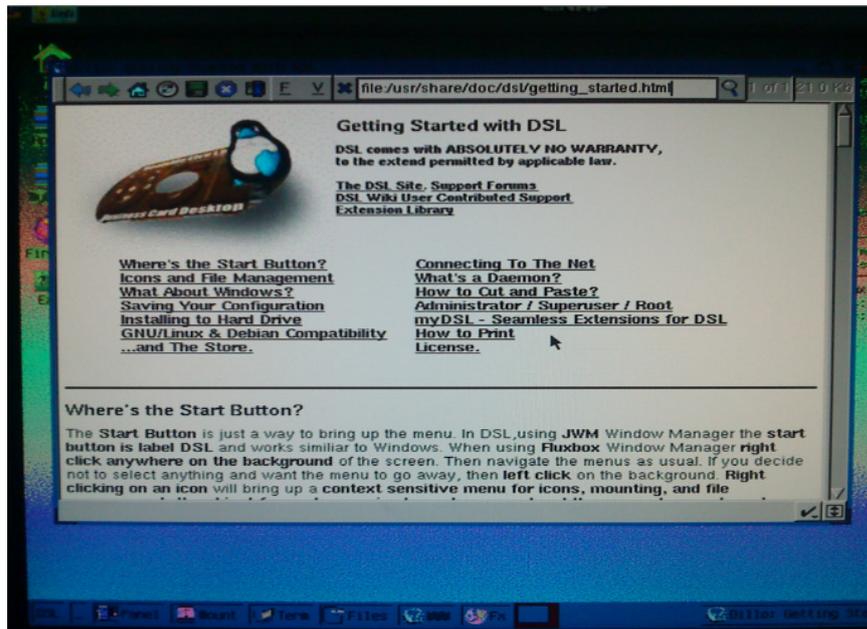
注意：如偵測到兩個 USB 裝置，請勿選擇“USB DISK MODULE PMAP”。



5. 在下一個目錄選擇“Default”進入螢幕設定。按<SPACE>鍵繼續。



6. 成功開機後，將會顯示以下視窗。



7. 按 Ctrl+Alt+Del 以輸入指令。

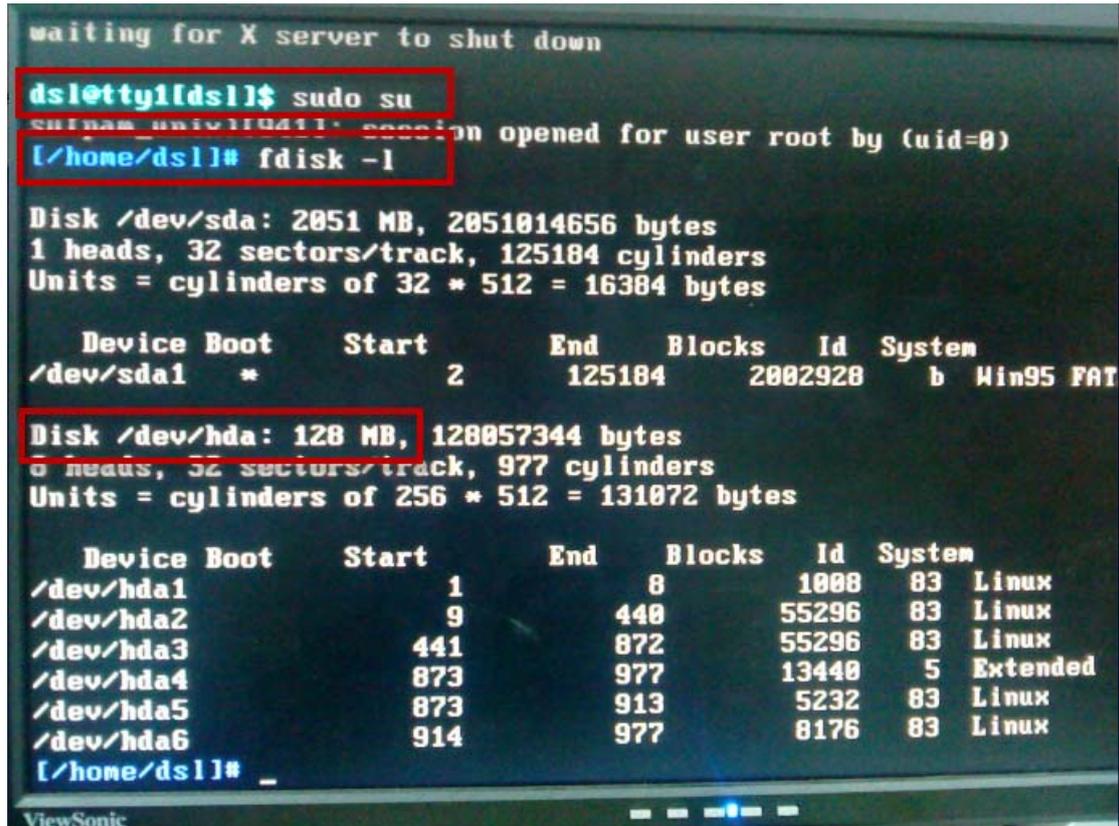
8. 輸入以下指令：

```
# sudo su
```

```
# fdisk -l
```

/dev/sda 代表您的 USB 磁碟。

/dev/sdb 或 /dev/hda 代表 DOM 磁碟，大小為 128 MB 或 512 MB，視 NAS 型號而定。



```
waiting for X server to shut down
dsl@tty1(dsl)$ sudo su
shimam_anti110411: session opened for user root by (uid=0)
[/home/dsl]# fdisk -l

Disk /dev/sda: 2051 MB, 2051014656 bytes
1 heads, 32 sectors/track, 125184 cylinders
Units = cylinders of 32 * 512 = 16384 bytes

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1  *            2         125184     2002928    b   Win95 FAT

Disk /dev/hda: 128 MB, 128057344 bytes
0 heads, 32 sectors/track, 977 cylinders
Units = cylinders of 256 * 512 = 131072 bytes

   Device Boot      Start         End      Blocks   Id  System
/dev/hda1                1             8         1008    83   Linux
/dev/hda2                9            440        55296    83   Linux
/dev/hda3           441            872        55296    83   Linux
/dev/hda4           873            977        13440     5   Extended
/dev/hda5           873            913         5232    83   Linux
/dev/hda6           914            977         8176    83   Linux
[/home/dsl]# _
```

9. 輸入以下指令：

```
# mkdir usbdrive
```

```
# mount /dev/sda1 /home/dsl/usbdrive
```

```
# cd /home/dsl/usbdrive
```

10. 輸入以下指令：

```
# cp dom.img /dev/sdb
```

"/dev/sdb"或"/dev/hda"代表 DOM 磁碟，視 NAS 型號而定。

"dom.img"為韌體名稱。

11. 輸入以下指令重新啟動 NAS :

reboot

```
[/home/dsl]# fdisk -l

Disk /dev/sda: 2051 MB, 2051014656 bytes
1 heads, 32 sectors/track, 125184 cylinders
Units = cylinders of 32 * 512 = 16384 bytes

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1  *           2         125184     2002928    b  Win95 F

Disk /dev/hda: 128 MB, 128057344 bytes
8 heads, 32 sectors/track, 977 cylinders
Units = cylinders of 256 * 512 = 131072 bytes

   Device Boot      Start         End      Blocks   Id  System
/dev/hda1             1            8         1008    83  Linux
/dev/hda2             9           440       55296    83  Linux
/dev/hda3            441           872       55296    83  Linux
/dev/hda4            873           977       13440     5  Extende
/dev/hda5            873           913        5232    83  Linux
/dev/hda6            914           977        8176    83  Linux

[/home/dsl]# mkdir usbdrive
[/home/dsl]# mount /dev/sda1 /home/dsl/usbdrive
[/home/dsl]# cd /home/dsl/usbdrive
[/home/dsl/usbdrive]# cp dom.img /dev/hda
[/home/dsl/usbdrive]# reboot
```

12. 將 NAS 連接至 switch 或 router，然後使用 QNAP Finder 尋找 NAS。如 NAS 可被找到，您可以關機，安裝硬碟，然後重新啟動並設定系統。

如問題持續，該如何處理？

如系統啟動問題仍無法解決，請儘快聯絡經銷商或代理商安排維修服務。

9. Intel x86 系統NAS型號之韌體回復說明

適用 QNAP NAS 型號：TS-239、TS-439、TS-239 Pro II、TS-439 Pro II、SS-439、SS-839、TS-509、TS-809/809U、TS-x59 及 TS-x59 Pro+系統。

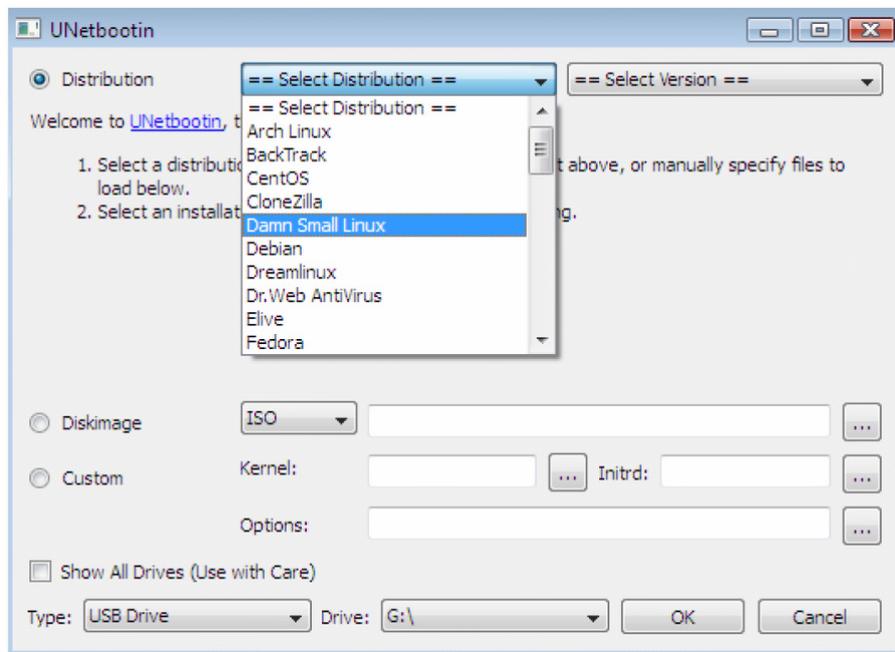
如使用者在更新系統韌體時因停電或網路連線中斷導致韌體更新失敗，可參考此說明回復系統韌體。要確定本說明適用於您的 NAS，請先照以下步驟檢查系統狀態。

1. 將 NAS 關機。
2. 移除系統內所有硬碟。
3. 啟動 NAS。
4. 等候約十秒，您會聽到一聲短嗶聲。
5. 短嗶聲後兩分鐘，系統會再發出一聲長嗶聲。
6. 如您只聽到短嗶聲，或沒有聽到任何嗶聲，請依照此說明回復 NAS。

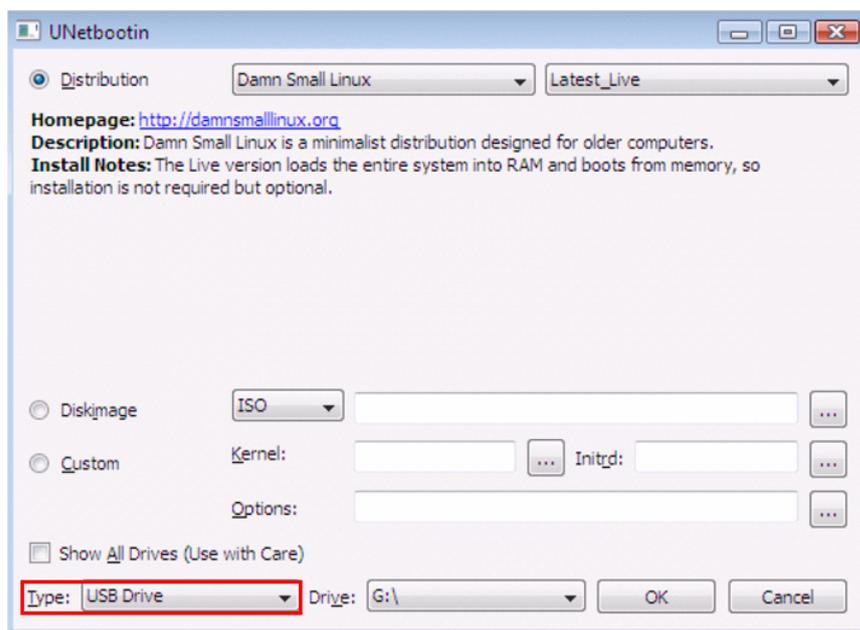
請依照以下步驟回復 NAS：

建立可開機的 USB 磁碟

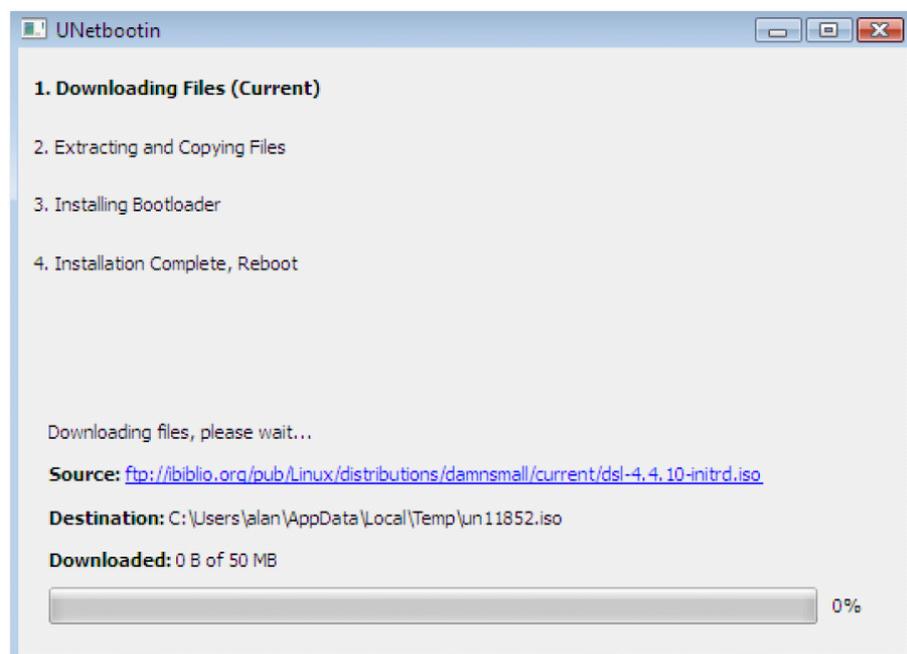
1. 由<http://unetbootin.sourceforge.net>下載UNetbootin。
2. 將 USB 磁碟連接至電腦，磁碟須包含 1GB 或以上容量，格式須為 FAT32。
3. 執行 UNetbootin。
4. 點選“Distribution”，然後選取“Damn Small Linux”。



5. 在類型選項選擇 “USB Drive”，然後指定磁碟路徑。



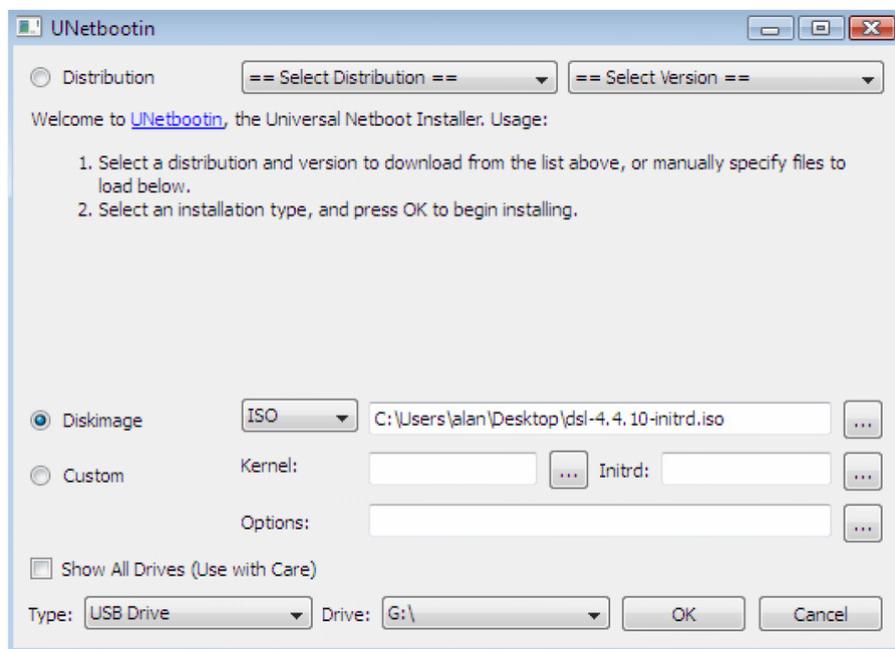
6. 程式會自動將 Damn Small Linux 下載至 USB 磁碟。



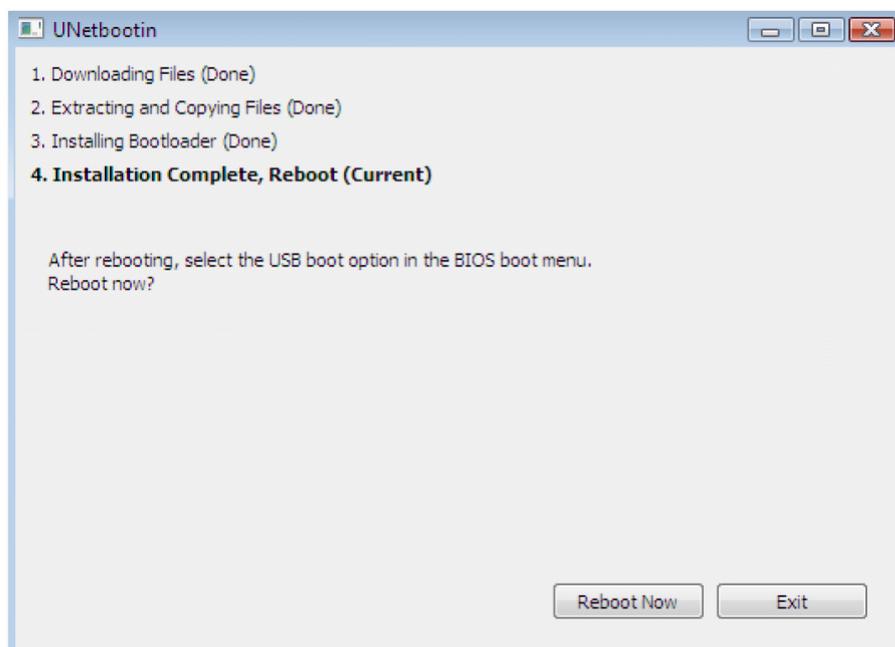
7. 您亦可以透過以下連結手動下載 Damn Small Linux :

<http://distro.ibiblio.org/damnsmall/current/dsl-4.4.10-initrd.iso>

點選“Diskimage”並指定檔案位置，然後按“OK”。



8. 完成安裝後，按“Exit”。

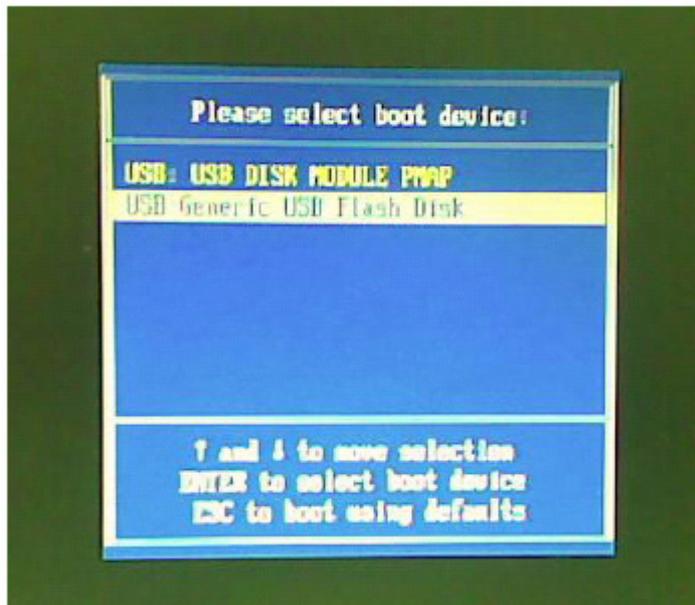


9. 複製 DOM 映像檔至 USB 磁碟（開機磁碟）。

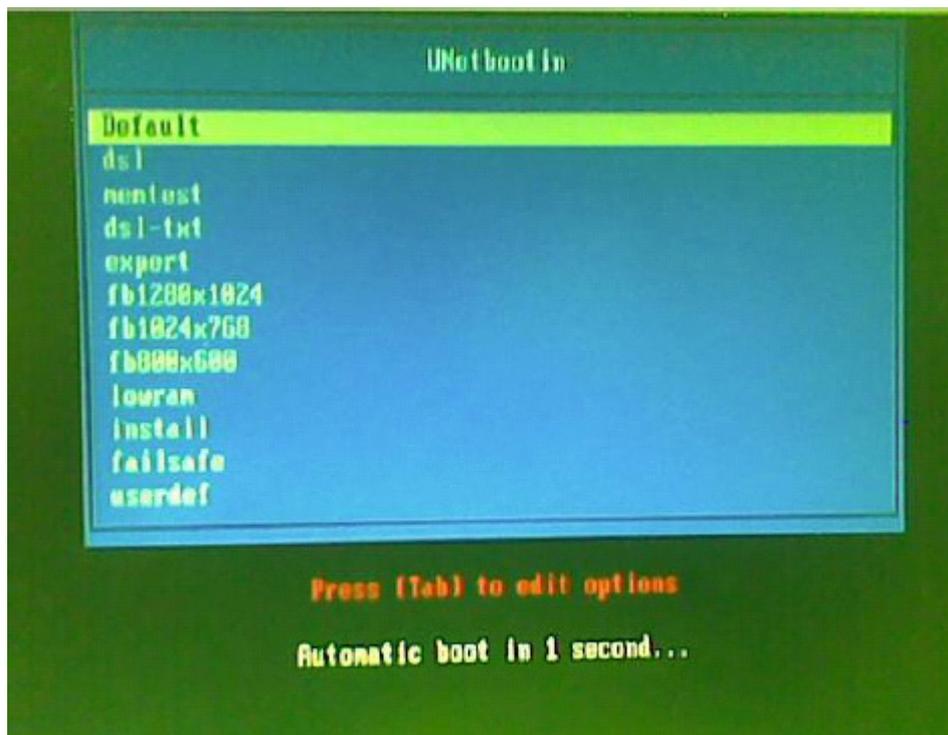
使用 USB 開機磁碟重燒 NAS 的 DOM

1. 請確定 NAS 已關機並移除所有硬碟。
2. 連接一個 VGA 螢幕、一個 USB 鍵盤及 USB 開機磁碟至 NAS。
3. 啟動 NAS 並連續按 F11 鍵。
4. 選擇 USB 磁碟作為開機裝置 (boot device)，如螢幕沒有顯示選單，請重新啟動 NAS 並重複上一個步驟。

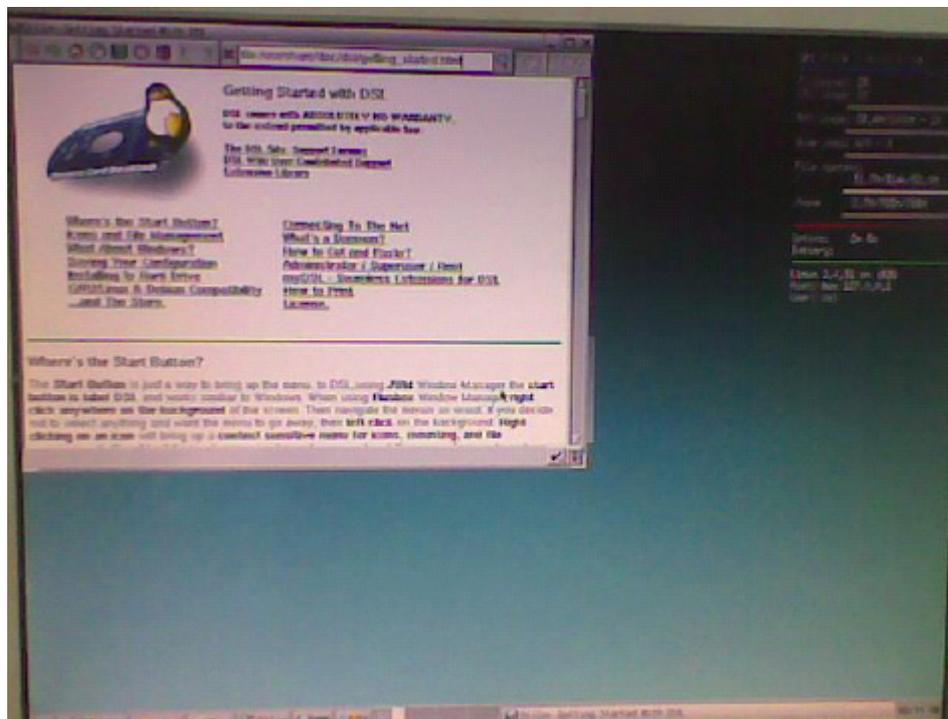
注意：如偵測到兩個 USB 裝置，請勿選擇“USB DISK MODULE PMAP”。



5. 在下一個目錄選擇“Default”。



6. 成功開機後，將會顯示以下視窗。

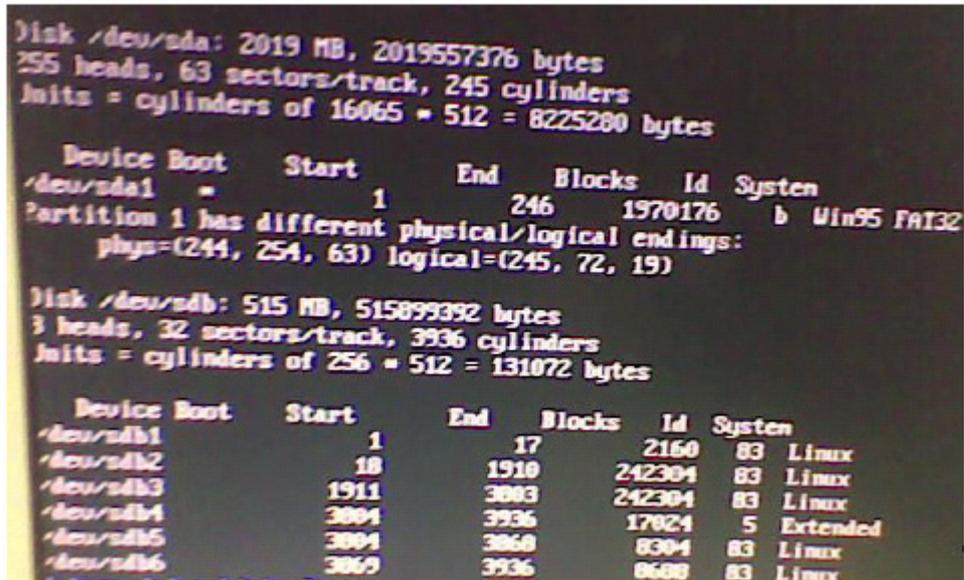


7. 按 Ctrl+Alt+Del 以輸入指令。

8. 輸入以下指令：

```
# sudo su  
# fdisk -l
```

9. 以下結果將會顯示。



```
disk /dev/sda: 2019 MB, 2019557376 bytes  
255 heads, 63 sectors/track, 245 cylinders  
Units = cylinders of 16065 * 512 = 8225280 bytes  
  
Device Boot      Start         End      Blocks   Id  System  
/dev/sda1        *          1           246     1970176   b  Win95 FAT32  
Partition 1 has different physical/logical endings:  
phys=(244, 254, 63) logical=(245, 72, 19)  
  
disk /dev/sdb: 515 MB, 515893392 bytes  
3 heads, 32 sectors/track, 3936 cylinders  
Units = cylinders of 256 * 512 = 131072 bytes  
  
Device Boot      Start         End      Blocks   Id  System  
/dev/sdb1                1             17         2160    83  Linux  
/dev/sdb2                18            1910      242304    83  Linux  
/dev/sdb3                1911           3003      242304    83  Linux  
/dev/sdb4                3004           3936      17024     5  Extended  
/dev/sdb5                3004           3060         8304    83  Linux  
/dev/sdb6                3061           3936         8608    83  Linux
```

/dev/sda 代表您的 USB 磁碟；/dev/sdb (128MB 或 512MB)代表要重燒的 DOM 大小。

10. 輸入以下指令：

```
# mkdir usbdrive  
# mount /dev/sda1 /home/dsl/usbdrive  
# cd /home/dsl/usbdrive
```

11. 輸入以下指令：

```
# cp dom.img /dev/sdb  
"dom.img"為韌體名稱， /dev/sdb 為 DOM 的磁碟名稱。
```

12. 輸入以下指令重新啟動 NAS：

```
# reboot
```

13. 將 NAS 連接至 switch 或 router，然後使用 QNAP Finder 尋找 NAS。如 NAS 可被找到，您可以關機，安裝硬碟，然後重新啟動並設定系統。

如問題持續，該如何處理？

如系統啟動問題仍無法解決，請儘快聯絡經銷商或代理商安排維修服務。

技術支援

威聯通提供線上支援及即時通客戶服務，聯絡方式如下：

線上支援：<http://www.qnap.com>

MSN: q.support@hotmail.com

Skype: qnapskype

論壇：<http://forum.qnap.com>

美國及加拿大地區技術支援

Email: q_supportus@qnap.com

電話：909-595-2819

地址：166 University Parkway, Pomona CA 9176

服務時間：08:00–17:00 (GMT- 08:00 Pacific Time, 星期一至星期五)

GNU GENERAL PUBLIC LICENSE

Version 3, 29 June 2007

Copyright © 2007 Free Software Foundation, Inc. <<http://fsf.org/>>

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The GNU General Public License is a free, copyleft license for software and other kinds of works.

The licenses for most software and other practical works are designed to take away your freedom to share and change the works. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change all versions of a program--to make sure it remains free software for all its users. We, the Free Software Foundation, use the GNU General Public License for most of our software; it applies also to any other work released this way by its authors. You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for them if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs, and that you know you can do these things.

To protect your rights, we need to prevent others from denying you these rights or asking you to surrender the rights. Therefore, you have certain responsibilities if you distribute copies of the software, or if you modify it: responsibilities to respect the freedom of others.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must pass on to the recipients the same freedoms that you received. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

Developers that use the GNU GPL protect your rights with two steps: (1) assert copyright on the software, and (2) offer you this License giving you legal permission to copy, distribute and/or modify it.

For the developers' and authors' protection, the GPL clearly explains that there is no warranty for this free software. For both users' and authors' sake, the GPL requires that modified versions be marked as changed, so that their problems will not be attributed erroneously to authors of previous versions.

Some devices are designed to deny users access to install or run modified versions of the software inside them, although the manufacturer can do so. This is fundamentally incompatible with the aim of protecting users' freedom to change the software. The systematic pattern of such abuse occurs in the area of products for individuals to use, which is precisely where it is most unacceptable. Therefore, we have designed this version of the GPL to prohibit the practice for those products. If such problems arise substantially in other domains, we stand ready to extend this provision to those domains in future versions of the GPL, as needed to protect the freedom of users.

Finally, every program is threatened constantly by software patents. States should not allow patents to restrict development and use of software on general-purpose computers, but in those that do, we wish to avoid the special danger that patents applied to a free program could make it effectively proprietary. To prevent this, the GPL assures that patents cannot be used to render the program non-free.

The precise terms and conditions for copying, distribution and modification follow.

TERMS AND CONDITIONS

0. Definitions.

"This License" refers to version 3 of the GNU General Public License.

"Copyright" also means copyright-like laws that apply to other kinds of works, such as semiconductor masks.

"The Program" refers to any copyrightable work licensed under this License. Each licensee is addressed as "you". "Licensees" and "recipients" may be individuals or organizations.

To “modify” a work means to copy from or adapt all or part of the work in a fashion requiring copyright permission, other than the making of an exact copy. The resulting work is called a “modified version” of the earlier work or a work “based on” the earlier work.

A “covered work” means either the unmodified Program or a work based on the Program.

To “propagate” a work means to do anything with it that, without permission, would make you directly or secondarily liable for infringement under applicable copyright law, except executing it on a computer or modifying a private copy. Propagation includes copying, distribution (with or without modification), making available to the public, and in some countries other activities as well.

To “convey” a work means any kind of propagation that enables other parties to make or receive copies. Mere interaction with a user through a computer network, with no transfer of a copy, is not conveying.

An interactive user interface displays “Appropriate Legal Notices” to the extent that it includes a convenient and prominently visible feature that (1) displays an appropriate copyright notice, and (2) tells the user that there is no warranty for the work (except to the extent that warranties are provided), that licensees may convey the work under this License, and how to view a copy of this License. If the interface presents a list of user commands or options, such as a menu, a prominent item in the list meets this criterion.

1. Source Code.

The “source code” for a work means the preferred form of the work for making modifications to it. “Object code” means any non-source form of a work.

A “Standard Interface” means an interface that either is an official standard defined by a recognized standards body, or, in the case of interfaces specified for a particular programming language, one that is widely used among developers working in that language.

The “System Libraries” of an executable work include anything, other than the work as a whole, that (a) is included in the normal form of packaging a Major Component, but which is not part of that Major Component, and (b) serves only to enable use of

the work with that Major Component, or to implement a Standard Interface for which an implementation is available to the public in source code form. A "Major Component", in this context, means a major essential component (kernel, window system, and so on) of the specific operating system (if any) on which the executable work runs, or a compiler used to produce the work, or an object code interpreter used to run it.

The "Corresponding Source" for a work in object code form means all the source code needed to generate, install, and (for an executable work) run the object code and to modify the work, including scripts to control those activities. However, it does not include the work's System Libraries, or general-purpose tools or generally available free programs which are used unmodified in performing those activities but which are not part of the work. For example, Corresponding Source includes interface definition files associated with source files for the work, and the source code for shared libraries and dynamically linked subprograms that the work is specifically designed to require, such as by intimate data communication or control flow between those subprograms and other parts of the work.

The Corresponding Source need not include anything that users can regenerate automatically from other parts of the Corresponding Source.

The Corresponding Source for a work in source code form is that same work.

2. Basic Permissions.

All rights granted under this License are granted for the term of copyright on the Program, and are irrevocable provided the stated conditions are met. This License explicitly affirms your unlimited permission to run the unmodified Program. The output from running a covered work is covered by this License only if the output, given its content, constitutes a covered work. This License acknowledges your rights of fair use or other equivalent, as provided by copyright law.

You may make, run and propagate covered works that you do not convey, without conditions so long as your license otherwise remains in force. You may convey covered works to others for the sole purpose of having them make modifications exclusively for you, or provide you with facilities for running those works, provided that you comply with the terms of this License in conveying all material for which you do not control copyright. Those thus making or running the covered works for you must do so exclusively on your behalf, under your direction and control, on

terms that prohibit them from making any copies of your copyrighted material outside their relationship with you.

Conveying under any other circumstances is permitted solely under the conditions stated below. Sublicensing is not allowed; section 10 makes it unnecessary.

3. Protecting Users' Legal Rights From Anti-Circumvention Law.

No covered work shall be deemed part of an effective technological measure under any applicable law fulfilling obligations under article 11 of the WIPO copyright treaty adopted on 20 December 1996, or similar laws prohibiting or restricting circumvention of such measures.

When you convey a covered work, you waive any legal power to forbid circumvention of technological measures to the extent such circumvention is effected by exercising rights under this License with respect to the covered work, and you disclaim any intention to limit operation or modification of the work as a means of enforcing, against the work's users, your or third parties' legal rights to forbid circumvention of technological measures.

4. Conveying Verbatim Copies.

You may convey verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice; keep intact all notices stating that this License and any non-permissive terms added in accord with section 7 apply to the code; keep intact all notices of the absence of any warranty; and give all recipients a copy of this License along with the Program.

You may charge any price or no price for each copy that you convey, and you may offer support or warranty protection for a fee.

5. Conveying Modified Source Versions.

You may convey a work based on the Program, or the modifications to produce it from the Program, in the form of source code under the terms of section 4, provided that you also meet all of these conditions:

- a) The work must carry prominent notices stating that you modified it, and giving a relevant date.
- b) The work must carry prominent notices stating that it is released under this

License and any conditions added under section 7. This requirement modifies the requirement in section 4 to “keep intact all notices”.

c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy. This License will therefore apply, along with any applicable section 7 additional terms, to the whole of the work, and all its parts, regardless of how they are packaged. This License gives no permission to license the work in any other way, but it does not invalidate such permission if you have separately received it.

d) If the work has interactive user interfaces, each must display Appropriate Legal Notices; however, if the Program has interactive interfaces that do not display Appropriate Legal Notices, your work need not make them do so.

A compilation of a covered work with other separate and independent works, which are not by their nature extensions of the covered work, and which are not combined with it such as to form a larger program, in or on a volume of a storage or distribution medium, is called an “aggregate” if the compilation and its resulting copyright are not used to limit the access or legal rights of the compilation's users beyond what the individual works permit. Inclusion of a covered work in an aggregate does not cause this License to apply to the other parts of the aggregate.

6. Conveying Non-Source Forms.

You may convey a covered work in object code form under the terms of sections 4 and 5, provided that you also convey the machine-readable Corresponding Source under the terms of this License, in one of these ways:

a) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by the Corresponding Source fixed on a durable physical medium customarily used for software interchange.

b) Convey the object code in, or embodied in, a physical product (including a physical distribution medium), accompanied by a written offer, valid for at least three years and valid for as long as you offer spare parts or customer support for that product model, to give anyone who possesses the object code either (1) a copy of the Corresponding Source for all the software in the product that is covered by this License, on a durable physical medium customarily used for software interchange, for a price no more than your reasonable cost of physically performing this conveying of source, or (2) access to copy the Corresponding Source from a network server at no charge.

c) Convey individual copies of the object code with a copy of the written offer to provide the Corresponding Source. This alternative is allowed only occasionally and

noncommercially, and only if you received the object code with such an offer, in accord with subsection 6b.

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.

e) Convey the object code using peer-to-peer transmission, provided you inform other peers where the object code and Corresponding Source of the work are being offered to the general public at no charge under subsection 6d.

A separable portion of the object code, whose source code is excluded from the Corresponding Source as a System Library, need not be included in conveying the object code work.

A "User Product" is either (1) a "consumer product", which means any tangible personal property which is normally used for personal, family, or household purposes, or (2) anything designed or sold for incorporation into a dwelling. In determining whether a product is a consumer product, doubtful cases shall be resolved in favor of coverage. For a particular product received by a particular user, "normally used" refers to a typical or common use of that class of product, regardless of the status of the particular user or of the way in which the particular user actually uses, or expects or is expected to use, the product. A product is a consumer product regardless of whether the product has substantial commercial, industrial or non-consumer uses, unless such uses represent the only significant mode of use of the product.

"Installation Information" for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

If you convey an object code work under this section in, or with, or specifically for use in, a User Product, and the conveying occurs as part of a transaction in which the right of possession and use of the User Product is transferred to the recipient in perpetuity or for a fixed term (regardless of how the transaction is characterized), the Corresponding Source conveyed under this section must be accompanied by the Installation Information. But this requirement does not apply if neither you nor any third party retains the ability to install modified object code on the User Product (for example, the work has been installed in ROM).

The requirement to provide Installation Information does not include a requirement to continue to provide support service, warranty, or updates for a work that has been modified or installed by the recipient, or for the User Product in which it has been modified or installed. Access to a network may be denied when the modification itself materially and adversely affects the operation of the network or violates the rules and protocols for communication across the network.

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.

7. Additional Terms.

“Additional permissions” are terms that supplement the terms of this License by making exceptions from one or more of its conditions. Additional permissions that are applicable to the entire Program shall be treated as though they were included in this License, to the extent that they are valid under applicable law. If additional permissions apply only to part of the Program, that part may be used separately under those permissions, but the entire Program remains governed by this License without regard to the additional permissions.

When you convey a copy of a covered work, you may at your option remove any additional permissions from that copy, or from any part of it. (Additional permissions may be written to require their own removal in certain cases when you modify the work.) You may place additional permissions on material, added by you to a covered work, for which you have or can give appropriate copyright permission.

Notwithstanding any other provision of this License, for material you add to a covered work, you may (if authorized by the copyright holders of that material)

supplement the terms of this License with terms:

- a) Disclaiming warranty or limiting liability differently from the terms of sections 15 and 16 of this License; or
- b) Requiring preservation of specified reasonable legal notices or author attributions in that material or in the Appropriate Legal Notices displayed by works containing it; or
- c) Prohibiting misrepresentation of the origin of that material, or requiring that modified versions of such material be marked in reasonable ways as different from the original version; or
- d) Limiting the use for publicity purposes of names of licensors or authors of the material; or
- e) Declining to grant rights under trademark law for use of some trade names, trademarks, or service marks; or
- f) Requiring indemnification of licensors and authors of that material by anyone who conveys the material (or modified versions of it) with contractual assumptions of liability to the recipient, for any liability that these contractual assumptions directly impose on those licensors and authors.

All other non-permissive additional terms are considered “further restrictions” within the meaning of section 10. If the Program as you received it, or any part of it, contains a notice stating that it is governed by this License along with a term that is a further restriction, you may remove that term. If a license document contains a further restriction but permits relicensing or conveying under this License, you may add to a covered work material governed by the terms of that license document, provided that the further restriction does not survive such relicensing or conveying.

If you add terms to a covered work in accord with this section, you must place, in the relevant source files, a statement of the additional terms that apply to those files, or a notice indicating where to find the applicable terms.

Additional terms, permissive or non-permissive, may be stated in the form of a separately written license, or stated as exceptions; the above requirements apply either way.

8. Termination.

You may not propagate or modify a covered work except as expressly provided under this License. Any attempt otherwise to propagate or modify it is void, and will automatically terminate your rights under this License (including any patent

licenses granted under the third paragraph of section 11).

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, you do not qualify to receive new licenses for the same material under section 10.

9. Acceptance Not Required for Having Copies.

You are not required to accept this License in order to receive or run a copy of the Program. Ancillary propagation of a covered work occurring solely as a consequence of using peer-to-peer transmission to receive a copy likewise does not require acceptance. However, nothing other than this License grants you permission to propagate or modify any covered work. These actions infringe copyright if you do not accept this License. Therefore, by modifying or propagating a covered work, you indicate your acceptance of this License to do so.

10. Automatic Licensing of Downstream Recipients.

Each time you convey a covered work, the recipient automatically receives a license from the original licensors, to run, modify and propagate that work, subject to this License. You are not responsible for enforcing compliance by third parties with this License.

An "entity transaction" is a transaction transferring control of an organization, or substantially all assets of one, or subdividing an organization, or merging organizations. If propagation of a covered work results from an entity transaction, each party to that transaction who receives a copy of the work also receives

whatever licenses to the work the party's predecessor in interest had or could give under the previous paragraph, plus a right to possession of the Corresponding Source of the work from the predecessor in interest, if the predecessor has it or can get it with reasonable efforts.

You may not impose any further restrictions on the exercise of the rights granted or affirmed under this License. For example, you may not impose a license fee, royalty, or other charge for exercise of rights granted under this License, and you may not initiate litigation (including a cross-claim or counterclaim in a lawsuit) alleging that any patent claim is infringed by making, using, selling, offering for sale, or importing the Program or any portion of it.

11. Patents.

A "contributor" is a copyright holder who authorizes use under this License of the Program or a work on which the Program is based. The work thus licensed is called the contributor's "contributor version".

A contributor's "essential patent claims" are all patent claims owned or controlled by the contributor, whether already acquired or hereafter acquired, that would be infringed by some manner, permitted by this License, of making, using, or selling its contributor version, but do not include claims that would be infringed only as a consequence of further modification of the contributor version. For purposes of this definition, "control" includes the right to grant patent sublicenses in a manner consistent with the requirements of this License.

Each contributor grants you a non-exclusive, worldwide, royalty-free patent license under the contributor's essential patent claims, to make, use, sell, offer for sale, import and otherwise run, modify and propagate the contents of its contributor version.

In the following three paragraphs, a "patent license" is any express agreement or commitment, however denominated, not to enforce a patent (such as an express permission to practice a patent or covenant not to sue for patent infringement). To "grant" such a patent license to a party means to make such an agreement or commitment not to enforce a patent against the party.

If you convey a covered work, knowingly relying on a patent license, and the Corresponding Source of the work is not available for anyone to copy, free of charge

and under the terms of this License, through a publicly available network server or other readily accessible means, then you must either (1) cause the Corresponding Source to be so available, or (2) arrange to deprive yourself of the benefit of the patent license for this particular work, or (3) arrange, in a manner consistent with the requirements of this License, to extend the patent license to downstream recipients. "Knowingly relying" means you have actual knowledge that, but for the patent license, your conveying the covered work in a country, or your recipient's use of the covered work in a country, would infringe one or more identifiable patents in that country that you have reason to believe are valid.

If, pursuant to or in connection with a single transaction or arrangement, you convey, or propagate by procuring conveyance of, a covered work, and grant a patent license to some of the parties receiving the covered work authorizing them to use, propagate, modify or convey a specific copy of the covered work, then the patent license you grant is automatically extended to all recipients of the covered work and works based on it.

A patent license is "discriminatory" if it does not include within the scope of its coverage, prohibits the exercise of, or is conditioned on the non-exercise of one or more of the rights that are specifically granted under this License. You may not convey a covered work if you are a party to an arrangement with a third party that is in the business of distributing software, under which you make payment to the third party based on the extent of your activity of conveying the work, and under which the third party grants, to any of the parties who would receive the covered work from you, a discriminatory patent license (a) in connection with copies of the covered work conveyed by you (or copies made from those copies), or (b) primarily for and in connection with specific products or compilations that contain the covered work, unless you entered into that arrangement, or that patent license was granted, prior to 28 March 2007.

Nothing in this License shall be construed as excluding or limiting any implied license or other defenses to infringement that may otherwise be available to you under applicable patent law.

12. No Surrender of Others' Freedom.

If conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot convey a covered work so as to satisfy

simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not convey it at all. For example, if you agree to terms that obligate you to collect a royalty for further conveying from those to whom you convey the Program, the only way you could satisfy both those terms and this License would be to refrain entirely from conveying the Program.

13. Use with the GNU Affero General Public License.

Notwithstanding any other provision of this License, you have permission to link or combine any covered work with a work licensed under version 3 of the GNU Affero General Public License into a single combined work, and to convey the resulting work. The terms of this License will continue to apply to the part which is the covered work, but the special requirements of the GNU Affero General Public License, section 13, concerning interaction through a network will apply to the combination as such.

14. Revised Versions of this License.

The Free Software Foundation may publish revised and/or new versions of the GNU General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies that a certain numbered version of the GNU General Public License “or any later version” applies to it, you have the option of following the terms and conditions either of that numbered version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of the GNU General Public License, you may choose any version ever published by the Free Software Foundation.

If the Program specifies that a proxy can decide which future versions of the GNU General Public License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Program.

Later license versions may give you additional or different permissions. However, no additional obligations are imposed on any author or copyright holder as a result of your choosing to follow a later version.

15. Disclaimer of Warranty.

THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE

COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. Limitation of Liability.

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

17. Interpretation of Sections 15 and 16.

If the disclaimer of warranty and limitation of liability provided above cannot be given local legal effect according to their terms, reviewing courts shall apply local law that most closely approximates an absolute waiver of all civil liability in connection with the Program, unless a warranty or assumption of liability accompanies a copy of the Program in return for a fee.

END OF TERMS AND CONDITIONS