PICA8, INC.

Image Upgrade Guide

PicOS 2.0.4

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This document contains the PicOS 2.0.4 image upgrade steps for switches from the Pica8 series.

TABLE OF CONTENTS

INTRODUCTION

PicOS supports P-3290, P-3295, P-3780, P-3920, and P-3922 switches.

PICOS 1.7

PicOS 1.7 was released Apr. 2013, with support for MSTP and enhanced QoS.

PICOS 1.6

PicOS 1.6 was released Jan. 2013, with support for OpenFlow 1.2.

PICOS 1.5

PicOS 1.5 was released Sept. 2012, with support for Q-in-Q.

PICOS 1.4

PicOS 1.4/XorPlus 1.4 was released Mar. 2012, with support for OVS 1.4 and IPv6.

The rootfs is based on a CF or SD card.

XORPLUS 1.3

PicOS 1.3/XorPlus 1.3 was released Sept. 2011, with support for ECMP.

The rootfs is based on the CF card.

XORPLUS 1.2

PicOS 1.2/XorPlus 1.2 was released Mar. 2011, with support for Open vSwitch 1.2.

The rootfs is based on the CF card.

XORPLUS 1.1

PicOS1.1/XorPlus 1.1 was released Dec. 2010, with support for L3 and OpenFlow 1.0.

The system rootfs is in ramdisk format.

XORPLUS 1.0

PicOS 1.0/XorPlus 1.0 was released Sept. 2010, with support for LACP, LLDP, VLAN, and RSTP.

The system image is in ramdisk format.

P-3290 IMAGE UPGRADE

P-3290 has one flash card and one CF (compact flash) card. PicOS is installed on the CF card, while the diagnostic Linux system is installed on the flash card.

There are two ways of executing your P-3290 image upgrade:

1. If your current PicOS version is 2.0 or *higher*, it can be upgraded directly with XorPlus CLI.
2. If your current system version is *lower* than 2.0, you will need to upgrade your system with flash Linux.

DOWNLOADING THE PICOS IMAGE

Download the PicOS 2.0.4 image for P-3290 from our Pica8 website. Visit http://www.pica8.com/portal/ to register for a Pica8 Portal account. You can then access the image at http://www.pica8.com/portal/trial.php.

Should you need an earlier image, please send us an email at support@pica8.com.

UPGRADING WITH XORPLUS CLI

If your running version of PicOS is 2.0 or above, you can directly upgrade it to PicOS 2.0.4 with XorPlus CLI.

Enter **picos-2.0.4-3290-r11439.tar.gz** for <image-file-name>. <TFTP server IP address> is the IP address of the TFTP server. Always enter **rootfs.tar.gz** for "local-file":

XorPlus> file tftp get remote-file <image-file-name> local-file rootfs.tar.gz ip-address <TFTP server IP address>

The display **waiting……** should appear, as the process may take several minutes. The image will be stored under the local installation directory, and will be installed the next time the system is restarted.

Reboot the system:

XorPlus> request system reboot

Note that the reboot process may take several minutes.

UPGRADING WITH FLASH LINUX

U-Boot provides the different boot commands to enter either the flash Linux environment or the PicOS system on the CF card. By default, it brings up PicOS.

You should manually bring up flash Linux by stopping U-Boot. Press any key when you see the display below (note that it appears *very* shortly after the boot process begins):

Hit any key to stop autoboot: 5

Next, enter the following command to boot up flash Linux:

=>run flash_bootcmd

Input **Ctrl+D** twice to quit the diagnostic menu (shown below) and to enter the Linux command line interface. If your system should ask you to enter the user "root's" password, the default password of the user "root" is **root123**.

Diagnostic Test Main Menu v1.3 (LB9 - Linux)
[1] File Management
[2] Board Information
[3] Diagnostic Test
[4] Manufacturing Test Mode Set
[5] Test Error Log File Management
[6] PING
[7] Reset
[8] For Vibration Test

Enter your choice:

SAVING YOUR RUNNING CONFIGURATION FILE

Your current configuration file can be saved before upgrading the image.

If you are in L2/L3 mode and wish to save your current configuration file before upgrading, the configuration files are located in /cf_card/pica/config/.

If you are in OVS mode, the configuration files are located in /ovs/ovs-vswitchd.conf.db.

REPARTITIONING THE CF CARD & BUILDING THE FILE SYSTEM

Un-mount the CF card. If an error message appears, you can ignore it: your CF card may not have been mounted to begin with.

umount /cf_card

To repartition the CF card, enter the following command:

fdisk /dev/hda

The old partition can then be removed with the **d** command:

Command (m for help): d
Selected partition 1

Command (m for help): w
The partition table has been altered!
...

A new partition can be created with the **n** command. Enter **p** as your command action, and **1** as the primary partition number.

```
# fdisk /dev/hda

Command (m for help): n
Command action
e   extended
p   primary partition (1-4)
p
Partition number (1-4): 1
First cylinder (1-485, default 1):    ←press "enter" to use default value 1
Last cylinder or +size or +sizeM or +sizeK (1-485, default 485):←press "enter" to use default value (may vary)

Command (m for help): w
The partition table has been altered!
...
```

The following command can build the ext3/ext2 file system over the created partition:

```
# mke2fs –j /dev/hda1
```

The process is complete when you reach this eventual display:

```
Writing superblocks and filesystem accounting information: done
This filesystem will be automatically checked every 26 mounts or
180 days, whichever comes first.  Use tune2fs -c or -i to override.
```

Finally, mount the new CF card partition with the following command:

```
# mount /dev/hda1 /cf_card
```

SETTING UP AN IP ADDRESS

There are two ways to set up the IP address of the management port:

1. Obtain the IP address through DHCP.
2. Set up a static IP address.

If the switch is connected to a DHCP server, enter the following command to obtain the DHCP-assigned IP:

```
#udhcpc
```

If a DHCP server is not available, set up a static IP instead:

```
#ifconfig eth0 <IP address>
```

Check that the switch can ping the server the image is put on.

DOWNLOADING AND INSTALLING THE PICOS IMAGE

Change the directory to /cf_card:

#cd /cf_card

List the contents of /cf_card. It should contain only the lost+found file:

ls
lost+found

tftp can be used to retrieve the image from a remote server. Enter **rootfs.tar.gz** for<local-image-name>, and the name of the downloaded image for <remote-image-name>. <TFTP-server-IP> is the IP address of the TFTP server. The process may take several minutes, but be sure to enter the **sync** command afterward:

#tftp –g –l <local-image-name> -r <remote-image-name><TFTP-server-IP>
…
#sync

Or,retrieve the image through ftp:

ftpget -u <user-name> -p <password><FTP-server-IP><local-image-name><remote-image-name>
…
#sync

Next, un-tar the image:

#tarzxvfrootfs.tar.gz
…
#sync

Do not forget to enter the above **sync** command *before* restarting the system, so you can ensure that the data are written back on the CF card.

Finally, reboot the system:

#reboot

Note that the reboot process may take several minutes.

UPDATING THE U-BOOT BOOT COMMAND (ONLY IF NECESSARY)

Note: if you are upgrading the image from PicOS 1.2/XorPlus 1.2 or higher, you will *not* need to update the U-Boot environment string.

The U-Boot **bootcmd** update should be set as:

=>set cfcard_bootcmd2 'setenvbootargs root=/dev/hda1 rwnoinitrd console=ttyS0,$baudrate;

```
ext2load ide 0:1 0x1000000 boot/uImage;ext2load ide 0:1 0x400000 boot/LB9.dtb;bootm
1000000 - 400000'
=>set bootcmd 'run cfcard_bootcmd2'
=>saveenv
=>set bootcmd 'run cfcard_bootcmd2'
=>saveenv

=>reset
```

P-3295 IMAGE UPGRADE

P-3295 has one flash card and one CF (compact flash) card. PicOS is installed on the CF card, while the diagnostic Linux system is installed on the flash card.

There are two ways of executing your P-3295 image upgrade:

1. If your current PicOS version is 2.0 or *higher*, it can be upgraded directly with XorPlus CLI.
2. If your current system version is *lower* than 2.0, you will need to upgrade your system with flash Linux.

DOWNLOADING THE PICOS IMAGE

Download the PicOS 2.0.4 image for P-3295 from our Pica8 website. Visit http://www.pica8.com/portal/ to register for a Pica8 Portal account. You can then access the image at http://www.pica8.com/portal/trial.php.

Should you need an earlier image, please send us an email at support@pica8.com.

UPGRADING WITH XORPLUS CLI

If your running version of PicOS is 2.0 or above, you can directly upgrade it to PicOS 2.0.4 with XorPlus CLI.

Enter **picos-2.0.4-3295-r11439.tar.gz** for <image-file-name>. <TFTP server IP address> is the IP address of the TFTP server. Always enter **rootfs.tar.gz** for "local-file":

XorPlus> file tftp get remote-file <image-file-name> local-file rootfs.tar.gz ip-address <TFTP server IP address>

The display **waiting……** should appear, as the process may take several minutes. The image will be stored under the local installation directory, and will be installed the next time the system is restarted.

Reboot the system:

XorPlus> request system reboot

Note that the reboot process may take several minutes.

UPGRADING WITH FLASH LINUX

U-Boot provides the different boot commands to enter either the flash Linux environment or the PicOS system on the CF card. By default, it brings up PicOS.

You should manually bring up flash Linux by stopping U-Boot. Press any key when you see the display below (note that it appears *very* shortly after the boot process begins):

Hit any key to stop autoboot: 5

Next, enter the following command to boot up flash Linux:

=>run flash_bootcmd

Input **Ctrl+D** twice to quit the diagnostic menu (shown below) and to enter the Linux command line interface. If your system should ask you to enter the user "root's" password, the default password of the user "root" is **root123**.

Diagnostic Test Main Menu v1.3 (LB9 - Linux)
[1] File Management
[2] Board Information
[3] Diagnostic Test
[4] Manufacturing Test Mode Set
[5] Test Error Log File Management
[6] PING
[7] Reset
[8] For Vibration Test

Enter your choice:

SAVING YOUR RUNNING CONFIGURATION FILE

Your current configuration file can be saved before upgrading the image.

If you are in L2/L3 mode and wish to save your current configuration file before upgrading, the configuration files are located in /cf_card/pica/config/.

If you are in OVS mode, the configuration files are located in /ovs/ovs-vswitchd.conf.db.

REPARTITIONING THE CF CARD & BUILDING THE FILE SYSTEM

Un-mount the CF card. If an error message appears, you can ignore it: your CF card may not have been mounted to begin with.

umount /cf_card

To repartition the CF card, enter the following command:

fdisk /dev/hda

The old partition can then be removed with the **d** command:

Command (m for help): d
Selected partition 1

Command (m for help): w
The partition table has been altered!
...

A new partition can be created with the **n** command. Enter **p** as your command action, and **1** as the primary partition number.

```
# fdisk /dev/hda

Command (m for help): n
Command action
e   extended
p   primary partition (1-4)
p
Partition number (1-4): 1
First cylinder (1-485, default 1):     ←press "enter" to use default value 1
Last cylinder or +size or +sizeM or +sizeK (1-485, default 485):←press "enter" to use default value (may vary)

Command (m for help): w
The partition table has been altered!
…
```

The following command can build the ext3/ext2 file system over the created partition:

```
# mke2fs –j /dev/hda1
```

The process is complete when you reach this eventual display:

```
Writing superblocks and filesystem accounting information: done
This filesystem will be automatically checked every 26 mounts or
180 days, whichever comes first.  Use tune2fs -c or -i to override.
```

Finally, mount the new CF card partition with the following command:

```
# mount /dev/hda1 /cf_card
```

SETTING UP AN IP ADDRESS

There are two ways to set up the IP address of the management port:

1. Obtain the IP address through DHCP.
2. Set up a static IP address.

If the switch is connected to a DHCP server, enter the following command to obtain the DHCP-assigned IP:

```
#udhcpc
```

If a DHCP server is not available, set up a static IP instead:

```
#ifconfig eth0 <IP address>
```

Check that the switch can ping the server the image is put on.

DOWNLOADING AND INSTALLING THE PICOS IMAGE

Change the directory to /cf_card:

`#cd /cf_card`

List the contents of /cf_card. It should contain only the lost+found file:

```
# ls
lost+found
```

tftp can be used to retrieve the image from a remote server. Enter **rootfs.tar.gz** for<local-image-name>, and the name of the downloaded image for <remote-image-name>.<TFTP-server-IP> is the IP address of the TFTP server. The process may take several minutes, but be sure to enter the **sync** command afterward:

```
#tftp –g –l <local-image-name> -r <remote-image-name><TFTP-server-IP>
…
#sync
```

Or,retrieve the image through ftp:

```
# ftpget -u <user-name> -p <password><FTP-server-IP><local-image-name><remote-image-name>
…
#sync
```

Next, un-tar the image:

```
#tarzxvfrootfs.tar.gz
…
#sync
```

Do not forget to enter the above **sync** command *before* restarting the system, so you can ensure that the data are written back on the CF card.

Finally, reboot the system:

`#reboot`

Note that the reboot process may take several minutes.

UPDATING THE U-BOOT BOOT COMMAND (ONLY IF NECESSARY)

Note: if you are upgrading the image from PicOS 1.2/XorPlus 1.2 or higher, you will *not* need to update the U-Boot environment string.

The U-Boot **bootcmd** update should be set as:

`=>set cfcard_bootcmd2 'setenvbootargs root=/dev/hda1 rwnoinitrd console=ttyS0,$baudrate;`

```
ext2load ide 0:1 0x1000000 boot/uImage;ext2load ide 0:1 0x400000 boot/LB9.dtb;bootm
1000000 - 400000'
=>set bootcmd 'run cfcard_bootcmd2'
=>saveenv

=>reset
```

P-3780 IMAGE UPGRADE

P-3780 has one flash card and one CF (compact flash) card. PicOS is installed on the CF card, while the diagnostic Linux system is installed on the flash card.

There are two ways of executing your P-3780 image upgrade:

1. If your current PicOS version is 2.0 or *higher*, it can be upgraded directly with XorPlus CLI.
2. If your current system version is *lower* than 2.0, you will need to upgrade your system with flash Linux.

DOWNLOADING THE PICOS IMAGE

Download the PicOS 2.0.4 image for P-3780 from our Pica8 website. Visit http://www.pica8.com/portal/ to register for a Pica8 Portal account. You can then access the image at http://www.pica8.com/portal/trial.php.

Should you need an earlier image, please send us an email at support@pica8.com.

UPGRADING WITH XORPLUS CLI

If your running version of PicOS is 2.0 or above, you can directly upgrade it to PicOS 2.0.4 with XorPlus CLI.

Enter **picos-2.0.4-3780-r11439.tar.gz** for <image-file-name>. <TFTP server IP address> is the IP address of the TFTP server. Always enter **rootfs.tar.gz** for "local-file":

XorPlus> file tftp get remote-file <image-file-name> local-file rootfs.tar.gz ip-address <TFTP server IP address>

The display **waiting……** should appear, as the process may take several minutes. The image will be stored under the local installation directory, and will be installed the next time the system is restarted.

Reboot the system:

XorPlus> request system reboot

Note that the reboot process may take several minutes.

UPGRADING WITH FLASH LINUX

U-Boot provides the different boot commands to enter either the flash Linux environment or the PicOS system on the CF card. By default, it brings up PicOS.

You should manually bring up flash Linux by stopping U-Boot. Press any key when you see the display below (note that it appears *very* shortly after the boot process begins):

Hit any key to stop autoboot: 5

Next, enter the following command to boot up flash Linux:

=>run flash_bootcmd

Input **Ctrl+D** twice to quit the diagnostic menu (shown below) and to enter the Linux command line interface. If your system should ask you to enter the user "root's" password, the default password of the user "root" is **root123**.

Diagnostic Test Main Menu v1.3 (LB9 - Linux)
[1] File Management
[2] Board Information
[3] Diagnostic Test
[4] Manufacturing Test Mode Set
[5] Test Error Log File Management
[6] PING
[7] Reset
[8] For Vibration Test

Enter your choice:

SAVING YOUR RUNNING CONFIGURATION FILE

Your current configuration file can be saved before upgrading the image.

If you are in L2/L3 mode and wish to save your current configuration file before upgrading, the configuration files are located in /cf_card/pica/config/.

If you are in OVS mode, the configuration files are located in /ovs/ovs-vswitchd.conf.db.

REPARTITIONING THE CF CARD & BUILDING THE FILE SYSTEM

Un-mount the CF card. If an error message appears, you can ignore it: your CF card may not have been mounted to begin with.

umount /cf_card

To repartition the CF card, enter the following command:

fdisk /dev/hda

The old partition can then be removed with the **d** command:

Command (m for help): d
Selected partition 1

Command (m for help): w
The partition table has been altered!
...

A new partition can be created with the **n** command. Enter **p** as your command action, and **1** as the primary partition number.

```
# fdisk /dev/hda

Command (m for help): n
Command action
e   extended
p   primary partition (1-4)
p
Partition number (1-4): 1
First cylinder (1-485, default 1):    ←press "enter" to use default value 1
Last cylinder or +size or +sizeM or +sizeK (1-485, default 485):←press "enter" to use default value (may vary)

Command (m for help): w
The partition table has been altered!
…
```

The following command can build the ext3/ext2 file system over the created partition:

```
# mke2fs –j /dev/hda1
```

The process is complete when you reach this eventual display:

```
Writing superblocks and filesystem accounting information: done
This filesystem will be automatically checked every 26 mounts or
180 days, whichever comes first.  Use tune2fs -c or -i to override.
```

Finally, mount the new CF card partition with the following command:

```
# mount /dev/hda1 /cf_card
```

SETTING UP AN IP ADDRESS

There are two ways to set up the IP address of the management port:

1. Obtain the IP address through DHCP.
2. Set up a static IP address.

If the switch is connected to a DHCP server, enter the following command to obtain the DHCP-assigned IP:

```
#udhcpc
```

If a DHCP server is not available, set up a static IP instead:

```
#ifconfig eth0 <IP address>
```

Check that the switch can ping the server the image is put on.

DOWNLOADING AND INSTALLING THE PICOS IMAGE

Change the directory to /cf_card:

```
#cd /cf_card
```

List the contents of /cf_card. It should contain only the lost+found file:

```
# ls
lost+found
```

tftp can be used to retrieve the image from a remote server. Enter **rootfs.tar.gz** for<local-image-name>, and the name of the downloaded image for <remote-image-name>. <TFTP-server-IP> is the IP address of the TFTP server. The process may take several minutes, but be sure to enter the **sync** command afterward:

```
#tftp –g –l <local-image-name> -r <remote-image-name><TFTP-server-IP>
…
#sync
```

Or,retrieve the image through ftp:

```
# ftpget -u <user-name> -p <password><FTP-server-IP><local-image-name><remote-image-name>
…
#sync
```

Next, un-tar the image:

```
#tarzxvfrootfs.tar.gz
…
#sync
```

Do not forget to enter the above **sync** command *before* restarting the system, so you can ensure that the data are written back on the CF card.

Finally, reboot the system:

```
#reboot
```

Note that the reboot process may take several minutes.

UPDATING THE U-BOOT BOOT COMMAND (ONLY IF NECESSARY)

Note: if you are upgrading the image from PicOS 1.2/XorPlus 1.2 or higher, you will *not* need to update the U-Boot environment string.

The U-Boot **bootcmd** update should be set as:

```
=>set cfcard_bootcmd2 'setenvbootargs root=/dev/hda1 rwnoinitrd console=ttyS0,$baudrate;
```

```
ext2load ide 0:1 0x1000000 boot/uImage;ext2load ide 0:1 0x400000 boot/LB8.dtb;bootm
1000000 - 400000'
=>set bootcmd 'run cfcard_bootcmd2'
=>saveenv

=>reset
```

P-3920 IMAGE UPGRADE

P-3920 has one flash card and one SD card.PicOS is installed on the SD card, while the diagnostic Linux system is installed on the flash card.

There are two ways of executing your P-3920 image upgrade:

1. If your current PicOS version is 2.0 or *higher*, it can be upgraded directly with XorPlus CLI.
2. If your current system version is *lower* than 2.0, you will need to upgrade your system with flash Linux.

DOWNLOADING THE PICOS IMAGE

Download the PicOS 2.0.4 image for P-3920 from our Pica8 website. Visit http://www.pica8.com/portal/ to register for a Pica8 Portal account. You can then access the image at http://www.pica8.com/portal/trial.php.

Should you need an earlier image, please send us an email at support@pica8.com.

UPGRADING WITH XORPLUS CLI

If your running version of PicOS is 2.0 or above, you can directly upgrade it to PicOS 2.0.4 with XorPlus CLI.

Enter **picos-2.0.4-3920-r11439.tar.gz** for <image-file-name>. <TFTP server IP address> is the IP address of the TFTP server. Always enter **rootfs.tar.gz** for "local-file":

XorPlus> file tftp get remote-file <image-file-name> local-file rootfs.tar.gz ip-address <TFTP server IP address>

The display **waiting……** should appear, as the process may take several minutes. The image will be stored under the local installation directory, and will be installed the next time the system is restarted.

Reboot the system:

XorPlus> request system reboot

Note that the reboot process may take several minutes.

UPGRADING WITH FLASH LINUX

U-Boot provides the different boot commands to enter either the flash Linux environment or the PicOS system on the SD card. By default, it brings up PicOS.

You should manually bring up flash Linux by stopping U-Boot. Press any key when you see the display below (note that it appears *very* shortly after the boot process begins):

Hit any key to stop autoboot: 5

Next, enter the following command to boot up flash Linux:

=>run flash_bootcmd

Wait for the message below to appear. Then, enter**2** as your choice:

```
Please choose which to start.(Will choose active entry if no input in 10 seconds)
Current boot mode: normal
==================Main Menu====================
         *1  - Start Application   (active)
          2  - Start Diagnostic Application
          3  - Utility
===============================================
Enter your choice (1-3): 2
```

The DiagnosticTest Main Menu will eventually be displayed. Enter **D** as your choice:

```
Diagnostic Test Main Menu (LY2 - Linux) v1.0.2.2

[1  ]  File Management
[2  ]  Board Information
[3  ]  Diagnostic Test
[4  ]  Manufacturing Test Mode Set
[5  ]  Test Error Log File Management
[6  ]  PING
[7  ]  Reset
[8  ]  For Vibration Test

[D  ]  BCM Shell

 Enter your choice: D
```

Start a new shell with the command **sh**when you see the **BCM.0>** prompt:

```
BCM.0>sh
/bin/sh: can't access tty; job control turned off
```

SAVING YOUR RUNNING CONFIGURATION FILE

Your current configuration file can be saved before upgrading the image.

If you are in L2/L3 mode and wish to save your current configuration file before upgrading, the configuration files are located in /mnt/sd_card/pica/config/.

If you are in OVS mode, the configuration files are located in /ovs/ovs-vswitchd.conf.db.

REPARTITIONING THE SD CARD & BUILDING THE FILE SYSTEM

Un-mount the SD card. If an error message appears, you can ignore it: your SD card may not have been mounted to begin with.

umount /mnt/sd_card

To begin repartitioning the SD card, enter the following command:

#fdisk /dev/mmcblk0

The old partition can then be removed with the **d** command:

Command (m for help): d
Selected partition 1

Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table

A new partition can be created with the **n** command. Enter **p** as your command action, and **1** as the primary partition number.

fdisk /dev/mmcblk0

Command (m for help): n
Command action
e   extended
p   primary partition (1-4)
p
Partition number (1-4): 1
First cylinder (1-60448, default 1):←press "enter" to use default value 1
Last cylinder or +size or +sizeM or +sizeK (1-60448, default 60448):←press "enter" to use default value (may vary)

Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table

Create the file system on the SD card:

#mke2fs –j /dev/mmcblk0p1

The process is complete when you reach this eventual display:

Writing superblocks and filesystem accounting information: done
This filesystem will be automatically checked every 22 mounts or
2.11367e-314 days, whichever comes first. Use tune2fs -c or -i to override.

Finally, mount the new SD card partition with the following command:

`#mount /dev/mmcblk0p1 /mnt/sd_card`

SETTING UP AN IP ADDRESS

There are two ways to set up the IP address of the management port:

1. Obtain the IP address through DHCP.
2. Set up a static IP address.

If the switch is connected to a DHCP server, enter the following command to obtain the DHCP-assigned IP:

`#udhcpc`

If a DHCP server is not available, set up a static IP instead:

`#ifconfig eth0 <IP address>`

Check that the switch can ping the server the image is put on.

DOWNLOADING AND INSTALLING THE PICOS IMAGE

Change the directory to /mnt/sd_card:

`#cd /mnt/sd_card`

List the contents of /mnt/sd_card. It should contain only the lost+found file:

```
# ls
lost+found
```

tftp can be used to retrieve the image from a remote server. Enter **rootfs.tar.gz** for<local-image-name>, and the name of the downloaded image for <remote-image-name>. <TFTP-server-IP> is the IP address of the TFTP server. The process may take several minutes, but be sure to enter the **sync** command afterward:

```
#tftp –g –l <local-image-name> -r <remote-image-name><TFTP-server-IP>
…
#sync
```

Or,retrieve the image through ftp:

```
# ftpget -u <user-name> -p <password><FTP-server-IP><local-image-name><remote-image-name>
…
#sync
```

Next, un-tar the image:

`#tarzxvfrootfs.tar.gz`

```
…
#sync
```

Do not forget to enter the above **sync** command *before* restarting the system, so you can ensure that the data are written back on the SD card.

Finally, reboot the system:

```
#reboot
```

Note that the reboot process may take several minutes.

UPDATING THE U-BOOT BOOT COMMAND (ONLY IF NECESSARY)

Note: if you are upgrading the image from PicOS 1.2/XorPlus 1.2 or higher, you will *not* need to update the U-Boot environment string.

The U-Boot **bootcmd** update should be set as:

```
=>setmmc_boot 'setenvbootargs root=/dev/mmcblk0p1 rwnoinitrd console=ttyS0,$baudrate;
ext2load mmc 0:1 $loadaddr boot/uImage;ext2load mmc 0:1 $fdtaddr boot/LY2.dtb;bootm
$loadaddr - $fdtaddr'
=>set bootcmd 'run mmc_boot'
=>saveenv

=>res
```

P-3922 IMAGE UPGRADE

P-3922 has one USB NAND flash. PicOS is installed on the first partition, while the backup Linux system is installed on the second partition.

There are two ways of executing your P-3922 image upgrade:

1. If your current PicOS version is 2.0 or *higher*, it can be upgraded directly with XorPlus CLI.
2. If your current system version is *lower* than 2.0, you will need to upgrade your system with the backup Linux on the second partition.

DOWNLOADING THE PICOS IMAGE

Download the PicOS 2.0.4 image for P-3922 from our Pica8 website. Visit http://www.pica8.com/portal/ to register for a Pica8 Portal account. You can then access the image at http://www.pica8.com/portal/trial.php.

Should you need an earlier image, please send us an email at support@pica8.com.

UPGRADING WITH XORPLUS CLI

If your running version of PicOS is 2.0 or above, you can directly upgrade it to PicOS 2.0.4 with XorPlus CLI.

Enter **picos-2.0.4-3922-r11439.tar.gz** for <image-file-name>. <TFTP server IP address> is the IP address of the TFTP server. Always enter **rootfs.tar.gz** for "local-file":

XorPlus> file tftp get remote-file <image-file-name> local-file rootfs.tar.gz ip-address <TFTP server IP address>

The display **waiting……** should appear, as the process may take several minutes. The image will be stored under the local installation directory, and will be installed the next time the system is restarted.

Reboot the system:

XorPlus> request system reboot

Note that the reboot process may take several minutes.

UPGRADING WITH THE BACKUPLINUX

U-Boot provides the different boot commands to enter either the backup Linux environment or the PicOS system on the USB NAND flash. By default, it brings up PicOS on the first partition.

You should manually bring up backup Linux by stopping U-Boot. Input **Ctrl+C** and **Ctrl+U** after you see the display below:

Starting Power-On Self Test ...

When you see the password prompt, enter **mercury**, then hit **enter**:

Password : *******

Enter any key when you see the display below:

Hit any key to stop autoboot: 5

Next, enter the following command to boot up backup Linux:

=>run usb_backup_boot

Press any key to enter the shell when you see the display below:

sd 0:0:0:0: [sda] Assuming drive cache: write through

sd 0:0:0:0: [sda] Assuming drive cache: write through

 sda: sda1 sda2

sd 0:0:0:0: [sda] Assuming drive cache: write through

sd 0:0:0:0: [sda] Attached SCSI disk

MOUNTING THE USB NAND FLASH & SAVING YOUR RUNNING CONFIGURATION FILE

Enter the following command to mount the first partition on the /mnt directory:

#mount /dev/sda1 /mnt

Your current configuration file can be saved before upgrading the image. The configuration files are located in /mnt/pica/config/pica.conf.

REFORMATTING THE PICOS PARTITION & BUILDING THE FILE SYSTEM

To repartition the USB NAND flash, enter the following command:

#fdisk /dev/sda

The old partition can then be removed with the **d** command:

Command (m for help): d
Selected partition 1

A new partition can be created with the **n** command. Save the information before quitting the fdisk tool.

The following command can build the ext3/ext2 file system over the created partition:

#mke2fs –j /dev/sda1

Finally, mount the first partition:

#mount /dev/sda1 /mnt/

Note: The second partition is used for the backup Linux System and cannot be reformatted or repartitioned. If the second partition is repartitioned and reformatted, then files for the backup Linux need to be recovered. Should you need the backup Linux image, please send us an email at support@pica8.com.

SETTING UP AN IP ADDRESS

There are two ways to set up the IP address of the management port:

1. Obtain the IP address through DHCP.
2. Set up a static IP address.

If the switch is connected to a DHCP server, enter the following command to obtain the DHCP-assigned IP:

#udhcpc

If a DHCP server is not available, set up a static IP instead:

#ifconfig eth0 <IP address>

Check that the switch can ping the server the image is put on.

DOWNLOADING AND INSTALLING THE PICOS IMAGE

tftp can be used to retrieve the image from a remote server. Enter **rootfs.tar.gz** for <local-image-name>, and the name of the downloaded image for <remote-image-name>. <TFTP-server-IP> is the IP address of the TFTP server. The process may take several minutes, but be sure to enter the **sync** command afterward:

tftp –g –l <local-image-name> -r <remote-image-name> <TFTP-server-IP>
…
sync

Or, retrieve the image through ftp:

ftpget -u <user-name> -p <password> <FTP-server-IP> <local-image-name> <remote-image-name>
…
sync

The old files of the previous PicOS system need to be removed before installing the new image. Enter the commands as shown below:

mount /dev/sda1 /mnt/

```
#rm –rf /mnt/*
```

If the new image is in the /mnt directory, install the new image as follows:

```
#cd /mnt
```

Next, un-tar the image:

```
# tar zxvf rootfs.tar.gz
…
# sync
```

Do not forget to enter the above **sync** command *before* restarting the system, so you can ensure that the data are written back on the SD card.

Finally, reboot the system:

```
XorPlus> request system reboot
```

Note that the reboot process may take several minutes.

UPDATING THE U-BOOT BOOT COMMAND (ONLY IF NECESSARY)

Note: if the environment of U-Boot has not changed, you will *not* need to update the U-Boot environment string.

The U-Boot **bootcmd** update should be set as:

```
=> set usb_boot 'usb start;setenv bootargs root=/dev/sda1 rw noinitrd console=$consolede
v,$baudrate rootdelay=10 $othbootargs;ext2load usb 0:1 $loadaddr $bootfile;ext2l
oad usb 0:1 $fdtaddr $fdtfile;bootm $loadaddr - $fdtaddr'
 =>set bootcmd 'run usb_boot'
=>saveenv

=>reset
```