



Digi Cellular Application Note

Configuring Digi DialServ for connection to a Modem Emulation Device Server

1. Configure Digi Connect WAN 3G with a DialServ to connect a modem enabled serial device over cellular to a server running local application.

Objective: Configure a PSTN Line replacement to allow a modem enabled serial device to communicate over IP (Cellular) to a Server running a local application with Realport.

1.1 Software Requirements

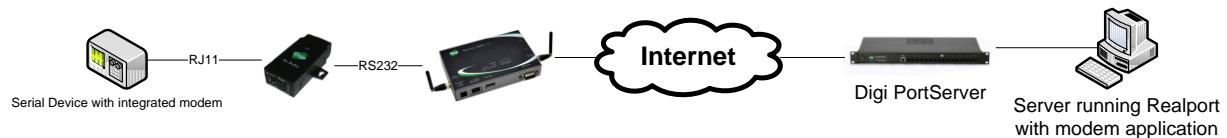
- Digi Device Discovery
- PuTTY or any Terminal application

1.2 Hardware Requirements

- Digi Connect WAN 3G
- Digi DialServ
- Digi PortServer
- Loopback cable to connect 2 PortServer's port to each others
- Serial device with Integrated modem (or computer with integrated modem)

Setup Scenario

In this scenario we will configure a PSTN Line replacement using a Digi Dial Serv to allow a modem enabled serial device to communicate over IP through a Digi Connect WAN 3G (Cellular) to a Server running a local application connected to a PortServer with Realport.





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2. 2. Step by Step instructions

2.1 Configure the Digi Connect WAN 3G

- a) Connect the serial device using an RJ11 cable from the modem port to the Digi DialServ “To Modem” port.
- b) Connect the Serial cable from the Digi DialServ to the Digi Connect WAN 3G serial port and the network cable from the Digi Connect WAN 3G to your network switch or computer.
- c) Use Digi Device Discovery to find your device on the network and double click on the device name to open a web browser to the configuration page
- d) Navigate to **Configuration > Serial Ports** click on **Change Profile** and select **Custom**.
- e) Go to **Basic Serial Settings**, set the following and click **Apply** :

▼ Basic Serial Settings

Description:

Baud Rate: 115200 ▼

Data Bits: 8 ▼

Parity: None ▼

Stop Bits: 1 ▼

Flow Control: Hardware ▼

Apply

- f) Go back to **Configuration > Serial Ports > Change Profile** and select **DialServ**
- g) Check the “**Enable Raw TCP access using TCP Port:**” box and enter : **50001** (this is the port the DC WAN 3G will be listening too for inbound connections)
- h) Check the “**Allow Dial-Out**” box, select “**Use the phone number to determine the network destination**”
- i) In the service drop down menu select **Raw TCP** and in the **TCP Port** enter **50002**
(the last digit for the port number depends on the Portserver port used for Modem Emulation, in this example Port 2)



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▼ Port Profile Settings

Current Port Profile: **DialServ** [Change Profile...](#)
The DialServ Profile configures the serial port to connect to a DialServ device

Dial In Settings

Detect an inbound connection using the following TCP ports on the network.

- | | | |
|---|------------------------------------|--|
| <input type="checkbox"/> Enable Telnet access using TCP Port: | <input type="text" value="2001"/> | <input type="checkbox"/> Enable TCP Keep-Alive |
| <input checked="" type="checkbox"/> Enable Raw TCP access using TCP Port: | <input type="text" value="50001"/> | <input type="checkbox"/> Enable TCP Keep-Alive |
| <input type="checkbox"/> Enable Secure Shell (SSH) access using TCP Port: | <input type="text" value="2501"/> | <input type="checkbox"/> Enable TCP Keep-Alive |
| <input type="checkbox"/> Enable Secure Socket access using TCP Port: | <input type="text" value="2601"/> | <input type="checkbox"/> Enable TCP Keep-Alive |

Time (in seconds) to Wait for Connection:

Dial Out Settings

Establish bi-directional TCP connection on behalf of the connected DialServ device.

- Allow Dial-out
- Always connect to the following network destination
Server (name or IP):
 - Forward the dial string to the destination
 - Use the phone number to determine the network destination
([Click here](#) to configure the host list with the phone number to IP address mappings.)

Establish connection using the following network service:

Service:

TCP Port:

Enable TCP Keep-Alive

Global Settings

Global settings for the DialServ device.

Initialization String:

- j) Once done, click **Apply**
- k) Go to **Configuration > Network > Host List Settings** and enter the Local phone number which should the Digi resolve to, in this example, **123456789** will resolve to **10.100.1.86**.
 - a. Local name: phone number that the serial device attached to the WAN 3G will be dialing to
 - b. Resolves To: IP Address of the PortServer

▼ Host List Settings

When accessing a device by name, the Digi device server will attempt to locate the name within the host list. On a match, the local name is mapped to the resolves to name. Typically, this is used as a first means of locating the destination address before using the domain name system (DNS).

For DialServ, the host list provides a means to map a phone number (in the local name field) to a network destination, (in the resolve to field).

Local Name	Resolves To	
123456789	10.100.1.86	Remove
<input type="text"/>	<input type="text"/>	<input type="button" value="Add"/>



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2.2 Configure the Digi PortServer

As described in the installation diagram, we will use a loopback cable that connects port 1 to port 2 (Crossover cable)

Computer will connect via Realport to port 2.

- Go to **Configuration > Serial Ports** and select **Port 2**
- Click **Change Profile** and select **Realport**, Click **Apply**
- Install Realport on the “Server” computer and connect to the PortServer TS using the Setup Wizard

▼ **Port Profile Settings**

Current Port Profile: **RealPort** [Change Profile...](#)
The RealPort Profile allows you to map a COM or TTY port to the serial port.

RealPort Settings

RealPort will set the serial port settings as directed by the PC application.

See the User Guide for RealPort installation instructions. The User Guide can be found on your CD or downloaded from <http://www.digi.com/support>.

- Navigate back to **Configuration > Serial Ports** and select **Port 1**
- Click **Change Profile** and select **Modem Emulation**, click **Apply**
- Go to **Basic Serial Settings** and set the following :

Baud Rate : 115 200
Data Bits : 8
Parity : None
Stop Bits : 1
Flow Control : Hardware

- Click **Apply**

▼ **Basic Serial Settings**

Description:

Baud Rate:

Data Bits:

Parity:

Stop Bits:

Flow Control:

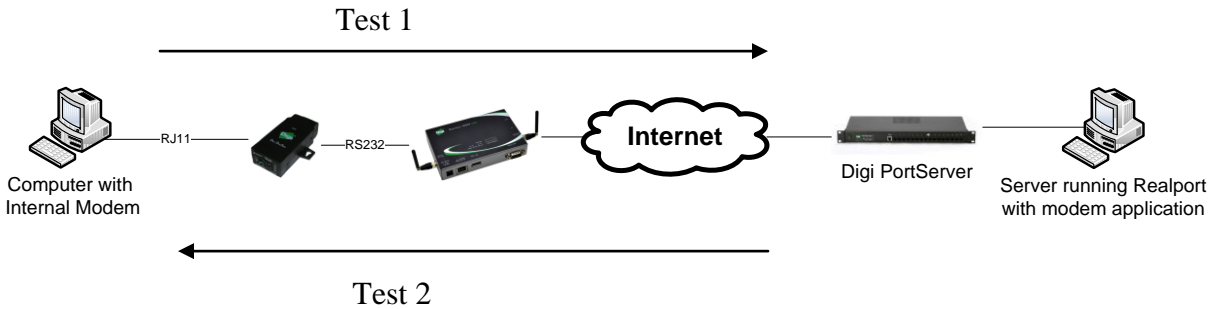


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2.2 Testing

(In this test scenario a computer will be used to replace the serial device connected to the DialServ)



2.2.1 Test 1

(In this test, “Computer” will designate the computer with an internal modem connected to the DialServ, “Server” will designate the computer running Realport connected to the PortServer)

- Open a terminal application such as PuTTY to the internal modem COM port of the Computer (usually COM 3) with **Hardware flow control (RTS/CTS)** and speed at **115 200**, issue the **ATI** command to confirm that modem status :

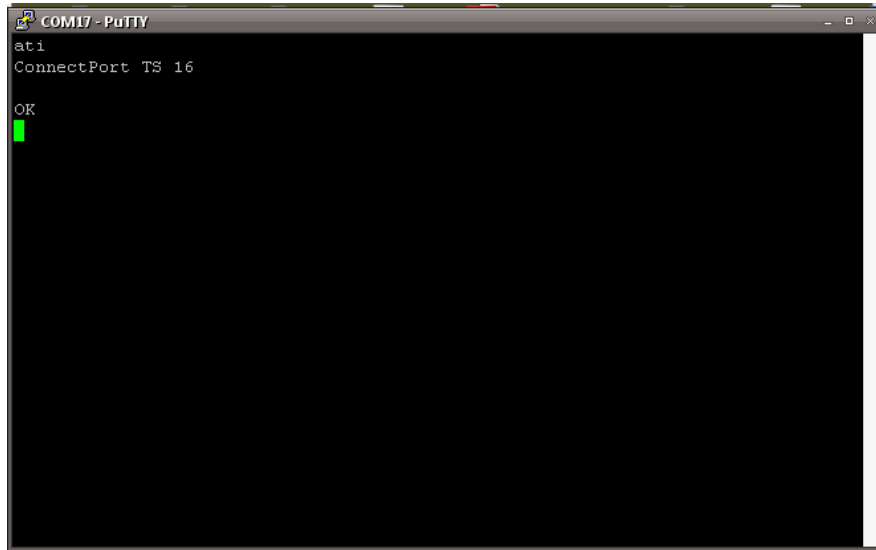
```
COM3 - PuTTY
ati
56000
OK
```



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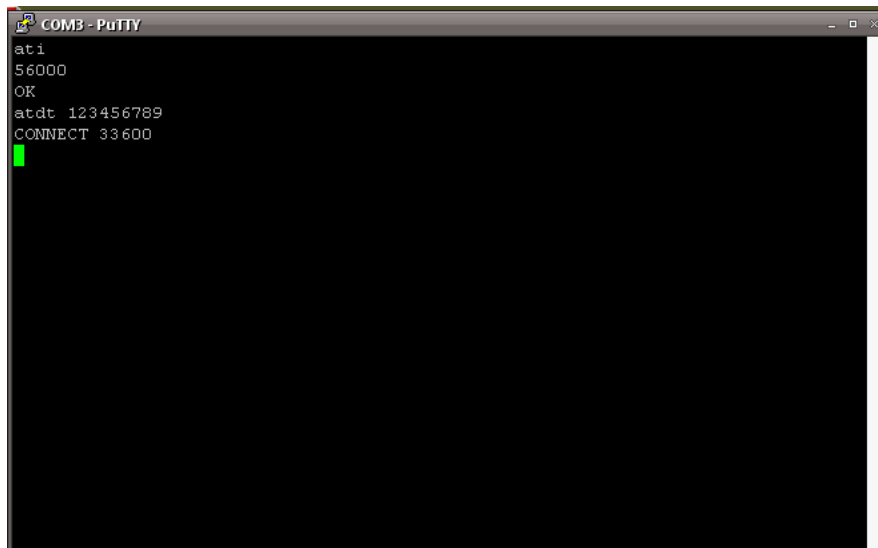
- b) Open a terminal application such as PuTTY on the Server, select the Realport COM port corresponding to the port 2 of the PortServer with **Hardware flow control (RTS/CTS)** and speed at **115 200** (If port 1 is COM 4, port 2 will be COM 5 etc..) issue the **ATI** command to confirm that modem status :



```
COM17 - PuTTY
ati
ConnectPort TS 16
OK
```

- c) In the terminal application on the Computer, issue the following command to “Dial Out” to the Portserver :

atdt 123456789



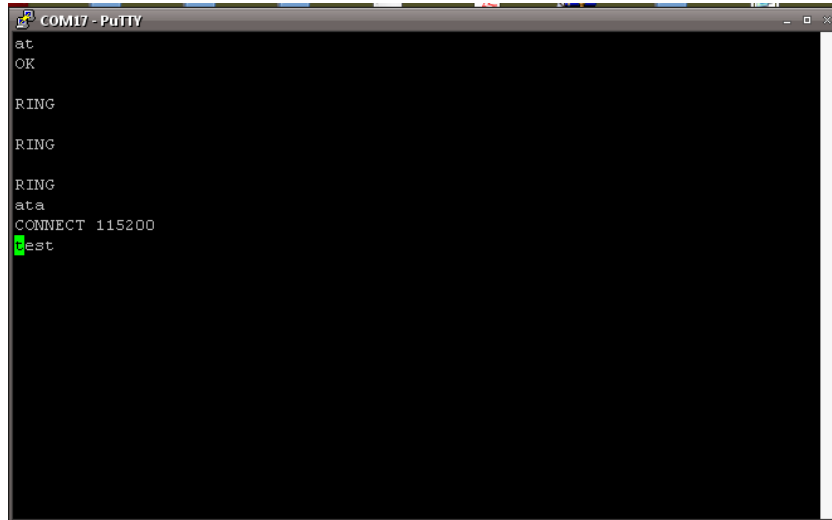
```
COM3 - PuTTY
ati
56000
OK
atdt 123456789
CONNECT 33600
```



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- d) The internal modem will start to establish the connection, and “RING” should appear on the Server terminal window, issue : **ata** to answer, the following message “Connect 33600” should be displayed, send text through the terminal window to confirm communication :

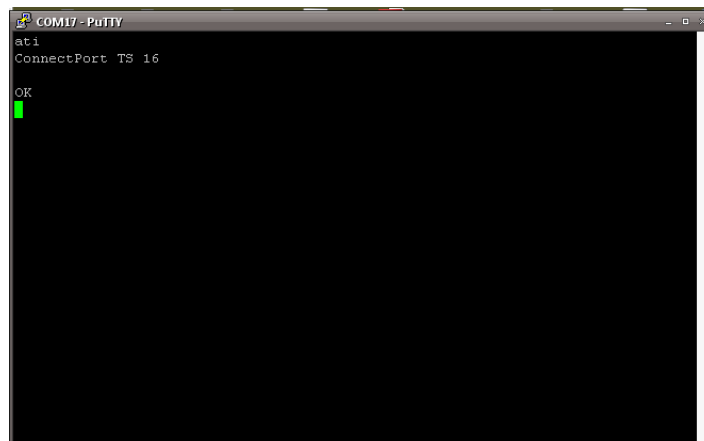


```
COM17 - PuTTY
at
OK
RING
RING
RING
ata
CONNECT 115200
est
```

2.2.1 Test 2

(In this test, “Computer” will designate the computer with an internal modem connected to the DialServ, “Server” will designate the computer running Realport connected to the PortServer)

- a) Open a terminal application such as PuTTY on the Server, select the Realport COM port corresponding to the port 2 of the PortServer with **Hardware flow control (RTS/CTS)** and speed at **115 200** (If port 1 is COM 4, port 2 will be COM 5 etc..) issue the **ATI** command to confirm that modem status :



```
COM17 - PuTTY
ati
ConnectPort TS 16
OK
```



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- b) Open a terminal application such as PuTTY to the internal modem COM port of the Computer (usually COM 3) with **Hardware flow control (RTS/CTS)** and speed at **115 200**, issue the **ATI** command to confirm that modem status :

```
COM3 - PuTTY
ati
S6000
OK
█
```

- a) In the terminal application on the Server, issue the following command to “Dial Out” to the Digi Connect WAN 3G:

atdt 10.100.1.83:50001

(atdt ip_address:listening_port)

```
COM17 - PuTTY
atdt
ConnectPort TS 16
OK
atdt 10.100.1.83:50001
CONNECT 115200
█
```




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- b) The “RING” message should appear on the Computer terminal window, issue : **ata** to answer, the modem will start to establish connection and the following message “Connect 14400” should be displayed, send text through the terminal window to confirm communication :



```
COMB - PuTTY
ati
56000
OK
RING
ata
RING
CONNECT 14400
est
```

Tip :

To configure “auto-answer” in modem emulation, open the Realport COM port using a terminal application and issue the following commands :

```
ats0=1
ats&w=1
```

Next time the PortServer will automatically answer the incoming call after the first “RING” message without the need to type **ata**.