



Network Computing Devices

Recovery of ThinSTAR units by booting via TFTP

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Table of Contents

TABLE OF CONTENTS	1
INTRODUCTION	2
DISCLAIMER	2
OVERVIEW OF THE PROCESS	3
1. BOOTING A THINSTAR VIA TFTP	4
2. REQUIREMENTS FOR BOOTING A THINSTAR VIA TFTP	4
3. THINSTAR TFTP BOOT RESOURCES	4
3.1. NCD TFTP.....	4
3.2. THINSTAR TFTP RECOVERY FILES.....	4
3.2.1. <i>The boot core and OS core archive</i>	4
3.2.2. <i>BPUP</i>	4
3.2.3. <i>CEUP/CPUP</i>	4
3.3. THE BT COMMAND.....	5
4. THINSTAR TFTP BOOT PREPARATION	5
4.1. INSTALLATION OF NCD TFTP.....	5
4.2. INSTALLATION OF THE THINSTAR RECOVERY FILES.....	5
5. THINSTAR TFTP BOOT PROCEDURE	6

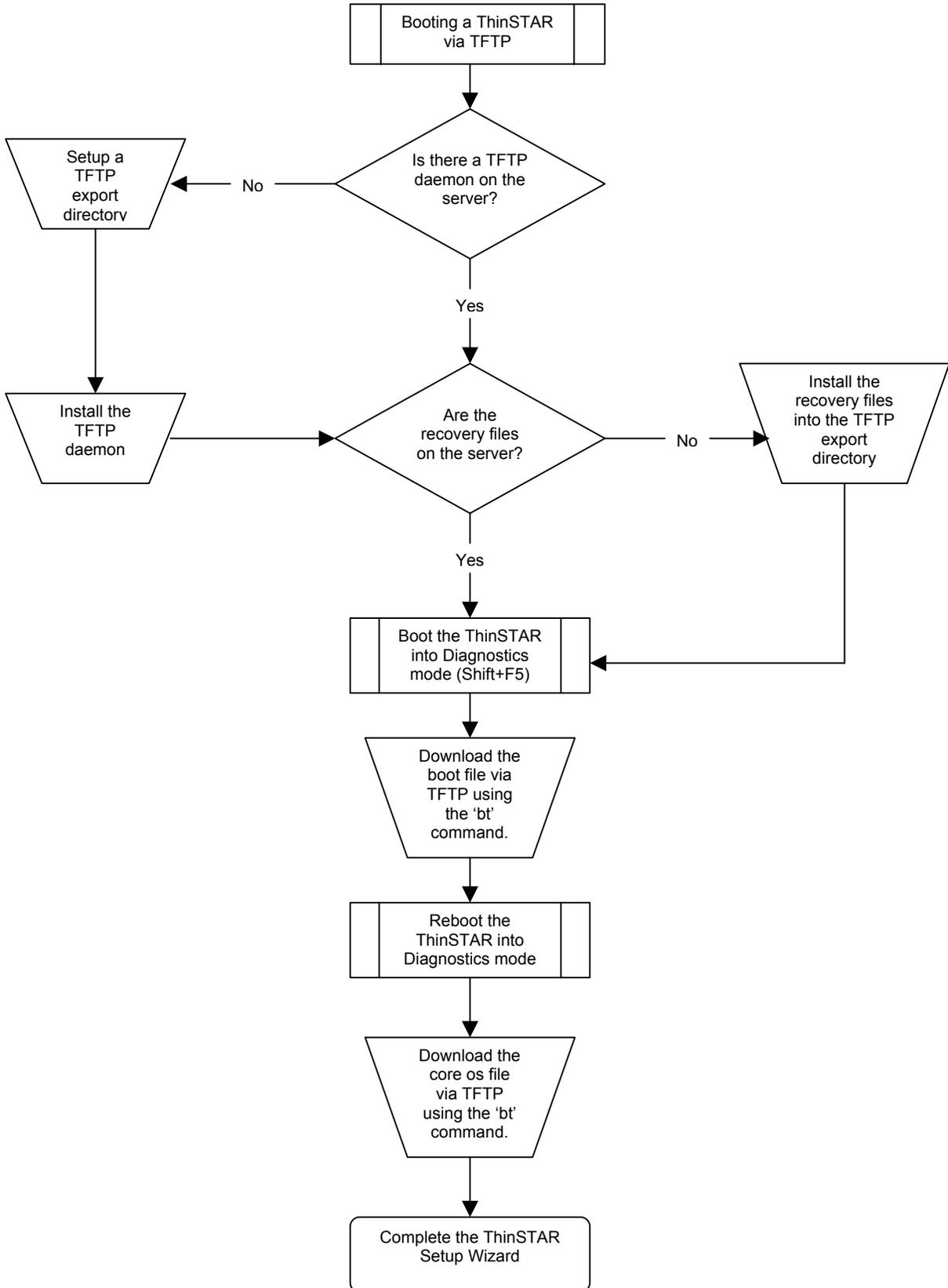
Introduction

The purpose of this document is to describe the theory and methodology of recovering a malfunctioning ThinSTAR by booting the unit via TFTP. Requirements, relevant commands, and resource locations will all be covered. Through the use of this documents and the tools mentioned herein, a system administrator would be able to recover a ThinSTAR unit by instructing the ThinSTAR unit to obtain a boot and OS core file on the network via TFTP and install them. The recovery process will clear the flash RAM of the ThinSTAR unit and reinstall both the boot core and operating system.

Disclaimer

This document assumes that the reader is knowledgeable of the operation and administration of the NCD ThinSTAR device and Windows NT Server. This document is not intended to be a resource guide or authority on any of these subjects outside of how they relate directly to the specific scope of this document, booting a ThinSTAR via TFTP. While NCD has tested all the procedures presented here, it cannot guarantee that the procedure will work on all systems. NCD is not responsible for any damages or lost time due to the incorrect implementation of these instructions. If you do not agree to the terms presented in this disclaimer do not employ the TFTP booting techniques presented here. Additionally, employing the techniques presented in this document assume agreement with the above conditions and frees Network Computing Devices from any responsibility for equipment damage or lost time resulting from improper implementation or execution.

Overview of the Process



1. Booting a ThinSTAR via TFTP

A valuable administration tool provided by the ThinSTAR is the ability to boot and recover a ThinSTAR unit, via TFTP, from boot and OS core files residing on the network. An important feature is that this methodology works across sub-nets. Quite often this proves to be the quickest and easiest way to restore a non-functioning ThinSTAR or to provide a specific version of the ThinSTAR OS to a functioning ThinSTAR. Through the use of a diagnostics mode command, bt, the ThinSTAR boot files can be accessed by any ThinSTAR on the network.

2. Requirements for booting a ThinSTAR via TFTP

- A server on the network running a TFTP daemon which will host the files
- The recovery boot file for the model of ThinSTAR you wish to TFTP boot
- The recovery CE core file for the model of ThinSTAR you wish to TFTP boot
- A valid IP address to assign the ThinSTAR
- A valid network gateway IP address on the same sub-net as the ThinSTAR

3. ThinSTAR TFTP boot resources

3.1. NCD TFTP

The NCD TFTP service, available on NCD's web site, is designed for Windows NT Server and allows the NT server to deliver files via TFTP. Note however that any TFTP daemon should suffice, as found on most UNIX platforms. Most platforms that can serve files via TFTP should work.

3.2. ThinSTAR TFTP Recovery Files

3.2.1. The boot core and OS core archive

The boot and OS core file come packaged in a compressed archive file that needs to be uncompressed before use. The compressed file name is named according to the following model:

TS[model]v231.exe

where model is the model number of ThinSTAR that the files are designed for. This self-extracting executable will create two image files: [model]v231.ceup and [model]v231.bpup.

3.2.2. The BPUP file

The BPUP file is the boot core of the ThinSTAR and is specific to the model of ThinSTAR that is being booted. When the BPUP file is transferred to the terminal, the existing boot PROM is erased and replaced with the new boot image from the BPUP file.

3.2.3. The CEUP file

The CEUP file contains the CE operating system, and the RDP and ICA clients for the ThinSTAR unit. When the CEUP file is downloaded to the terminal, a high-level format is performed on the ThinSTAR's "flash" memory. Any existing

connections are erased at this time. Upon completion of the format, a clean install of the CE OS, RDP client and ICA client are loaded to the flash memory.

3.3. *The BT command*

The 'bt' command is used in diagnostics mode to boot the ThinSTAR via TFTP. The command line arguments to 'bt' give the ThinSTAR all the information it needs to access its boot files on the network. The general format of the command is as follows:

```
bt [filename] [ThinSTAR IP] [TFTP host IP] [Gateway IP] [Subnet-mask]
```

For example:

```
bt 500v231.ceup 10.0.0.05 10.0.0.02 10.0.0.1 255.255.255.0
```

- Filename: This is the file, such as 500v231.ceup, to download via TFTP
- ThinSTAR IP: This is a valid IP address on the network that the ThinSTAR will use
- TFTP host IP: This is the IP address of the host on the network running TFTP serving the bpup and ceup files
- Gateway IP: This is the sub-net's gateway IP address
- Sub-net mask: This is the sub-net mask of the sub-net that the ThinSTAR is on

4. ThinSTAR TFTP boot preparation

4.1. *Installation of NCD TFTP*

If you choose to use NT Server as the host that will serve the BPUP and CEUP files, and you do not have a TFTP service installed, you can use the NCD TFTP service:

1. Download the file NCDTFTP.exe from any of the ThinSTAR model links at http://www.ncd.com/support/thinstar/Recovery_Images/patches.html
2. Create the directory to serve the files from. NCD highly recommends that the directory be C:\tftpboot.
3. Create the TFTP service and export the tftpboot directory by running the following command:

```
ncdtftpd -install [Fully qualified TFTP path]
```

For example:

```
ncdtftpd -install C:\tftpboot
```

4. You should receive a message that the service was installed and the prefix was set to "C:\tftpboot".
5. In the Control Panel 'Services' applet, confirm that the newly installed Trivial File Transfer Protocol is installed and running.

4.2. *Installation of the ThinSTAR Recovery files*

The recovery files for each model of ThinSTAR terminal can be found at http://www.ncd.com/support/thinstar/Recovery_Images/patches.html.

1. These files are self-executing zip files. Run this file to extract the bpup and ceup files.

2. These files should be placed into the directory that you have configured TFTP to serve from. The file extraction utility will attempt to place them into the C:\tftpboot directory.

5. ThinSTAR TFTP Boot Procedure

1. Power cycle the ThinSTAR
2. At the blue boot-progress bar, press Shift+F5 to boot into *diagnostics mode*
3. Download to flash memory the new boot file by using the 'bt' command and specifying the bpup file as follows:
 - bt [bpup file] [ThinSTAR IP] [TFTP host IP] [Gateway IP] [Sub-net mask]
4. The ThinSTAR will now download the new bpup file and replace its boot file with the new bpup boot file. *It is very important that you DO NOT power cycle the unit while it is doing this.* When completed, the unit will reboot itself.
5. When the ThinSTAR reboots and you see the blue progress bar, hit Shift+F5 to return to diagnostics mode
6. Download the new CE OS file by using the 'bt' command and specifying the ceup file as follows:
 - bt [ceup file] [ThinSTAR IP] [TFTP host IP] [Gateway IP] [Sub-net mask]
7. The ThinSTAR will now download the new CE OS file and do a high level format of its flash. *It is very important that you DO NOT power cycle the unit while it is doing this.* When completed, the unit will reboot itself.
8. When the unit has rebooted, you will be lead through the ThinSTAR setup wizard and upon completion of that, your ThinSTAR unit will be ready for use.