Application Note 55

Hotspot feature for Wi-Fi clients on Digi TransPort.

Digi Support
November 2015
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1 INTRODUCTION

1.1 Outline

This document describes how to configure a Digi TransPort as a Wi-Fi Hotspot Access Point to provide Wi-Fi clients with Internet access through Cellular.

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 WR41/44 with the Wi-Fi option.
- **Firmware versions:** 5169 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 5169 and later and will not work on earlier versions of firmware. Please contact tech.support@digi.com if you 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

<table>
<thead>
<tr>
<th>Version Number</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Published</td>
</tr>
</tbody>
</table>
3 CONFIGURATION

3.1 Mobile Interface Configuration

Configuration – Network > Interfaces > Mobile > Mobile Settings

Configure the Mobile settings for the SIM card to provide cellular connection to the Digi TransPort and allow Wi-Fi clients to have internet access through it.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIM</td>
<td>1(PPP1)</td>
<td>SIM card slot where the SIM card is inserted</td>
</tr>
<tr>
<td>APN</td>
<td>Internet</td>
<td>APN associated with the SIM card</td>
</tr>
<tr>
<td>SIM PIN</td>
<td>****</td>
<td>SIM PIN if there is one configured, else, leave blank.</td>
</tr>
<tr>
<td>Confirm SIM PIN</td>
<td>****</td>
<td>Confirm the SIM PIN if there is one configured, else, leave blank.</td>
</tr>
<tr>
<td>Username</td>
<td>User</td>
<td>Username for the configured APN. If not required, leave blank.</td>
</tr>
<tr>
<td>Password</td>
<td>****</td>
<td>Password for configured APN username. If not required, leave blank.</td>
</tr>
<tr>
<td>Confirm Password</td>
<td>****</td>
<td>Confirm password for configured APN username. If not required, leave blank.</td>
</tr>
<tr>
<td>Enable NAT on this Interface</td>
<td>Checked</td>
<td>Enable NAT on the PPP1 interface (IP Address is sufficient for most configuration)</td>
</tr>
</tbody>
</table>

Click **Apply** and **Save** to save the settings.

### 3.2 Ethernet Interface Configuration

#### 3.2.1 ETH 0 Configuration

**Configuration – Network > Interfaces > Ethernet > ETH 0**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>192.168.1.1</td>
<td>IP Address of the Router's ETH 0 interface</td>
</tr>
<tr>
<td>Mask</td>
<td>255.255.255.0</td>
<td>Subnet Mask of the Router's ETH 0 interface</td>
</tr>
</tbody>
</table>
3.2.2 ETH 12 Logical Interface Configuration

Logical Interface Ethernet 12 will be used for Wi-Fi clients.

**Configuration – Network > Interfaces > Ethernet > ETH 12**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>10.10.10.1</td>
<td>IP Address of the Router’s ETH 12 logical interface</td>
</tr>
<tr>
<td>Mask</td>
<td>255.255.255.0</td>
<td>Subnet Mask of the Router’s ETH 12 logical interface</td>
</tr>
</tbody>
</table>

**Configuration – Network > Interfaces > Ethernet > ETH 12 > Advanced**

Configure the port to **Port Isolate mode**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch to Port Isolate mode</td>
<td>Click</td>
<td>In Port Isolate mode the router will only respond to its Ethernet IP address on physical port. This port will be bridged to the Wi-Fi instance.</td>
</tr>
</tbody>
</table>
Click **Apply** and **Save** to save the settings.

**You must reboot for this change to take effect**
3.3 DHCP “Wi-Fi Only” Configuration for ETH 12

In this example, the Digi TransPort router will have a dedicated DHCP server for Wi-Fi clients only.

Configuration – Network > DHCP Server > Logical Ethernet Interfaces > DHCP Server for Ethernet 12
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable DHCP Server</td>
<td>Checked</td>
<td>Enable DHCP Server for this interface</td>
</tr>
<tr>
<td>IP Addresses</td>
<td>10.10.10.100 – 10.10.10.200</td>
<td>Start and End of DHCP Range</td>
</tr>
<tr>
<td>Mask</td>
<td>255.255.255.0</td>
<td>DHCP Server Subnet mask for this interface. This must match the settings of Ethernet 12</td>
</tr>
<tr>
<td>Gateway</td>
<td>10.10.10.1</td>
<td>Gateway address. This must match ETH 12 address</td>
</tr>
<tr>
<td>DNS Server</td>
<td>10.10.10.1</td>
<td>Primary DNS Server, by default the TransPort will act as a DNS Server. This must match ETH 12 Address.</td>
</tr>
<tr>
<td>Secondary DNS Server</td>
<td>8.8.8.8</td>
<td>Set a Secondary DNS Server if required (in this example, Google's public DNS Server)</td>
</tr>
<tr>
<td>Domain Name</td>
<td>*</td>
<td>Set the domain name to be used by the Wi-Fi clients.</td>
</tr>
<tr>
<td>Only send offers to Wi-Fi clients</td>
<td>Checked</td>
<td>Select this option to only send DHCP offers on this interface to Wi-Fi clients.</td>
</tr>
</tbody>
</table>

### 3.4 Wi-Fi Interface Configuration

#### 3.4.1 Wi-Fi Global Settings Configuration

Configuration – Network > Interfaces > Wi-Fi > Global Wi-Fi Settings
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>&lt;Chose&gt;</td>
<td>Select the Country where the device is used</td>
</tr>
<tr>
<td>Remote management access</td>
<td>Disable management</td>
<td>Do not allow Wi-Fi clients to log into the device and manage it</td>
</tr>
<tr>
<td>Network Mode</td>
<td>B/G/N</td>
<td>Chose which network mode to use</td>
</tr>
<tr>
<td>Channel</td>
<td>Auto</td>
<td>Let the router chose the best channel to use</td>
</tr>
<tr>
<td>Antenna</td>
<td>Auto</td>
<td>Use both Antennas for Wi-Fi</td>
</tr>
</tbody>
</table>

### 3.4.2 Wi-Fi Node 0 Configuration

Configuration – Network > Interfaces > Wi-Fi > Wi-Fi Node 0
### Wi-Fi Hotspot Configuration

**Parameter** | **Setting** | **Description**
--- | --- | ---
Enable this Wi-Fi interface | Checked | Enable Wi-Fi Node 0 interface
Description | TransPort Hotspot | Enter a description for this interface
SSID | Hotspot | SSID used for the hotspot and for clients to connect
Mode | Access Point | Wi-Fi mode for this interface
This Wi-Fi interface is a member of Bridge instance | 1 | Select the Bridge Instance 1 which contains Ethernet 12
Interface | Ethernet 12 | Bridge this Wi-Fi interface with Ethernet 12
Enable station isolation | Checked | Station isolation will prevent Wi-Fi clients connected on the hotspot to communicate and be isolated.
Wi-Fi Security | None | Open SSID with No Security (for testing purposes, we recommend using security such as WPA2 or Radius)

Click **Apply** and **Save** to save the settings.

### 3.4.3 Wi-Fi Hotspot Configuration

**Configuration – Network > Interfaces > Wi-Fi > Global Wi-Fi Settings > Wi-Fi Hotspot**
Wi-Fi Hotspot

Enable Wi-Fi Hotspot on

- Wi-Fi Node 0: Disabled
- Wi-Fi Node 1: Disabled
- Wi-Fi Node 2: Disabled
- Wi-Fi Node 3: Disabled

- HTTP Redirect Mode
- DNS Redirect Mode

Splashscreen filename: Default

Each client can connect for: 1 hrs 0 mins

Require Wi-Fi Client Authentication

You can configure up to 4 hotspot exceptions

<table>
<thead>
<tr>
<th>Hostname</th>
<th>Delete</th>
<th>Add</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.dig.com">www.dig.com</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Wi-Fi Filtering

Apply
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable Wi-Fi Hotspot on Wi-Fi Node 0</td>
<td>DNS Redirect Mode</td>
<td><strong>DNS Redirect Mode</strong> will result in the Transport intercepting any DNS queries and return its own address instead of the real address. <strong>HTTP Redirect Mode</strong> will authorise DNS queries to external server but web requests will be redirected to the router hotspot page prior to allow general network access</td>
</tr>
<tr>
<td>Splashscreen filename</td>
<td>Default (hotspot.asp)</td>
<td>Splashscreen web page file name to be used when clients connects the first time</td>
</tr>
<tr>
<td>Each client can connect for</td>
<td>1 hrs</td>
<td>Time to allow clients to connect to before forcing a reconnection</td>
</tr>
<tr>
<td>Hostname</td>
<td><a href="http://www.digi.com">www.digi.com</a></td>
<td>Optional: Allow domains exceptions (up to 4) that you wish to provide unrestricted access to (Clients connected and visiting this domain will not be required to accept the terms or authenticate on the hotspot splash screen page)</td>
</tr>
</tbody>
</table>

Click **Apply** and **Save** to save the settings.
4 TESTING

4.1 Connecting to the Hotspot from a Computer

Under Windows 7/8, Click on the Wi-Fi icon in the task bar

This should bring the Wireless network Connection menu. The “Hotspot” SSID should appear with “No Security”. Select it and click Connect to connect to the Hotspot.
Opening a web browser to one of the Hotspot’s exceptions will display the page directly (like http://www.digi.com in our example)

However, opening a web browser to any other domain will prompt the user to accept terms and conditions from the standard hotspot.asp page. This page can be customized or replaced by another page of your choosing and selected like show in section 3.4.3
Upon clicking on **Accept**, the web page will redirect to the right site.

### 4.2 Checking Wi-Fi connection status

#### 4.2.1 Web GUI

You can check the number of connected clients and their status on the Wi-Fi management page.

**Management – Network Status > Interfaces > Wi-Fi**
You can also check the DHCP status for clients under the DHCP Status page.
### 4.2.2 Command Line (CLI)

The command `wificonn` will display all the Wi-Fi clients connected and their status.

```plaintext
Number of connected clients: 1
Number of client mode connections: 0

1 Node 8c:70:8c:70:8c:70
   Wi-Fi node : 0
   RSSI       : 42
   Flags      : ERP
   Power Save : Awake
   Mode       : N
   Neg. Rates : 6.5 13.0 19.5 26.0 39.0 52.0 58.5 65.0 13.0 26.0 39.0 52.0 78.0
104.0 117.0 130.0 Mbps
   TX Rate    : 117.0 Mbps
   RX Rate    : 130.0 Mbps
   Cap. Info  : ESS Short_Preamble Short_Slottime
   HT Cap.    : GREENFIELD SHORTGI20 RXSTBC(1) AMSDU(7935)
   Channel    : 1
OK

The command `dhcp 12 status` will display the DHCP Server status of Interface ETH 12.

```plaintext
Entry: IP [192.168.1.100], hostname [], MAC [00:10:49:31:27:a8], expiry 19282 (mins)
Entry: IP [192.168.1.101], hostname [], MAC [00:40:9d:4a:1d:4c], expiry 19446 (mins)
Entry: IP [10.10.10.100], hostname [DOR], MAC [8c:70:8c:70:8c:70], expiry 20143 (mins)
OK
```
### Digi TransPort WR44v2

```ini
wifi 0 country "France"
wifi 0 chanmode "bgn"
wifi 0 hotspot_lifetime 60
wifinode  0 descr "TransPort Hotspot"
wifinode  0 ssid "Hotspot"
wifinode  0 hotspot 2
wifinode  0 isolation ON
wifinode  0 bridge_inst 1
  eth 0 IPaddr "192.168.1.44"
  eth 0 gateway "192.168.1.1"
eth 12 IPaddr "10.10.10.1"
eth 12 bridge ON
eth 12 bridge_inst 1
  addp 0 enable ON
  lapb 0 ans OFF
  lapb 1  tinact 120
  lapb 3  tinact 120
  lapb 5  tinact 120
  lapb 6  tinact 120
  gps 0 asy_add 1
  gps 0 gpson ON
  ip 0 cidr ON
  def_route 0 ll_ent "ppp"
def_route 0 ll_add 1
hshosts 0 host "www.digi.com"
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"
dhcp 12 IPmin "10.10.10.100"
dhcp 12 IPrange 101
dhcp 12 wifionly ON
dhcp 12 mask "255.255.255.0"
dhcp 12 gateway "10.10.10.1"
dhcp 12 DNS "10.10.10.1"
dhcp 12 DNS2 "8.8.8.8"
dhcp 12 domain "wifi.digi.com"
ppp 0 timeout 300
  name "W-WAN"
  phonenumber "*98*5#"
  username "orange"
  epassword "Ny13VEJJ"
  IPaddr "0.0.0.0"
  timeout 0
  do_nat 2
  use_modem 1
  aodion 1
  autoassert 1
  ipanon ON
  r_ad  dr OFF
  r_chap OFF
  name "DSL"
  11iface "AAL"
  username "Enter ADSL Username"
  r_addr OFF
```
ppp 3 IPaddr "0.0.0.0"
ppp 3 l_addr ON
ppp 3 timeout 0
ppp 3 do_nat 2
ppp 3 aodion 1
ppp 3 autoassert 1
ppp 3 immos ON
ppp 3 echo 10
ppp 3 echodropcnt 5
ppp 3 l_pap OFF
ppp 3 l_chap OFF
ppp 3 defpak 16
ppp 4 defpak 16
modemcc 0 info_asy_add 7
modemcc 0 apn "internet"
modemcc 0 epin "aG8mCg=="
modemcc 0 link_retries 10
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 10
modemcc 0 stat_retries_2 30
modemcc 0 sms_interval_2 1
modemcc 0 sms_access_2 1
ana 0 anon ON
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 asyled_mode 2
cmd 0 tremto 1200
cmd 0 rcihttp ON
cmd 1 autocmd "ats31=7"
cmd 1 gpson ON
cmd 4 cmd_processor OFF
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 ssl ON

Power Up Profile: 0
OK
This section describes how to create your own “Splash-screen” or “disclaimer” page on Digi TransPort Wi-Fi routers, and how to add your own graphics to the page. This “Splash-screen” page is shown when Wi-Fi users first access the Internet or external websites. A timer can be set so that users must “re-authenticate” via this page when the timer expires.

Refer to the Digi TransPort User Guide and Application Notes posted on www.digi.com/support for full details.

6.1 Configure Splashpage for WI-FI Hotspot

Download the sample Hotspot.asp file. Go to Administration-File Management>WEB Directory.
Scroll down until you find the file **hotspot.asp**. Click on it and scroll up until you see the default splashpage. Right click anywhere in that image and choose 'View Source'.

A new window will pop up (either an html editor if you have one or a web browser if you don’t).
Save that file as a .asp file (example: DigiSpl.asp).

NOTE: Digi TransPort file system file names must be 12 characters or less (including the "."); typically in 8.3 format.

Reopen the .asp file either with an html editor (Notepad works fine). At about line 16 you’ll see this line: <input name="cky" value="0" type="hidden">. This needs to be changed to: <input name="cky" value="<%write(cky);%>" type="hidden">.
Save the file. You now have a working file that can be manipulated anyway you need.

You can now make changes to the file as needed; i.e. the disclaimer or any GIF or JPG images that you want to add. Keep in mind that all files need to be in the 8.3 format, so any files added must be named with 12 characters or less (example: image.gif).

### 6.2 Change the image file

**NOTE:** Graphic types `gif` and `jpg` are supported. Other file types (e.g. `png`) are NOT supported. (Exceptions for gifs and jpgs are made to allow them to be accessed from the TransPort’s Web server if the user has not logged in to the TransPort itself.)

The `hotspot.asp` file contains the line `'<td colspan="3" rowspan="1"><img alt="Digi International" src="/images/logo.gif"></td>'`. Rename `logo.gif` as needed to the filename of the new gif file you created. Also, remove `"/images"` from address since the logo.gif is stored in the main (root) flash directory (see the example below). This is the only change to hotspot.asp needed for the images to be displayed.

### 6.3 Load new splashpage and images onto the TransPort

Use FileZilla or other ftp client to copy the files onto the TransPort. Windows Explorer (not Internet Explorer) works via `ftp://192.168.1.1` (assuming the Transport’s LAN IP address is 192.168.1.1). You will be prompted to login to the TransPort (username and password). Drag and drop your new file (and the gif file(s) you’ve created) directly into the TransPort file system. They will be listed in the default (flash) directory.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host</td>
<td>192.168.1.23</td>
<td>IP Address of the TransPort router</td>
</tr>
<tr>
<td>Username</td>
<td>username</td>
<td>Username with Access Level: Super to log in to the TransPort router (default: username)</td>
</tr>
<tr>
<td>Password</td>
<td>password</td>
<td>Password for the user with Access Level: Super to log in to the TransPort router (default: password)</td>
</tr>
<tr>
<td>Port</td>
<td>21</td>
<td>Default FTP port.</td>
</tr>
<tr>
<td>DigiSpl.asp</td>
<td>-</td>
<td>Splashpage file</td>
</tr>
<tr>
<td>logo.gif</td>
<td>-</td>
<td>Image file</td>
</tr>
</tbody>
</table>

Configuration - Network > Interfaces > Wi-Fi > Global Wi-Fi Settings > Wi-Fi Hotspoy
Select the drop down window called Splashscreen filename. Drop it down and the .asp file you loaded should appear (a reboot may be necessary if the file does not appear). Click the HTTP Redirect Mode button for the appropriate Wi-Fi node on which the splash-page will appear.

Apply and Save configuration.

The Wi-Fi user should now be presented with the new page.
Bold characters are the changes made from the default hotspot.asp page.

```html
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html><head>
<meta content="0" http-equiv="Expires">
<meta content="no-cache" http-equiv="Cache-Control">
<meta content="no-cache" http-equiv="Pragma">
<link type="text/css" href="/css/global.css" rel="stylesheet">
<title>Digi TransPort Terms and Conditions</title>
</head>
<body class="BODY_CSS">
<form name="hotspot" action="/goform/hotspot" method="post">

<!--
<input type=hidden name="hotspot_url" value="http://www.digi.com">
-->
<div style="text-align: center;">
<input name="cky" value="<%write(cky);%>" type="hidden">
<div>
<table style="text-align: left; width: 100%; border=0 cellpadding=2"
cellspacing="2">
<tbody>
<tr align="center">
<td colspan="3" rowspan="1"><img alt="Digi International" src="/beer.gif"></td>
</tr>
<tr>
<td colspan="3" rowspan="1"></td>
</tr>
<tr align="center">
<td colspan="3" rowspan="1">
Welcome to our Bus! <br>
If you drink then don't drive! Get home safe with us!!
</td>
</tr>
<tr>
<td colspan="3" rowspan="1"></td>
</tr>
<tr align="center">
<td colspan="3" rowspan="1">Welcome to our Bus! <br>
If you drink then don't drive! Get home safe with us!!</td>
</tr>
<tr>
<td colspan="3" rowspan="1"></td>
</tr>
<tr style="text-align: right;">
<input name="accept" value="Accept" type="hidden">
<input name="saccept" size="20" value="I Accept" onclick="hotspot.accept.value='Accept'" type="submit">
</td>
<td></td>
<td style="text-align: left;">
<input name="sdisconnect" size="20" value="I Decline" onclick="hotspot.accept.value='Decline'" type="submit">
</td>
</tr>
</tbody>
</table>
</div>
</div>
</form>
</body></html>
```