Quick Note 56

Configure a Digi TransPort Router to update its position and time using a USB GPS module.

Digi Technical Support

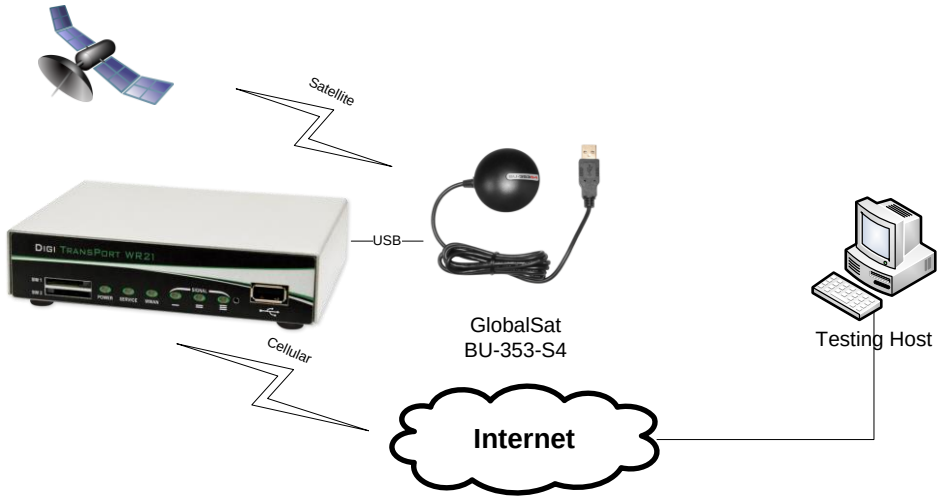
10 February 2016

Contents

1 INTRODUCTION

1.1 Outline

This document will describe how to use and configure a USB GPS module from GlobalSat (BU-353-S4) connected to a Digi TransPort router to update the date and time and send the router's position.



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 and configure it with basic routing functions

This application note applies to:

Model: DIGI TransPort WR11/21/41/44

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 but will work on earlier versions of firmware. Please contact tech.support@digi.com if your require assistance in upgrading the firmware of the 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

3 DIGI CONFIGURATION

3.1 Configure GPS USB module

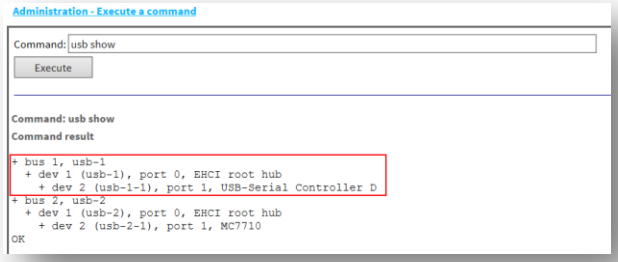
3.1.1 Verify GPS module is seen on USB bus

Once the GPS device is physically connected to the USB port of the router, check that it is actually seen on the USB bus. This is done via CLI (Command Line Interface)

Administration – Execute a command

```
usb show
```

If correctly connected the following should be seen:

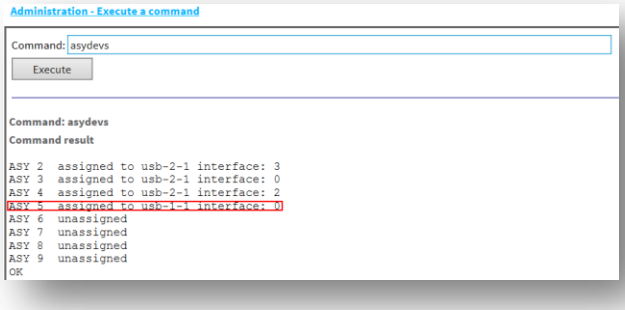


3.1.2 Verify the ASY port assigned to the GPS module

Administration – Execute a command

```
asydevs
```

The ASY port number will be used to indicate the Digi TransPort on which serial port the GPS is connected and is sending data. The list of assigned ASY ports should be displayed. As seen previously, the GPS module is on USB-1-1. Search for the corresponding ASY port in the command result:



In this example, the GPS module has **ASY 5** assigned.

3.1.3 Configure the router to use the GPS module

It is now required to tell the system that the GPS module is available on **ASY 5*** in order to allow the Position configuration and/or the Time and Date update. To do that, issue the following command:

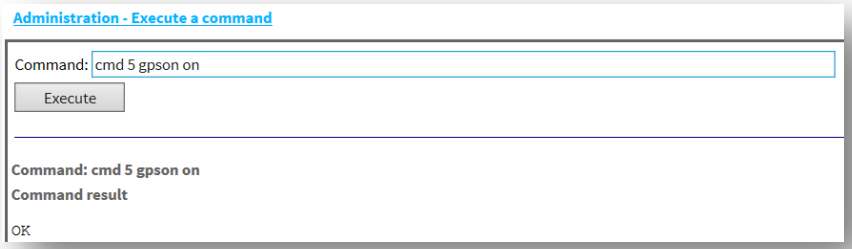
```
gps 0 asy_add 5
```

Please make sure to configure the proper ASY port number as shown previously.

3.1.4 Configure the router's command interpreter to ignore GPS data

By default the Digi TransPort will try to interpret any data coming from a serial port as a CLI command. To prevent error messages related to this, it is required to tell this particular command interpreter instance that it is connected to a GPS receiver so that commands received by that instance should be ignored, rather than being treated as invalid commands, in this example ASY 5. To do that, issue the following command:

```
cmd 5 gpson on
```

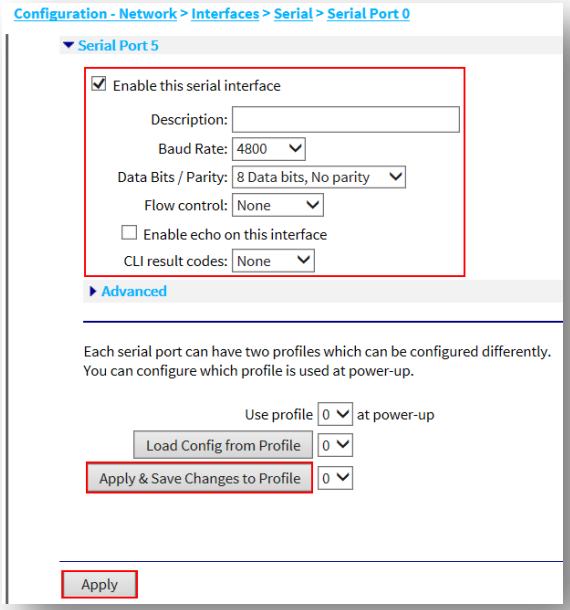


3.1.5 Configure the serial port settings

It is necessary to configure the TransPort serial settings corresponding to the GPS module connected. By default the GlobalSat device is set to **4800 bauds, 8 Data Bits, No parity, No Flow control.**

To set these settings navigate to the corresponding serial port (in this example **Serial Port 5**) configuration page.

Configuration – Network > Interfaces > Serial > Serial Port 5



Parameter	Setting	Description
Enable this serial interface	Checked	Turn this serial interface on
Description	Blank	This is a description field.
Baud Rate	4800	Baud rate of the GPS module
Data Bits/Parity	8 Data bits, No parity	GPS module data format for the interface
Flow control	None	GPS module uses no flow control
Enable echo on this interface	Unchecked	Do not echo input on this interface
CLI result codes	None	Select the required level of verbosity for command result codes. none

Click **Apply & Save Changes to Profile**

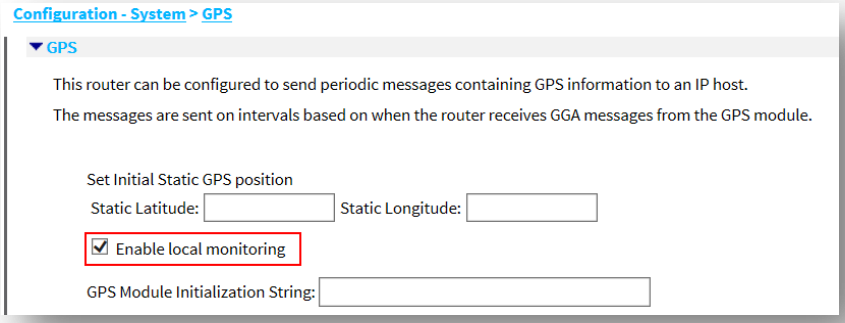
Click **Apply.**

4 CONFIGURE GPS POSITION

4.1 Configure GPS monitoring

Configuration – Position > GPS

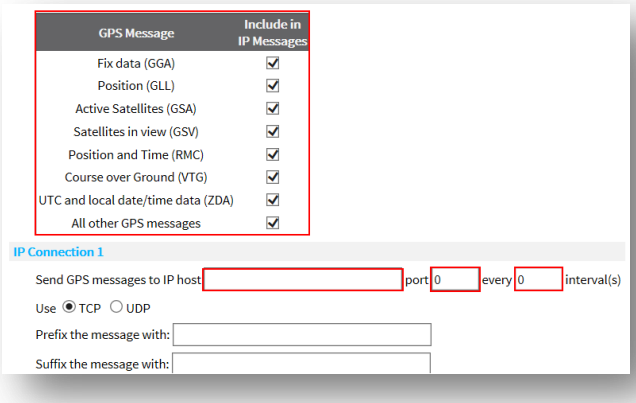
Check the "**Enable local monitoring**" box. This will allow messages from the GPS module to be viewed on the **Management – Position > GPS** status page.



Click **Apply** then Save and make sure to select **Save All** this will save the serial settings configuration for the serial port.

4.2 Optional: Configure GPS messages and IP Connection

It is possible to configure the Digi TransPort to send all GPS messages to a host machine (via either TCP or UDP) by specifying an IP address, port number and how often to send these messages. It is also possible to select which part of the GPS message to be sent (all by default).

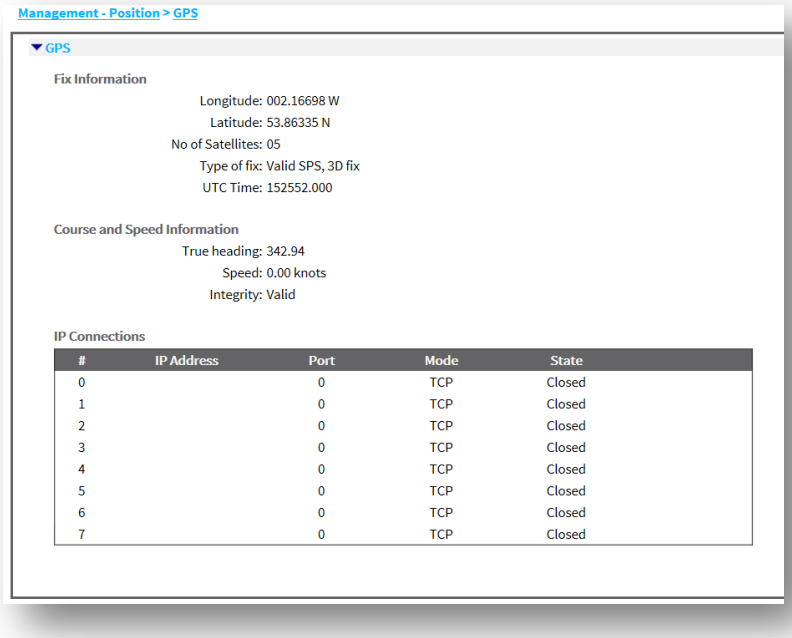


Parameter	Setting	Description
Send GPS messages to IP host:	x.x.x.x	IP address of the TCP or UDP host that the GPS data should be sent to
Port	xx	Required TCP/UDP port number that the GPS data should be sent to
Interval(s)	x	Specify a number that defines how often the GPS data is transmitted to the specified host. A value of 1 will cause collected GPS data to be transmitted each time a UTC and local date/time data (ZDA) message is received from the GPS receiver module. A value of 2 will cause every second message to be sent and so on. For this feature to work over a TCP/IP connection, the ZDA message must be enabled

4.3 Verify GPS position

Management – Position > GPS

Once local monitoring is enabled, Position information should now be displayed in this section like below:



5 CONFIGURE GPS AS A TIME SOURCE

It is possible to use the GPS module to update the date and time of the device. To do so, the device will act as an SNTP server allowing it to provide date and time update to itself but other devices on the network.

5.1 Enable SNTP Server

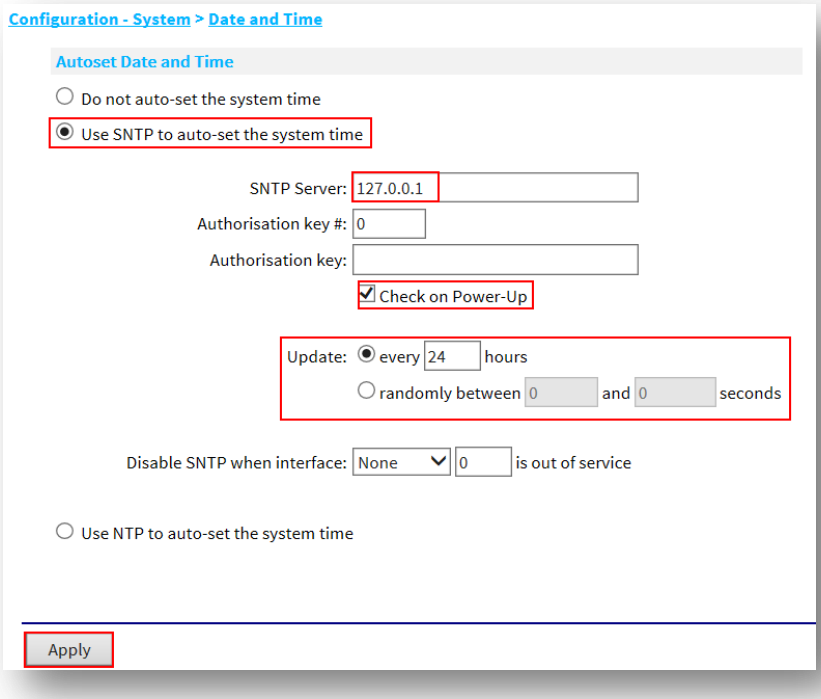
Configuration – Network > Network Services

Check the box **Enable Simple Network Time Server (SNTP)** and select **GPS** as the source.

5.2 Configure the device to use the SNTP server

Configuration – System > Date and Time

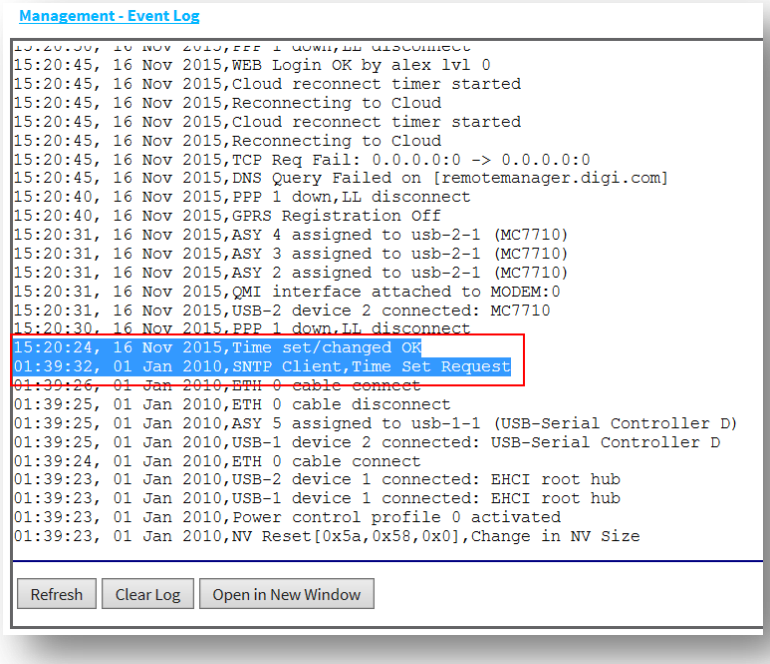
Configure the Digi TransPort to use its own SNTP server to set the system time.



Parameter	Setting	Description
Use SNTP to auto-set the system time	Checked	Chose SNTP as the mechanism to auto-set the system time
SNTP Server	127.0.0.1	Hostname or IP address of the desired SNTP server. In this case it must be the localhost (loopback) address
Check on Power-Up	Checked	The router will connect to the SNTP server and update/set the time every time it boots
Update	Every 24 hours	Enter the interval in hours that the router should wait between updating the system clock

Click **Apply** then **Save** and **Save All** (or just **Save** if you have previously saved all)

Reboot the device and verify that the system has it's time and date updated. This can also be seen in the event log like below:



6 CONFIGURATION FILE

This configuration was done on a Digi TransPort WR21 running firmware version **5.2.13.2**

```
eth 0 IPaddr "192.168.1.21"
eth 0 mask "255.255.255.0"
eth 0 gateway "192.168.1.1"
addp 0 enable ON
lapb 0 ans OFF
lapb 0 tinact 120
lapb 1 tinact 120
lapb 3 dtemode 0
lapb 4 dtemode 0
lapb 5 dtemode 0
lapb 6 dtemode 0
gps 0 asy_add 5
gps 0 gpson ON
ip 0 cidr ON
def_route 0 ll_ent "eth"
dhcp 0 IPmin "192.168.1.100"
dhcp 0 respdelms 500
dhcp 0 mask "255.255.255.0"
dhcp 0 gateway "192.168.1.1"
dhcp 0 DNS "192.168.1.1"
sntp 0 server "127.0.0.1"
sntp 0 randintsecs [0,10]
sntp 0 srvr_mode ON
sntp 0 time_src 1
ppp 0 timeout 300
ppp 1 name "W-WAN"
ppp 1 phonenum "*98*3#"
ppp 1 username "username"
ppp 1 epassword "KD5lSVJDVVg="
ppp 1 IPaddr "0.0.0.0"
ppp 1 timeout 0
ppp 1 use_modem 1
ppp 1 aodion 1
ppp 1 autoassert 1
ppp 1 r_chap OFF
ppp 3 defpak 16
ppp 4 defpak 16
web 0 prelogin_info ON
ftpcli 0 hostname "ftp1.digi.com"
ftpcli 0 directory "support/firmware/transport/MC7354_carrier_firmware"
modemcc 0 info_asy_add 4
modemcc 0 apn "apn"
modemcc 0 link_retries 30
modemcc 0 stat_retries 30
modemcc 0 sms_interval 1
modemcc 0 sms_access 1
modemcc 0 sms_concat 0
modemcc 0 apn_2 "none"
modemcc 0 link_retries_2 30
```

```
modemcc 0 stat_retries_2 30
modemcc 0 sms_interval_2 1
modemcc 0 sms_access_2 1
modemcc 0 sms_concat_2 0
ana 0 l1on ON
ana 0 lapdon 0
ana 0 asyon 1
ana 0 logsize 45
cmd 0 unitid "ss%s>"
cmd 0 cmdnua "99"
cmd 0 hostname "digi.router"
cmd 0 anonftp ON
cmd 0 tremto 1200
cmd 0 rcihttp ON
cmd 5 gpson ON
user 0 access 0
user 1 name "username"
user 1 epassword "KD5lSVJDVVg="
user 1 access 0
user 2 access 0
user 3 access 0
user 4 access 0
user 5 access 0
user 6 access 0
user 7 access 0
user 8 access 0
user 9 access 0
local 0 transaccess 2
sslsvr 0 certfile "cert01.pem"
sslsvr 0 keyfile "privrsa.pem"
ssh 0 hostkey1 "privSSH.pem"
ssh 0 nb_listen 5
ssh 0 v1 OFF
cloud 0 clientconn ON
cloud 0 ssl ON
```