



Connect Tech Inc.
Embedded Computing Experts

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Xtreme/10G Switch Firmware Update Guide

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Connect Tech Inc.

489 Clair Rd W, Guelph, ON CANADA N1L 1G5

Tel: 519.836.1291 • **North America:** 800.426.8979 • **Fax:** 519.836.4878

sales@connecttech.com • <http://www.connecttech.com>

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1 Contacts, Authorizations, and Approvals

Company	Name	Email	Title
Connect Tech Inc.	Hasan Jamal	hjamal@connecttech.com	Director Software Engineering
Connect Tech Inc.	Emily Adams	eadams@connecttech.com	Software Developer

2 Revision History

Revision	Date	Author(s)	Change
0.00	2024-03-04	EA	Initial draft document.
0.01	2024-03-05	EA	Removing confidentiality markings

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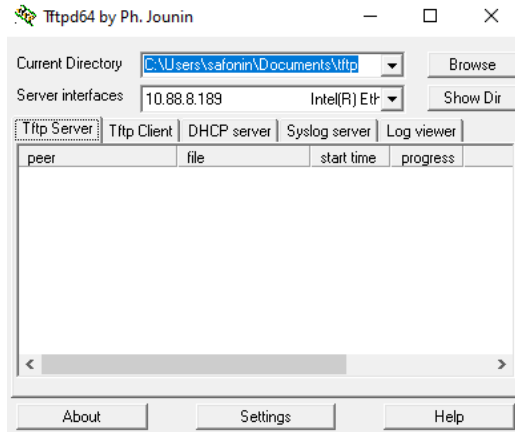
4 Introduction

This document details the firmware update procedures for XDG switches. It describes how to flash 'bin' image (NOR flash), bootstrap 'mfi'/ext4.gz' firmware (Application Software Image), update bootloader image (.img) through ICLI, and upgrade 'mfi'/ext4.gz' firmware. This will discuss update using ICLI or Web GUI where ever applicable. This instruction applies only to ISTAX firmware.

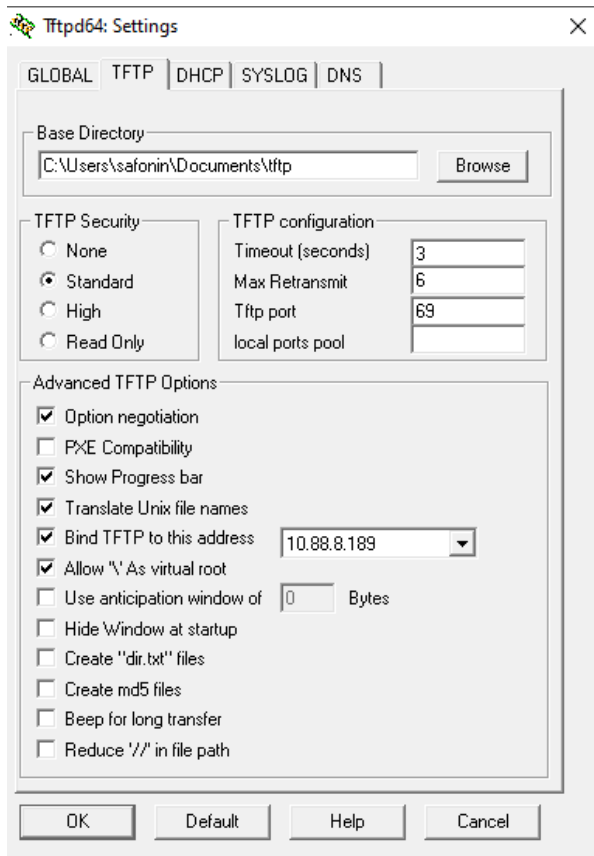
5 TFTP Server

In order to update bootloader(.img) or firmware(.mfi/.ext4.gz), you need to set tftp server.

- We used tftp software from http://tftpd32.jounin.net/tftpd32_download.html and snapshots are from the application, version of the software is 4.64.
- Install tftpd64
- Set the base directory on your PC



- Make the settings as follows



6 Flashing 'bin' (Flash Image)

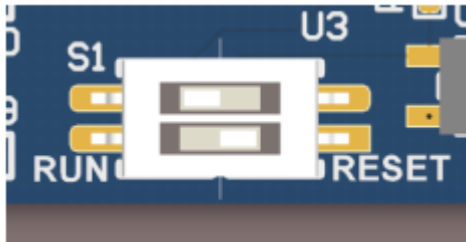
This section details how to flash NOR memory of switch with bin image and prepare for bootstrapping. Only in rare cases 'bin' may need to be updated. ASIX Forte Programmer and ASIX UP software are used.

Caution: write down the current mac address since it will be deleted after flashing. You can check current mac address by printing in ICLI # show ver or in Web GUI by going to Monitor -> System -> Information.

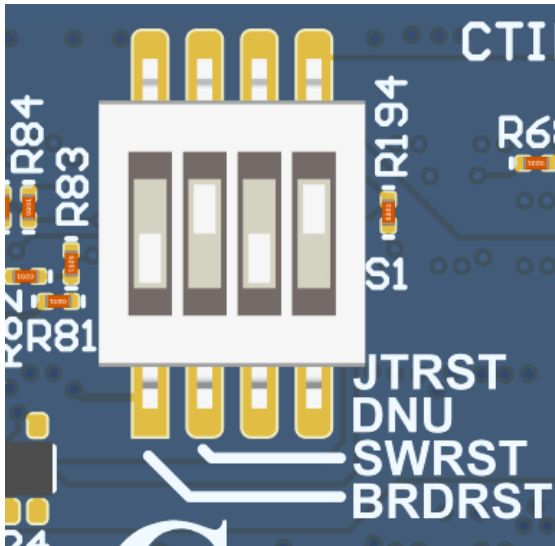
Caution: Flashing the switch voids warranty, customers are advised to send unit to Connect Tech for RMA instead.

6.1 Flashing

- Move switch to reset mode and boot



XDG202



XDG205

- In Asix UP, choose corresponding SPI chip. Connect Forte Programmer to SPI port.



XDG202

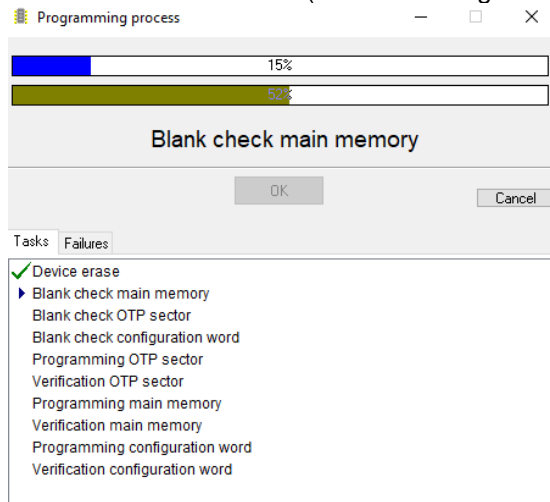


XDG205

- Select both "in idle state" and "During programmer" in Forte programmer settings



- Flash the device (Device -> Program -> Program All). Wait for process to finish.



After flashing, turn off switch, move it to "run" mode and connect UART port to PC. Boot switch. After booting process end, you are able to communicate with switch through ICLI. If you are flashing XDG205, skip to section 7, then return to section 6.2, for XDG202, continue these sections in order.

6.2 Setting MAC address

It is recommended to set mac address since without that system will generate random mac address on every booting.

Print in ICLI:

```
# platform debug allow
# debug board mac XX-XX-XX-XX-XX-XX
# reload cold
```

Make sure that right mac address was applied by printing in ICLI

```
# show ver
```

```
MAC Address      : 00-0c-8b-3e-14-ec
Previous Restart : Cool

System Contact   :
System Name      :
System Location  :
System Time      : 1970-01-01T01:28:46+00:00
System Uptime    : 01:28:46
```

6.3 Setting IP address

You need to set IP address to be able to bootstrap 'mfi' image from network.

```
Print in ICLI:
# config t
# interface vlan 1
if you want to set dhcp
# ip address dhcp
if you want to set static ip
# ip address <AAA.BBB.CCC.DDD> 255.255.255.0
# end
Make sure that right IP address applied by printing in ICLI:
#show ip int br
```

```
# show ip int br
Interface Address          Method Status
-----
VLAN 1    10.88.8.146/23          DHCP    UP
```

Do not forget save your setting by running in ICLI:
copy running-config startup-config

7 Bootstrapping Application Software Image

7.1 Bootstrapping XDG202

After the 'bin' image is flashed 'mfi' bootstrap needs to be flashed by ICLI in NAND Memory. This section describes how to bootstrap 'mfi' image after 'bin' image is flashed and ip address is set.

1. Put the 'mfi' image in base directory of your TFTP server.
2. Print in ICLI:

```
# platform debug allow
# debug firmware bootstrap tftp://ip.address.of.server/name_of_file.mfi
```

System will reload. After that, it will ask you for login and password. Default login is **admin** and password is blank("").


```
# debug firmware bootstrap tftp://10.88.8.189/XDG202_36_I47_V009.mfi
Bootstrapping UBIFS with all available volume space ...
ubiformat: mtd7 (nand), size 134217728 bytes (128.0 MiB), 1024 eraseblocks of 13
1072 bytes (128.0 KiB), min. I/O size 2048 bytes
libscan: scanning eraseblock 1023 -- 100 % complete
ubiformat: 1024 eraseblocks have valid erase counter, mean value is 37
ubiformat: formatting eraseblock 1023 -- 100 % complete
Bootstrap ubi done ok.
Downloading...
Got 13150262 bytes
Writing primary image
Erasing flash...done
Programming flash...done
  Done
Writing backup image
Erasing flash...done
Programming flash...done
  Done
Rebooting ...
```

7.2 Bootstrapping XDG205

After the 'bin' image is flashed 'ext4.gz' needs to be flashed to the EMMC memory. Unlike XDG202, the XDG205 'bin' image only contains U-Boot, so the bootstrapping process is done using U-Boot commands.

1. Put the 'ext4.gz' image in base directory of your TFTP server.
2. Connect port 13 of the XDG205 to the same network as your TFTP server.
3. Power on the system and hit any key when prompted over the ICLI interface to stop autoboot.
4. Enter the commands:

```
=> setenv serverip <ip.address.of.server>
=> run mmc_format
=> editenv mmc_image
Change the name to match your ext4.gz file
=> run mmc_dlup
=> setenv rootargs
=> saveenv
=> run mmc_boot
```

System will boot into ISTAX. After that, it will ask you for login and password. Default login is **admin** and password is blank("").

8 Accessing Web GUI

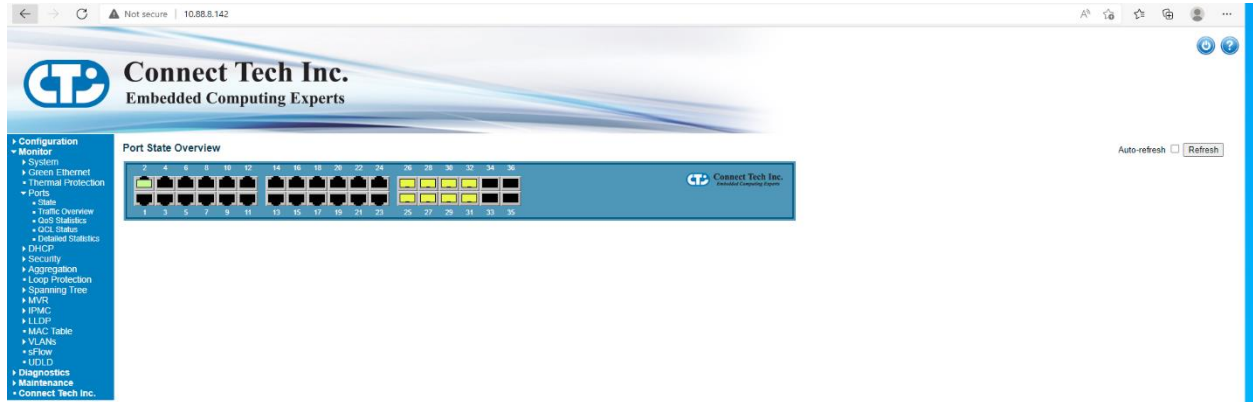
After bootstrapping application software image, Web GUI becomes accessible. It allows to change settings of the switch in web browser. To access Web GUI, your PC and switch should be in one network and you should know IP address of the switch in that network. To set IP address, refer to 6.3 of this document.

Print in ICLI:

```
#show ip int br
```

```
# show ip int br
Interface      Address          Method  Status
-----
VLAN 1        10.88.8.142/23  DHCP   UP
#
```

Now when you have IP address, just print it in internet browser address bar and press enter. System will ask for login and password, by default login is **admin** and password is blank(“”). Now you have access to Web GUI.



9 Updating Bootloader Image

In rare situation bootloader update may be needed after installing the application software. This can be done on both XDG202 and XDG205 through ICLI.

9.1 Updating Redboot (XDG202)

The Redboot bootloader is actually part of the 'bin' image, but it can be updated over existing one once 'mfi' image is applied. In order to update bootloader, print in ICL:

```
# platform debug allow
# debug firmware bootloader tftp://<IP where file is located>/name_of_file.img

debug firmware bootloader tftp://10.88.8.189/redboot-jaguar2-new.img
Downloading...
Got 196024 bytes
Checking old image RedBoot... needs update
Erasing 'RedBoot'... done!
Programming 'RedBoot'... done!
```

After that, reboot switch. New bootloader should be applied.

9.2 Updating U-Boot (XDG205)

For XDG205, the 'bin' image is the U-Boot bootloader. To update it, power the system off and follow the steps below:

1. Put the 'ext4.gz' image in base directory of your TFTP server.
2. Connect port 13 of the XDG205 to the same network as your TFTP server.
3. Power on the system and hit any key when prompted over the ICLI interface to stop autoboot
4. Enter the commands:
 - => setenv serverip <ip.address.of.server>
 - => dhcp name_of_file.bin
 - => run ubupdate
 - => reset

The switch will then reboot with the new bootloader.

10 Updating Application Software Image

You can update the application software image over existing firmware. It is different from bootstrapping process since NAND/EMMC flash memory is not blank. Update is possible through ICLI or web GUI. The process is the same for both XDG202 and XDG205.

10.1 ICLI

In order to upload firmware file, print in ICLI the following:

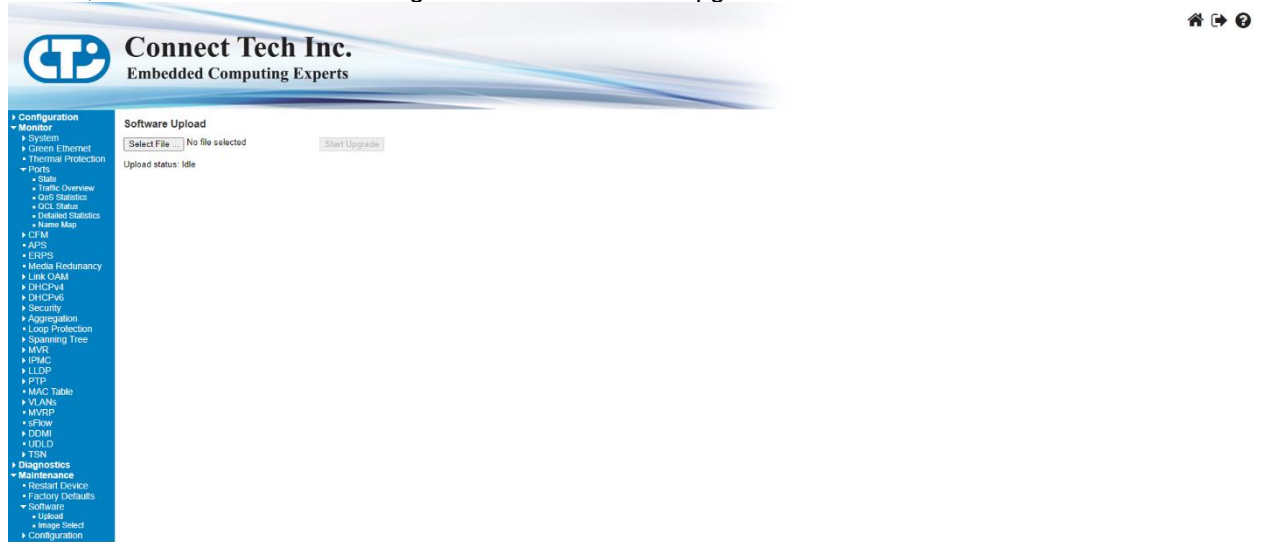
```
# firmware upgrade tftp://<IP where file is located>/<name of mfi/ext4.gz file>

firmware upgrade tftp://10.88.8.189/istax_xtreme10g36.mfi
Downloading...
Got 12875904 bytes
Starting flash update - do not power off device!
Erasing flash...done
Programming flash...done
Swapping images...done
Restarting, please wait...
```

After update, switch will reboot. New firmware should be applied.

10.2 Web GUI

In order to upload firmware, in Web GUI go to Maintenance -> Software -> Upload, click “Select File...”, choose needed ‘mfi’/‘ext4.gz’ file and click “Start Upgrade”.



After upgrade, switch will reboot. New firmware should be applied.