

# **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:

Nrtpd64 by Ph. J	ounin			-		×
Current Directory	69.254.0.15	Lenovo USB	Ethernet #	▼ 3 ▼	Brow Show	se Dir
peer	file	start time	progress		bytes	<u>t</u> c
About	]	Settings				

Configure your firewall to unblock Tftpd64:

💼 Windows Sec	urity Alert		×
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	
Tra	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	
Public netwo because the	rks, such as tho se networks oft	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	pot	
Use anticipation wir	ndow of 0 Bytes	
Hide Window at sta	rtup	
Create "dir.txt" files		
Create md5 files		
Beep for long transf	er 	
E Reduce 77 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.

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
DHCP Options Def. router (Opt 3) Mask (Opt 1) 255.255.0.0 DNS Servers (Opt 6) WINS server (Opt 44) NTP server (Opt 42) SIP server (Opt 120) Domain Name (15) Additional Option 200 X100-CAN DHCP Settings	bin file
	/pe D or AN
Ping address before assignation Persistant leases Double answer if relay detected Bind DHCP to this address 169.254.0.15	]

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.

🏘 o	aneth.bin to 169.254.0.10	×
4	File size : 94396 6592 Bytes sent 46592 Bytes/sec	
U,		

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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