How to change the firmware on a Nortel / Avaya IP phone to UNIStim or SIP

This guide is intended to show how to upgrade or downgrade an IP phone to restore service in situations where a replacement phone was supplied with the wrong firmware installed using a TFTP server. I've also added in some problem solving tips at the end of the guide.

First of all, download the TFTP Server software. There are many versions available and the free program that I used was available at http://tftpd32.jounin.net/tftpd32_download.html

Just select the correct level if the computer is a 32 or 64 bit system. I selected the service edition as shown below.



Follow the prompts to install the software. There shouldn't be a need to reboot the computer after it's done. On the computer it's being used on, just create a folder such as C:\IPFIRMWARE etc.

Setting up the computer

Within the folder created, add in the IP phone firmware files which should all have a file extension of *.bin. Such as 0625C6J.bin for a version of Nortel 1140e etc. You also need to have a copy of the configuration file and the 1140e file is called 1140e.cfg and the 1120e is 1120e.cfg etc. The configuration file only contains a few lines of data such as the one below for an old Nortel 1140e UNIStim firmware release. If going from SIP to UNIStim firmware, then add "SIP" before the .cfg.

[FW] DOWNLOAD_MODE FORCED VERSION 0625C6J SERVER_IP 86.130.12.21 PROTOCOL TFTP FILENAME 0625C6J.bin SECURITY_MODE 0 An Avaya SIP 1140e one would be something like this below.

[FW] DOWNLOAD_MODE FORCED VERSION SIP1140e04.04.26.00 SERVER_IP 86.130.12.21 PROTOCOL TFTP FILENAME SIP1140e04.04.26.00.bin PROMPT 0

These configuration files can be edited using Notepad, but be careful what is altered in them. The main areas to change are the SERVER_IP which will be the IP address that the TFTP server software is installed on. Also the VERSION and FILNAME area needs the have the firmware that will be uploaded onto the IP phone. The DOWNLOAD_MODE can be either FORCED or AUTO. If you are downgrading, then FORCED will need to be added in.

There are other slight differences such as SECURITY_MODE for the Nortel firmware and PROMPT for the Avaya firmware, although this hasn't been confirmed as being correct and therefore changes might need to be made in the file.

In my example, I had the following firmware and *.cfg file in the IPFIRMWARE folder on my computer. You can have as many different firmware files as are needed.

ile Edit View Tools Help					•	
Organize 👻 🔄 Open 👻	B	urn New folder			🙂 File Shredder 🛛 🔠 🔻	(?)
Favorites	1	Name JIP1165e04.04.23.00.bin	Date modified 21/09/2015 14:4/	Type BIN File	Size 5,052 KB	
Downloads		0623C91.bin	21/09/2015 14:49	BIN File	2,634 KB	
Recent Discor		0621C91.bin	21/09/2015 14:49	BIN File	3,843 KB	
Incent Places		0624C91.bin	21/09/2015 14:49	BIN File	3,281 KB	
Deckton		0625C91.bin	21/09/2015 14:49	BIN File	3,615 KB	
	-	0626C91.bin	21/09/2015 14:50	BIN File	4,065 KB	
	-	i 0627C91.bin	21/09/2015 14:50	BIN File	3,518 KB	
Documents		i 062AC91.bin	21/09/2015 14:51	BIN File	3,456 KB	
		@ 0621C94.bin	24/03/2016 16:47	BIN File	3,843 KB	
		@ 0623C94.bin	24/03/2016 16:47	BIN File	2,648 KB	
Videos		0624C94.bin	24/03/2016 16:47	BIN File	3,296 KB	
Homegroup		0625C94.bin	24/03/2016 16:47	BIN File	3,627 KB	
B David's Access		@ 0626C94.bin	24/03/2016 16:47	BIN File	4,075 KB	
Computer		i 0627C94.bin	24/03/2016 16:48	BIN File	3,530 KB	
Floppy Disk Drive (A:)		062AC94.bin	24/03/2016 16:48	BIN File	3,473 KB	
Local Disk (C:)		0604DCO.bin	30/03/2016 08:47	BIN File	1,712 KB	
Local Disk (D:)		SIP12x004.04.26.00.bin	30/03/2016 08:58	BIN File	4,350 KB	
BVD/CD-RW Drive (E:)		SIP1120e04.04.26.00.bin	30/03/2016 08:58	BIN File	4,560 KB	
Local Disk (F:)		SIP1140e04.04.26.00.bin	30/03/2016 08:58	BIN File	4,727 KB	
iCloud Photos		SIP1165e04.04.26.00.bin	30/03/2016 08:58	BIN File	5,058 KB	
Network	-	1140e.cfg	12/04/2016 12:08	CFG File	1 KB	

Setting up the TFTP program

After the program has been installed, make the following changes. Open up the tool and select the setting tab at the botton on the screen. Make the changes such as selecting the **DHCP Server box**.

🏘 Tftpd32: Settings 🧮	×
GLOBAL TFTP DHCP SYSLOG	
Start Services TFTP Server TFTP Client Syslog Server DHCP Server DNS Server	
Enable IPv6	
OK Default Help Cancel	

Select the folder where the configuration and firmware files are located. The security level can be none or standard.

🏘 Tftpd32: Settings	
GLOBAL TETP DHCF	P) SYSLOG
Base Directory	· · ·
D:\IPFIRMWARE	Browse
⊂TFTP Security	TFTP configuration Timeout (seconds) 3 Max Retransmit 6 Tftp port
C Read Only	local ports pool
Advanced TFTP Options Control Option negotiation PXE Compatibility Show Progress bar Translate Unix file na Bind TFTP to this add Allow ''.' As virtual roc Use anticipation wind Hide Window at start Create ''dir.txt'' files Create md5 files Beep for long transfe	ames dress 127.0.0.1 v ot dow of 0 Bytes tup
OK Defa	ault <u>H</u> elp Cancel

The DHCP Server settings needs to be entered in and the TFTP Server needs to be within the Size of pool range. Check that the Subnet Mask and other IP settings are the same as the IP phone.

🏘 Tftpd32: Settings			×
GLOBAL TFTP DF	ICP SYSLOG		
DHCP Pool definition			
IP pool start address	86.130.12.8		
Size of pool	240		
Lease (minutes)	999		
Boot File			
- DHCP Options			
Def. router (Opt 3)	86.130.12.254		
Mask (Opt 1)	255.255.255.0		
DNS Servers (Opt 6)	86.130.12.254		
WINS server (Opt 44)			
NTP server (Opt 42)			
SIP server (Opt 120)			
Domain Name (15)			
Additional Option			
DHCP Settings			
Ping address befor	re assignation		
Persistant leases	alau dataatad		
Bind DHCP to this	address	127.0.0.1	7
<u> </u>	efault	Help Cancel	

The above settings should be enough to get the TFTP Server to work.

Setting up the IP phone

This part requires the user to add in the TFTP Server IP address on the 11xx / 12xx IP phone etc. This is usually done by pressing the symbol with the globe and two arrows pointing each way that is located on the left hand side by the centre button console area twice in quick succession to get a menu to appear with 4 options.

- 1. Preferences
- 2. Local Diagonstics
- 3. Network Configuration
- 4. Lock Menu

Press "3" on the keypad to get to the main area that usually starts with "EAP Mode:" etc. Press the left or right arrow (left is quicker!) to scroll through the programming until you get to the "Provision:" box and in there you should see a default of 255.255.255.255. Just change this to match the TFTP Server IP address and press OK. Finally press the "Apply" to reboot the phone. Here is an example shown below of the settings on a 1140e phone.



If all goes OK, then after the NORTEL or AVAYA message appears, you should see a message about the IP phone trying to access the TFTP Server. At this time, if you look in the TFTP program's "Log viewer", you should see activity of something happening.

Also the program will be sending the revised firmware as shown below in another smaller window with the details and IP address of the IP phone.

🎨 Tftpd32 Servic	e Edition by Ph. Jounin	
Current Directory	D:NPFIRMWARE	<u>B</u> rowse
Server interfaces	127.0.0.1 Software Loopback Interface 1	Show <u>D</u> ir
Tftp Server Tftp	Client DHCP server Syslog server Log viewer	
Connection receive R 🏘 0625C6J.b	in to 86.130.12.26 on port 1024.112/04 14:07:40.929]	204 14:07:40 0501
C R 1468416 B	File size : 3554803 [/04 14:07:43.996] ytes sent 122368 Bytes/sec :07:44.005]	/04 14:07:40.959j
Connection receive Read request for f	2/04 14:07:44.044] rea monroo. <u>130.12.20 on poin 1020 [12</u> /04 14:07:47.369] file <0625C6J.bin>. Mode octet [12/04 14:07:47.373] 2000 [13.04 14.07.47.200]	
Using local port 5.	III	
Clear Copy		
About	<u>S</u> ettings	<u>H</u> elp

Example shown below for a 1140e	IP phone having	g SIP software loaded in.
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🏘 Tftpd32 Service	e Edition by Ph. Jou	nin			- • •
Current Directory	D:\IPFIRMWARE			•	Browse
Server interfaces	127.0.0.1	Software Loop	back Interface 1	-	Show <u>D</u> ir
Tftp Server Tftp	Client DHCP server	Syslog server Lo	g viewer		
allocated at	IP	MAC	renew at		
SIP1 3234	140e04.04.26.00.bin File size : 484 I304 Bytes sent	to 86.130.1 🔀 0217 129372 Bytes/sec	_		
About		<u> </u>	jettings		<u>H</u> elp

Photo of the Nortel 1140e phone with Avaya SIP software loaded in.

	NC	RTEL		
				Ê
llear	login			D
Log avaj ID:	in to: ya.com			
Login	123	Domain	Lang	
	F		[B]	
			因	
	1	2 ^{ABC} 3 ^{DEI}		Ţ
		CINI CMN		⇔₽

🏘 Tftpd32 Servic	e Edition by Ph. Jou	nin			- • ×
Current Directory	D:\IPFIRMWARE			-	Browse
Server interfaces	127.0.0.1	Software Loopback I	nterface 1	-	Show <u>D</u> ir
Tftp Server Tftp	Client DHCP server	Syslog server Log view	er		,
allocated at	IP	MAC	renew at		
04/12 14:16:37 04/12 11:29:06 04/12 14:06:07 04/12 13:35:04 04/12 15:01:23	86.130.12.8 86.130.12.26 86.130.12.29 86.130.12.65 86.130.12.72	00:18:8A:F7:E5:5A - 00:11:50:9F:4D:F7 08:70:45:0A:E6:D6 90:E7:C4:2F:57:F8	04/12 11:29:07 04/12 14:06:07 04/12 13:35:04 04/12 15:01:23		
<u>A</u> bout		<u>S</u> ettings	:		<u>H</u> elp

You can also look in the DHCP Server tab to see a list of devices connected as in the example below

Useful commands and information

Passcode **26567*738** (spells COLOR*SET) is used to access most phones configuration area if it sticks.

Pressing the digit "2" and the **up arrow together** during a phone boot up takes it to DHCP mode.

A full reset of the IP phone is done by pressing ****73639 (MAC address) ##** (spells RESET) (Use digit "2" for letters A,B and C & digit "3" for letters D,E, and F) It's best to write the sequence down and keep on repeating it until the phone gives out the message rebooting. For a BCM connection, keep on pressing the digits even if you get an invalid number message appear!.

The configuration files to change from SIP firmware back to UNIStim format need to have "SIP" added in before the *.cfg file extension. A 1140e.cfg file will have to be remaned as 1140eSIP.cfg etc.

"0" Byte file transfers can happen if the TFTP Server isn't in a start or stop service status. The symptoms are as follows when trying to send a firmware file to the IP phone.

Current Directory	D:MP	FIRMWARE	ĺ	🍖 1140e	cfg to 86.130.12	2.26	23	<u>B</u> rowse
erver interfaces	127.0).0.1	Software		File size	: 123		Show <u>D</u> ir
Tftp Server Tf	p Client	DHCP server	Syslog server		0 Bytes sent	0 Bytes/sec		
peer		file	start time					þ
86.130.12.26:10	025	<1140e.cfg<	14:27:36	6 0%		0	123	0
86.130.12.26:10)25	<1140e.cfg<	14:27:32	2 0%		0	123	0
86.130.12.26:10)25	.1140e.cfg<	14:27:30) 0%		0	123	0
86.130.12.26:10	025	.1140e.cfg<	14:27:28	3 0%		0	123	0
86.130.12.26:1()25	.1140e.cfg<	14:27:26	6 0%		0	123	0
🏘 1140e.cfg	to 86.13	0.12.26	ß					
0 B	File utes sent	size : 123 0 Butes/se						

You can restart the TFTP Server, without having to reboot the computer by going into the Windows Task Manager Services tab and highlight the line as shown below to stop and start the service. You will also have to start up the TFTP Server program again.

lications Proc	esses	Services Performance Networking Users			
Name	PID	Description	Status	Group	
Tftpd32_svc	1188	Tftpd32 service edition	Running	N/A	
Themes	1384	Themes	Running	netsvcs	
THREADOR		Thread Ordering Server	Stopped	LocalService	
TrkWks	1312	Distributed Link Tracking Client	Running	LocalSystemNetworkRestricted	
TrustedInst	1512	Windows Modules Installer	Running	N/A	
UI0Detect		Interactive Services Detection	Stopped	N/A	
UmRdpService	1312	Remote Desktop Services UserMode Port Redi	Running	LocalSystemNetworkRestricted	
upnphost	2304	UPnP Device Host	Running	LocalServiceAndNoImperson	
UWIN_MS		Uwin Master	Stopped		
UxSms	1312	Desktop Window Manager Session Manager	Running	LocalSystemNetworkRestricted	
VaultSvc		Credential Manager	Stopped		
vds		Virtual Disk	Stopped	N/A	
VSS		Volume Shadow Copy	Stopped	N/A	
W32Time	1352	Windows Time	Running	LocalService	
WatAdminSvc		Windows Activation Technologies Service	Stopped	N/A	
				Comite	

I've found that I've had to do this a few times when trying out different levels of firmware.

Port 69

If the firmware is installed across a customers network, or even via the internet, then you will need to have port 69 for UDP and TCP opened up on the router to allow the firmware to work.

Hopefully, this guide will help you in changing the firmware on the Nortel / Avaya IP phones .