

TFTP Firmware upgrade

Application Note 301

Revision 4, July 2023

This Application Note describes how to upgrade the firmware of your *proconX* unit using the TFTP method.

Prerequisites

- File transfer utility (Tftpd64.exe, version v4.64)
- Firmware binary file (*.bin extension)

The Tftpd64 utility is available from the proconX website or from https://pjo2.github.io/tftpd64/

Preparation

- 1. Unzip the Tftpd64.zip file into a directory.
- 2. The firmware binary file is usually distributed as *.zip* file. Unzip it into the same directory where you have placed the Tftpd64.exe utility.
- 3. Establish an Ethernet network connection between the *proconX* unit and a Windows PC. The *proconX* unit and the Windows PC must be on the same subnet.





Make sure that there is no DHCP or BOOTP server connected to the network. If in doubt, disconnect both, PC and *proconX* unit from the network and use a separate switch which is isolated from the rest of the network to connect them.



PC firewall software tends to block the TFTP and DHCP traffic. It may be easier to temporarily turn off the firewall rather to re-configure the firewall.

Configuring the file transfer utility

1. Launch Tftpd64.exe from the directory you unzipped it to:

No. J	ounin			-		×
	69.254.0.15	Lenovo USB	Ethernet #	▼ 3 ▼	Brow Show	
Tftp Server DHCP :	xerver Log via	start time	progress		bytes	<u>t</u> c
About]	Settings				

Configure your firewall to unblock Tftpd64:

🕍 Windows Security Alert X				
Windo app	ws Defend	er Firewall has blocked some features of this		
Windows Defender networks.	Firewall has blo	cked some features of TFTP server on all public and private		
TE	Name:	TFTP server		
- · · · · · · · · · · · · · · · · · · ·	Publisher:	Ph. Jounin		
	Pat <u>h</u> :	C:\users\henrik\projects\products\firmware upgrade \tftpd64.exe		
Allow TFTP server t	to communicate	on these networks:		
Private netw	orks, such as m	y home or work network		
		se in airports and cafés (not recommended en have little or no security)		
What are the risks	of allowing an a	pp through a firewall?		
		Allow access Cancel		

1. Click on the Settings button to configure the Tftpd64 utility. Then select the GLOBAL tab.

Uncheck all but the TFTP Server and DHCP Server components.

🔅 Tftpd64: Settings	×
GLOBAL TFTP DHCP SYSLOG DNS	
Start Services FTP Server FTP Client SNTP server Syslog Server FUP Server DNS Server	
Enable IPv6	
OK Default Help C	ancel

2. Select the **TFTP** tab. The settings used are the default settings and should match those shown below:

🔖 Tftpd64: Settings		×
GLOBAL TFTP DHO	P SYSLOG DNS	
P. Dista		
Base Directory		
ŀ	Browse	
TFTP Security	TFTP configuration	
C None	Timeout (seconds) 3	
Standard	Max Retransmit 6	
C High	Tftp port 69	
C Read Only	local ports pool	
Advanced TFTP Option	8	
Option negotiation		
🔲 PXE Compatibility		
🔽 Show Progress bar		
🔽 Translate Unix file n	ames	
🔲 Bind TFTP to this a	ddress 10.0.0.15 🚽	
Allow 'V' As virtual re		
Use anticipation wir	,	
Hide Window at sta	rtup	
Create "dir.txt" files		
Create md5 files		
Beep for long transf		
Reduce '//' in file p	3th	
OK De	fault Help Cancel	

- 3. Select the **DHCP** tab and enter the following settings:
 - Choose an IP address for the *proconX* unit and enter it in the IP pool starting address field. This IP address must be of the same subnet as your computer and not assigned to another network node. In most cases this means that the first three numbers of the IP addresses must be identical. Your computer's IP address is shown in the Bind DHCP to this addess field.
 - Enter 1 as value for the pool size.
 - Change Lease to 3 minutes.
 - Enter the name of the binary file to be uploaded in the Boot File field. This file must have a *.bin* extension.
 - Enter the netmask of the subnet in the Mask field. In most cases this is 255.255.0.0.
 - Add 200 as Additional Option and enter the hardware Type as shown on the serial number label. This should be either *X100-STD* or *X100-CAN* if you have a hardware with CAN bus.
 - Uncheck Ping address before assignation.
 - Uncheck Persistent leases.

Size of pool Lease (minutes) Boot File DHCP Options Def. router (Opt 3) Mask (Opt 1) DNS Servers (Opt 6) WINS server (Opt 44) NTP server (Opt 42) SIP server (Opt 120) Domain Name (15) Additional Option DHCP Settings	⊃ ching f your erface
Def. router (Opt 3) Mask (Opt 1) DNS Servers (Opt 6) WINS server (Opt 44) NTP server (Opt 42) SIP server (Opt 120) Domain Name (15) Additional Option DHCP Settings	bin file
	Dor
Persistant leases Double answer if relay detected Bind DHCP to this address]

4. Click on the OK button to store these settings.

A warning "Gateway is empty" will appear which shall be ignored.



A dialog box will inform that Tftpd64 has to be restarted. Confirm and restart the program.

🏘 Tftp	od32	×
	You have to restart Tftpd32in order to apply the new settings	
	ОК	

Upload process

- 1. Restart Tftpd64.exe after the settings have been configured.
- 2. Power-cycle the *proconX* unit.

3. Upon restart the *proconX* unit will contact Tftpd64 to obtain an IP address and check if a boot file is available. If the TFTP server offers a file for download, the *proconX* unit will load this file and program it into it's flash memory.

This is indicated for a brief moment through a file transfer progress bar.

🏘 cane	th.bin to 169.2	54.0.10	×
4659	File size 2 Bytes sent	e : 94396 46592 Bytes/	sec

Once the boot file has been sent to the *proconX* unit, it will start the newly loaded firmware.

4. The Log View tab window should show a log similar to the one below:

```
Rcvd DHCP Discover Msg for IP 0.0.0.0, Mac 72:03:48:67:74:D2 [06/07 14:59:56.983]
DHCP: proposed address 169.254.0.10 [06/07 14:59:56.984]
Rcvd DHCP Rqst Msg for IP 0.0.0.0, Mac 72:03:48:67:74:D2 [06/07 14:59:56.990]
Previously allocated address 169.254.0.10 acked [06/07 14:59:56.990]
Connection received from 169.254.0.10 on port 1024 [06/07 14:59:56.992]
Read request for file <caneth.bin>. Mode octet [06/07 14:59:56.992]
Using local port 53480 [06/07 14:59:56.993]
<caneth.bin>: sent 171 blks, 87332 bytes in 4 s. 0 blk resent [06/07 15:00:00.373]
```

- 5. The last line in the log must be a confirmation of the uploaded file name and it's size.
- 6. Connect to the *proconX* unit using a web browser and click on the **About** menu entry to confirm the new firmware version number.
- 7. In case of any failure, repeat above process starting with step 2.

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