Quick Note 049

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

Digi Technical Support
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Contents

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.

Please note: If site specific settings are not required, please check QN48.

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 tech.support@digi.com 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: tech.support@digi.com
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: http://ftp1.digi.com/support/firmware/FlashWriter.msi

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

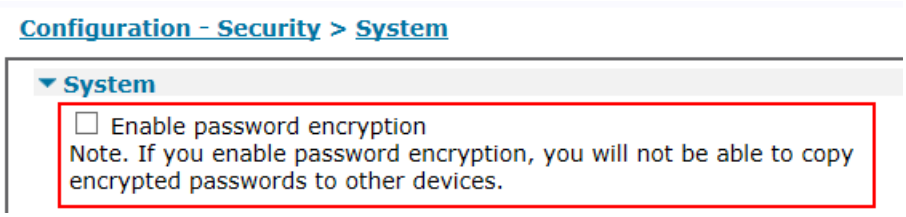
3.3 Prepare router and create image file with site specific settings

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 devices running firmware 5.2.9x and older: If "Enable password encryption" is used under Configuration – Security > System it is necessary to uncheck this option, delete pwds.dat and re-create the password on the device before proceeding.



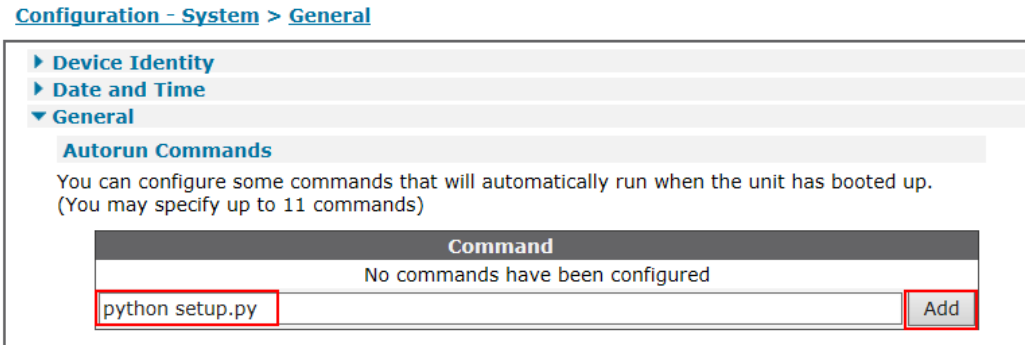
Please Note: This process will only allow a similar router to be flashed (same model, same cellular module) and should not be used on different hardware units.

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

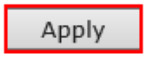
Uncheck "**Allow autoexec.bat files to run from the Mass Storage Devices**". This will prevent the unit from running autoexec.bat from the USB flash drive after a reboot. If further flashing of this unit is required, this option will need to be turned back on.

Configuration – System > General

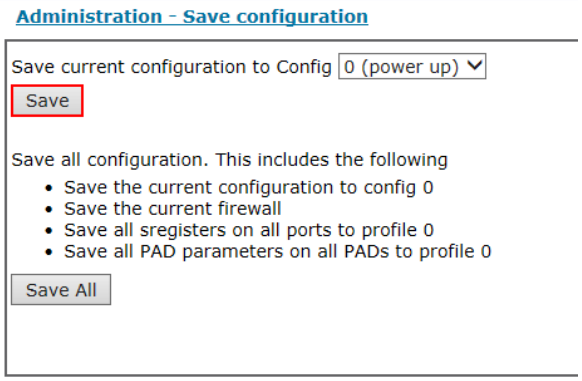


Type "**python setup.py**" and click the **Add** button. This will allow the router to run this command automatically at boot.

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

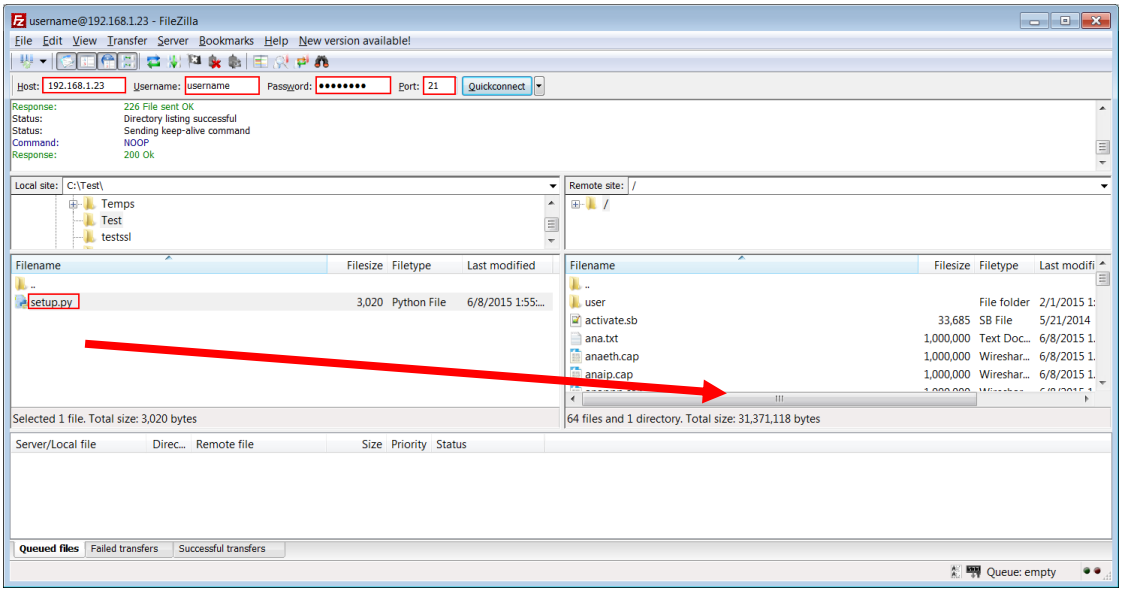


Administration – Save Configuration



Click **Save**

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



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

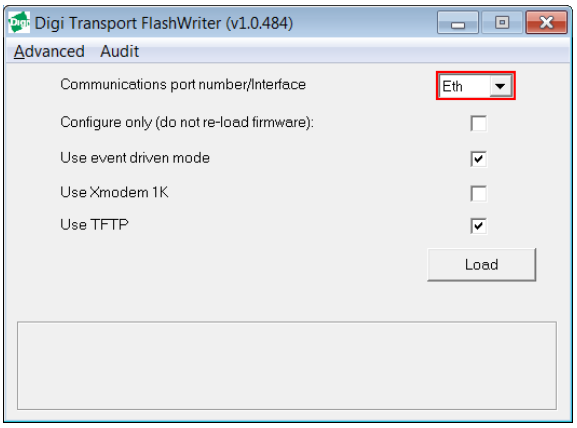
Parameter	Setting	Description
Host	192.168.1.23	IP Address of the TransPort router
Username	username	Username with Access Level : Super to log in to the TransPort router (default : username)
Password	password	Password for the user with Access Level : Super to log in to the TransPort router (default :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

Transfer the file to the root directory of the TransPort.

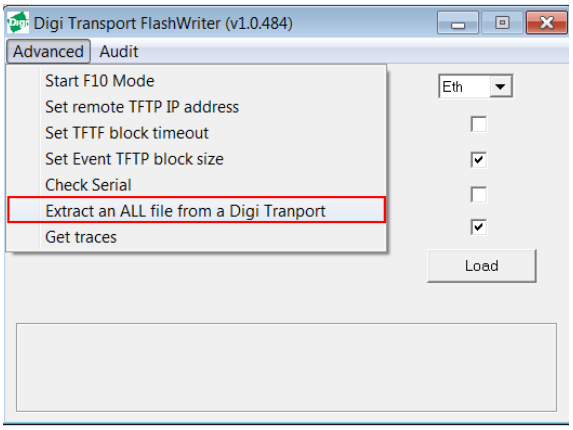
3.3.3 Create image file with FlashWriter

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

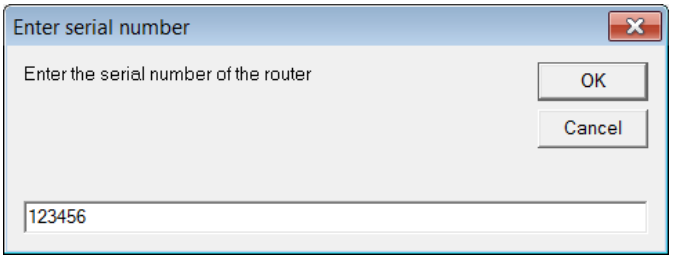
Open FlashWriter and select "**ETH**" as the Communications port number/interface



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

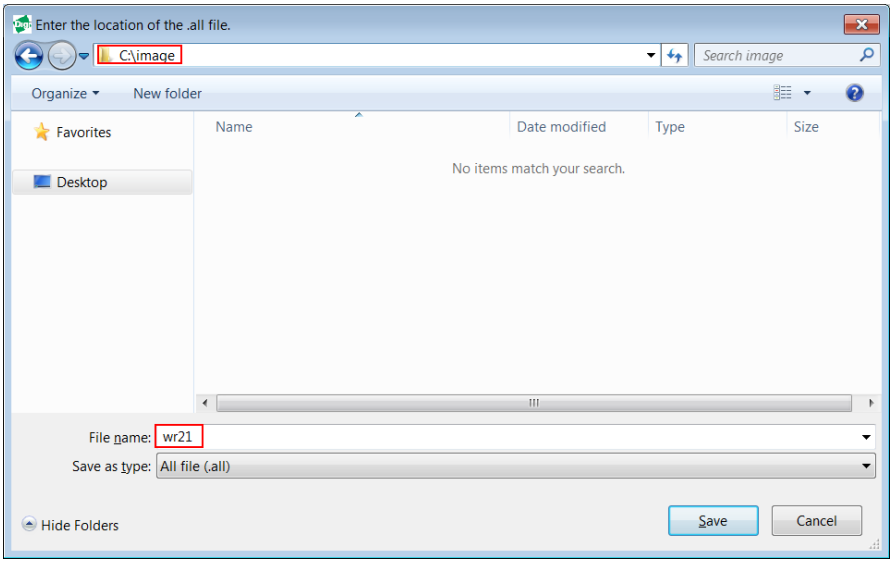


Enter the serial number of the router and click **OK**

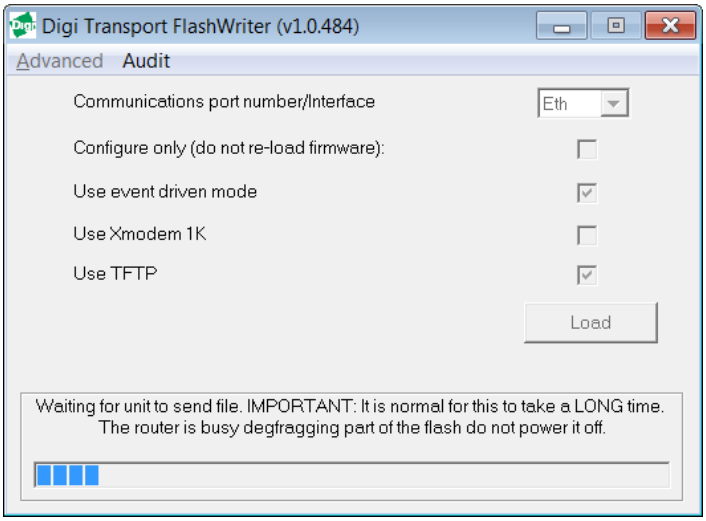


Chose a location where to save the all file and chose a file name.

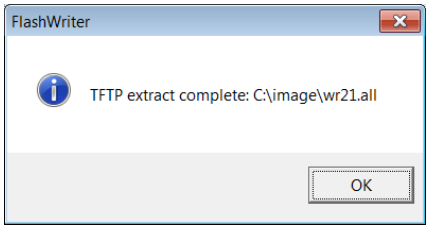
Please Note: The file name must be in the 8.3 format such as wr21.all



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



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



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.

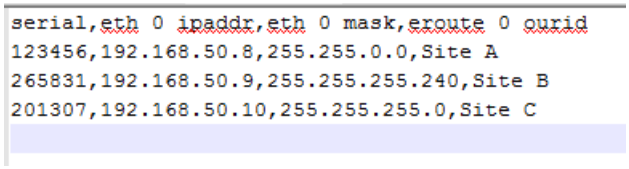
Please Note: The serial number used in the CSV file can be found on the sticker under the router or in the web interface.

Please refer to the Digi TransPort User Guide found on the Digi Support Web site: http://www.digi.com/support/ 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
```



Viewing params.csv in notepad++

	A	B	C	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

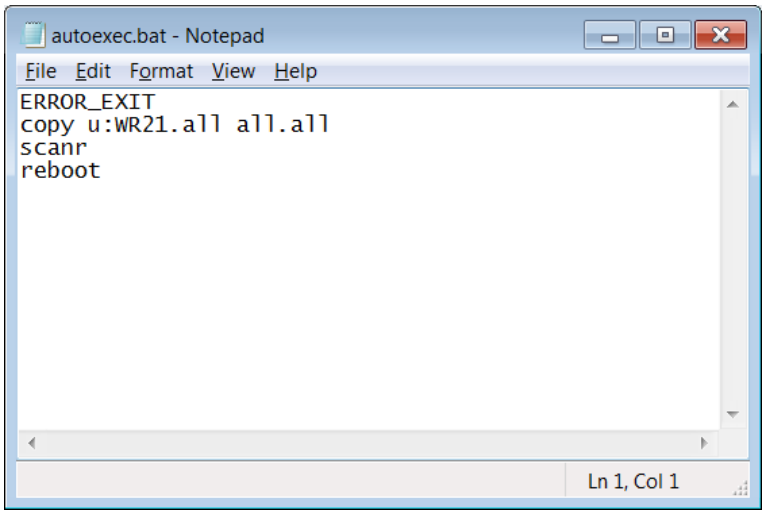
4.1.2 Create an autoexec.bat file

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:



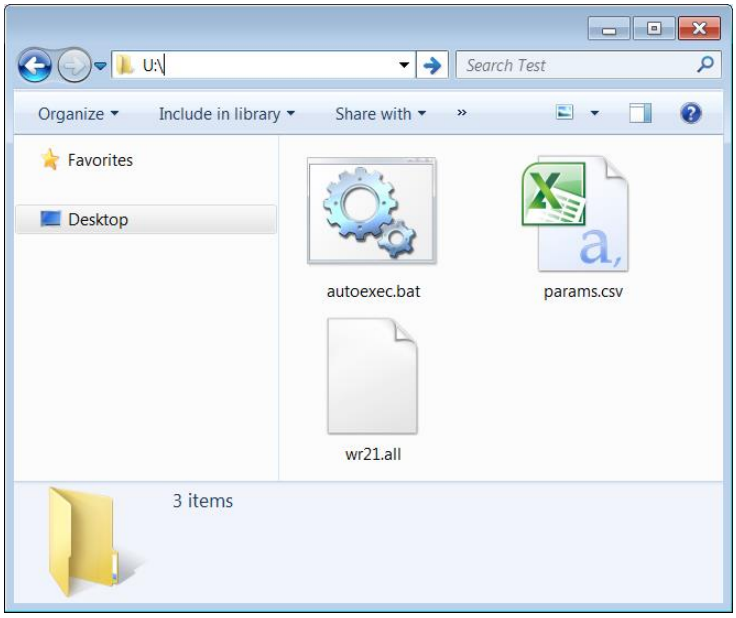
4.1.3 Prepare the USB Flash Drive.

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.