

Quick Note 049

Load Firmware and Configuration onto a TransPort WR router including Site Specific Settings using a USB flash device.

> Digi Technical Support January 2019

Contents

1	Introduction				
	1.1	Introduction	3		
	1.2	Assumptions	3		
	1.3	Corrections	3		
2	Vers	ion	3		
3	Crea	iting image file using FlashWriter	4		
	3.1	Install FlashWriter	4		
	3.2	Download the setup.py python file	4		
	3.3	Prepare router and create image file with site specific settings	4		
	3.3.1	1 Prepare router configuration	4		
	3.3.2	2 Transfer the setup.py file via FTP to the router	6		
	3.3.3	3 Create image file with FlashWriter	7		
4	Crea	te USB flash drive	9		
	4.1	Prepare USB Flash drive with site specific settings	9		
	4.1.1	1 Prepare a CSV file that contains site specific settings	9		
	4.1.2	2 Create an autoexec.bat file1	0		
	4.1.3	3 Prepare the USB Flash Drive 1	1		
5	Test	ing1	2		

1 INTRODUCTION

1.1 Introduction

Digi TransPort routers equipped with a USB port (WR21/41/44) offer the possibility to be flashed with an image (.all file) of a router that contains the firmware and configuration. This image is created from a working device using FlashWriter. During this process, site specific settings will be included using a python script.

The following document will guide through the process of creating an image and preparing a USB flash drive to flash a router. The document will also cover how to use a python script and csv file to include site specific settings.

<u>Please note</u>: If site specific settings are not required, please check <u>QN48</u>.

1.2 Assumptions

This guide has been written for use by technically competent personnel with a good understanding of the communications technologies used in the product and of the requirements for their specific application. It also assumes a basic ability to access and navigate a Digi TransPort router.

This application note applies only to:

Model: DIGI TransPort WR21/WR31/WR41/44

Firmware versions: 5246 and later

Configuration: This document assumes that the devices are set to their factory default configurations. Most configuration commands are shown only if they differ from the factory default.

Please note: This application note has been specifically rewritten for firmware release 5246 and later and will not work on earlier versions of firmware. Please contact <u>tech.support@digi.com</u> if your require assistance in upgrading the firmware of the Digi TransPort router.

1.3 Corrections

Requests for corrections or amendments to this application note are welcome and should be addressed to: <u>tech.support@digi.com</u>

Requests for new application notes can be sent to the same address.

2 VERSION

Version Number	Status
1.0	Published
1.1	Title and typos fixes

3 CREATING IMAGE FILE USING FLASHWRITER

3.1 Install FlashWriter

Download and install FlashWriter. The installation file can be found on Digi Support Web site or by directly clicking the following link: <u>http://ftp1.digi.com/support/firmware/FlashWriter.msi</u>

3.2 Download the setup.py python file

Download the setup.py python file that will be required for loading site-specific settings at the following link: http://ftp1.digi.com/support/firmware/transport/utils/setup.py

3.3 Prepare router and create image file with site specific settings

3.3.1 Prepare router configuration

Prepare a Digi TransPort WR 21/41/44 Router with the configuration and firmware needed. The configuration will be identical on the device that will be flashed.

This process will also allow including site-specific settings per devices.

Warning for device Configuration – Se password on the c	<u>es running firmware 5.2.9x and older:</u> If "Enable password encryption" is a ecurity > System it is necessary to uncheck this option, delete pwds.dat an levice before proceeding.	ised under d re-create the
Г	<u>Configuration - Security</u> > <u>System</u>	
	Enable password encryption Note. If you enable password encryption, you will not be able to copy encrypted passwords to other devices.	

<u>Please Note:</u> This process will only allow a similar router to be flashed (same model, same cellular module) and should not be used on different hardware units.

Once the configuration of the unit is done, the following needs to be applied to prevent the unit from flashing "in a loop" if the USB key is left in and also allow the python file to be executed on the first boot to read and apply the site specific settings:

Configuration – Security > System

<u>Configuration - Security > System</u>					
▼ System					
Enable password encryption Note. If you enable password encryption, you will not be able to copy encrypted passwords to other devices.					
USB Security					
Disable the following USB devices					
All Devices Mass Storage Devices					
Serial Devices					
Hub Devices					
□ Allow autoexec.bat files to run from Mass Storage Devices					

Uncheck "Allow autoexec.bat files to run from the Mass Storage Devices". This will prevent the unit from running autoexec.bat from the USB flash drive after a reboot. If further flashing of this unit is required, this option will need to be turned back on.

Configuration – System > General

<u>Configuration - System</u> > <u>General</u>					
Device Identity					
▶ Date and Time					
▼ General					
Autorun Commands					
You can configure some commands that will automatically run when the unit has booted up. (You may specify up to 11 commands)					
Command					
No commands have been configured					
python setup.py Add					

Type "**python setup.py**" and click the **Add** button. This will allow the router to run this command automatically at boot.

Click **Apply** at the bottom of the page.

Apply

Administration – Save Configuration

Administration - Save configuration
Save current configuration to Config 0 (power up) V Save
Save all configuration. This includes the following Save the current configuration to config 0 Save the current firewall Save all sregisters on all ports to profile 0 Save all PAD parameters on all PADs to profile 0
Save All

Click Save

3.3.2 Transfer the setup.py file via FTP to the router

🔁 username@192.168.1.23 - FileZilla						
Elle Edit View Iransfer Server Bookmarks Help New version available!						
Host: 192.168.1.23 Username: username Password: •••••• Port: 21 Quickconnect -						
Response: 226 File sent OK	2					
Status: Directory listing successful Status: Sending keen-alive command						
Command: NOOP		=				
Kesponse: 200 OK		-				
Local site: C:\Test\	▼ Remote site: /	•				
🖶 🔔 Temps	▲ 🖽 🚶 /					
Test	=					
	v					
Filename Filesize Filetype Last modified	Filename	Filesize Filetype Last modifi				
<u> </u>	🦺 u					
Setup.py 3,020 Python File 6/8/2015 1:55:	. 🔔 user	File folder 2/1/2015 1:				
	activate.sb	33,685 SB File 5/21/2014				
	ana.txt	1,000,000 Text Doc 6/8/2015 1.				
	anaeth.cap	1,000,000 Wireshar 0/0/2015 1.				
	An analysed	1000,000 Winching 0,00,2015 1				
		•				
Selected 1 file. Total size: 3,020 bytes	b4 files and 1 directory. Total size: 31,3/1,118 bytes					
Server/Local file Direc Remote file Size Priority Status						
Queued files Failed transfers Successful transfers						
		🐒 📆 Queue: empty 🔹 🔹				

Open an FTP connection to the TransPort router that you wish to update. In this example, using FileZilla.

Parameter	Setting	Description
Host	192.168.1.23	IP Address of the TransPort router
Username	username	Username with Access Level : Super to log in to the TransPort router (default : username)
Password	password	Password for the user with Access Level : Super to log in to the TransPort router (default : password)
Port	21	Default FTP port.
setup.py	-	Python file

Transfer the file to the root directory of the TransPort.

3.3.3 Create image file with FlashWriter

Make sure the router and the computer are connected on a switch.

Open FlashWriter and select "ETH" as the Communications port number/interface



Click on Advanced and select "Extract an ALL fril from a Digi TransPort"

🔯 Digi Transport FlashWriter (v1.0.484)	_ • ×
Advanced Audit	
Start F10 Mode Set remote TFTP IP address Set TFTF block timeout Set Event TFTP block size Check Serial Extract an ALL file from a Digi Tranport Get traces	Eth
	Load

Enter the serial number of the router and click **OK**

Enter serial number	
Enter the serial number of the router	ОК
	Cancel
123456	

Chose a location where to save the all file and chose a file name.

Enter the location of the	all file.					×
C:\image				✓ Sear	ch image	Q
Organize New fol	der				-	0
쑦 Favorites	Name	A	Date modified	Туре	Size	
📕 Desktop		No items	match your search.			
	•		111			
File <u>n</u> ame: wr2	21					•
Save as type: All	file (.all)					•
lide Folders				Save	Cance	:

Please Note: The file name must be in the 8.3 format such as wr21.all

FlashWriter will now create the image. Wait for the process to finish (it can take several minutes)

🝻 Digi Transport FlashWriter (v1.0.484)				
Advanced Audit				
Communications port number/Interface	Eth			
Configure only (do not re-load firmware):				
Use event driven mode				
Use Xmodem 1K				
Use TFTP				
	Load			
Waiting for unit to send file. IMPORTANT: It is normal for this to take a LONG time. The router is busy degfragging part of the flash do not power it off.				

An "Extract complete" message should appear when the process is finished.

FlashWrite	r 🔀
i	TFTP extract complete: C:\image\wr21.all
	ОК

The file is now ready.

4 CREATE USB FLASH DRIVE

4.1 Prepare USB Flash drive with site specific settings

4.1.1 Prepare a CSV file that contains site specific settings

Prepare a CSV file in the following format that will contain the command line commands to program in the router for a specific serial number.

<u>Please Note:</u> The serial number used in the CSV file can be found on the sticker under the router or in the web interface.

Please refer to the Digi TransPort User Guide found on the Digi Support Web site: <u>http://www.digi.com/support/</u> for the corresponding command line interface commands used in the Web Interface.

The heading should be "**serial**" followed by the command. For example below, the "Ethernet 0 IP Address", "Ethernet 0 subnet Mask" and the "IPSec ID for Tunnel 0"

The first column of each row defines the serial number of the router; the next columns contain site-specific parameters

```
serial,eth 0 ipaddr,eth 0 mask,eroute 0 ourid
123456,192.168.50.8,255.255.0.0,Site A
265831,192.168.50.9,255.255.255.240,Site B
201307,192.168.50.10,255.255.255.0,Site C
```

```
serial,eth 0 ipaddr,eth 0 mask,eroute 0 ourid
123456,192.168.50.8,255.255.0.0,Site A
265831,192.168.50.9,255.255.255.240,Site B
201307,192.168.50.10,255.255.255.0,Site C
```

Viewing params.csv in notepad++

	А	В	С	D
1	serial	eth 0 ipaddr	eth 0 mask	eroute 0 ourid
2	123456	192.168.50.8	255.255.0.0	Site A
3	265831	192.168.50.9	255.255.255.240	Site B
4	201307	192.168.50.10	255.255.255.0	Site C

Viewing params.csv in Excel

- Serial number of the routers
- CLI commands
- Parameters values

4.1.2 Create an autoexec.bat file

Prepare a text file called "**autoexec.bat**" with the following content:

```
ERROR_EXIT
copy u:WR21.all all.all
scanr
reboot
```

Where WR21.all is the file name used when saving with FlashWriter in the previous section

It should look like this:

autoexec.bat - Notepad		×
<u>F</u> ile <u>E</u> dit F <u>o</u> rmat <u>V</u> iew <u>H</u> elp		
ERROR_EXIT copy u:WR21.all all.all scanr reboot		*
		-
<		•
	Ln 1, Col 1	at

4.1.3 Prepare the USB Flash Drive.

It is recommended to start with a FAT32 formatted device.

Copy the following files on the USB device:

params.csv wr21.all autoexec.bat

The root directory of the USB device should look like this:



The USB Flash Drive is now ready for use.

5 TESTING

The complete process should take approximately 1-2 minutes.

Insert the USB Flash drive into the WR21.



The 3 signal LEDs will flash. This indicates that autoexec.bat is running

If the process was successful, the router will reboot

After reboot, the python program will now be executed and apply the corresponding site-specific parameters.

If successful, all the LEDs will flash except the power LED which will stay solid.



The USB flash drive can now be safely removed.