



## Remote Access Using a Call Direct Modem

### 1 Set up SIM card for public IP address

#### 1.1 Telstra Wireless

Call or visit your Telstra representative and request that the product code GPTEXB3 is added to the SIM account. Once this is done, the Access Point Name (APN) "telstra.extranet" will be available, which gives the user a dynamic public IP address.

The complete list of codes bound to our test 3G sim card are as follows:

- GPDPACK3
- GPPCPAC3
- GPTCOMB3
- GPTEXB3
- TERMDA

#### 1.2 Telstra Bigpond

This is set to have a public IP address by default, only dynamic IP addresses are available however.

#### 1.3 Optus

Similarly to the above, however there is no known code to enable on the account and the APN "internet" should be used. Apparently this can be done using a prepaid SIM card.

#### 1.4 Vodafone Corporate

Call up Vodafone on 135888 and ask for a 'public IP address' and they should ask for a number to add the service to. Give them the SIM number and use APN "internet" to connect.

#### 1.5 Other internet provider

Some internet providers such as Internode or Exetel offer 3G/HSPA plans that give you a public, static IP address. Generally these providers use the Optus infrastructure and are inferior in quality, however being a static IP address helps significantly because you can skip to step 3 of this document

## 2 Obtain an IP address that you can navigate to

### 2.1 If you have a static IP address

If you have a static IP address then note this down as it will be the address of your logger. Skip to step 3.

### 2.2 If you have a dynamic IP address

Having a dynamic IP address means your loggers address on the internet will change periodically. To get around this we use dynamic DNS (DDNS), which is a service that



redirects internet traffic from a named address (eg. datataker.dyndns.org) to the dynamic IP address of the modem. How this works is as follows:

- The modem obtains a new IP address when it connects to the cellular network
- The modem logs into the DDNS host and tells it what the new IP address is
- When a user navigates to their modem, they type in the named address, which routes through the DDNS host to your modem

The process is analogous to a person (modem) changing addresses and the post office (DDNS host) redirecting mail (internet traffic) to the new address.

To use DDNS you will have to sign up for either a free or paid service. Both account types are available from [www.dyndns.org](http://www.dyndns.org)

### 3 Enter new settings into modem

#### 3.1 DHCP Range

DHCP determines the range of IP addresses of devices connected to the modem, given that the logger will be the only device attached, if you want to use a DHCP server then you should only have an IP pool size of 1.

DHCP CONFIGURATION			
DHCP	<input checked="" type="radio"/> Enable <input type="radio"/> Disable		
DHCP Start Range	192	. 168	. 1 . 2
DHCP End Range	192	. 168	. 1 . 2
DHCP Lease Time	86400 (seconds)		
Default Domain Name Suffix	<input type="text"/>		
DNS Server 1 IP Address	192	. 168	. 1 . 50
DNS Server 2 IP Address	202	. 63	. 43 . 130
WINS Server 1 IP Address	0	. 0	. 0 . 0
WINS Server 2 IP Address	0	. 0	. 0 . 0
DHCP RELAY CONFIGURATION			
DHCP Relay	<input type="radio"/> Enable <input checked="" type="radio"/> Disable		
DHCP Server Address	0	. 0	. 0 . 0
ADDRESS RESERVATION LIST			
Computer Name	MAC Address	IP Address	<input type="button" value="Add"/>

**Figure 1 - DHCP Configuration Window**

To configure the DHCP settings in the CDR-790:

- Click the DHCP menu item
- Ensure that the DHCP start and stop ranges are the same, use the number 192.168.1.2



### 3.2 Access Point Name (APN) Settings

The APN you enter will depend on which provider you are using (see the above sections)

**PPP PROFILE CONNECT**

Auto Connect	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Authentication Type	<input checked="" type="radio"/> CHAP <input type="radio"/> PAP
PPP verbose logging	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Reconnect Delay	<input type="text" value="30"/> ( 30-65535 ) secs
Reconnect Retries	<input type="text" value="0"/> ( 0-65535, 0=Unlimited )
Profile to connect to	<input type="text" value="4"/>

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**PPP USER CONFIGURABLE PROFILE SETTING**

Profile Number	<input type="text" value="4"/>
Dial Number	<input type="text" value="atd*99#"/>
APN Name	<input type="text" value="telstra.extranet"/>
User	<input type="text"/>
Password	<input type="text"/>
Remote Host	<input type="text" value="0.0.0.0"/>
Port	<input type="text" value="0"/> ( 1-65535 )
Local Encoding	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Pad Mode	<input type="text" value="tcp"/>
PAD Auto Answer	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

Item	Num	APN	User	Rem Host	Rem Port	Loc Enc	Mode	Ans
1	atd*99#	telstra.internet		0.0.0.0	0	Off	tcp	Off
2	atd*99#	telstra.datapack		0.0.0.0	0	Off	tcp	Off
3	atd*99#	telstra.pcpack		0.0.0.0	0	Off	tcp	Off
4	atd*99#	telstra.extranet		0.0.0.0	0	Off	tcp	Off

**Figure 2 - Data Connection Configuration Window**

To configure the APN in the CDR-790:

- Click the 'Data Connection' menu item
- Enable 'Auto Connect'
- Change 'Profile to connect to' to 4
- Select Profile Number 4
- Enter the APN into the box provided
- Leave the rest of the settings as default
- Click 'Modify Entry'

### 3.3 Dynamic DNS (DDNS) settings

Dynamic DNS provides a method for the cellular router to update and external name server with the routers cellular WAN IP address.



**DDNS CONFIGURATION**

DDNS Configuration  Enable  Disable

**DDNS SETTINGS**

Server Address

Host Name

User Name

Password

Verify Password

**Figure 3 - DDNS Configuration Window**

To configure dynamic DNS in the CDR-790:

- Click the DDNS menu item
- Check the enable box
- Select the Dynamic DNS service that you wish to use (www.dyndns.org)
- Enter your dynamic DNS account credentials:
  - Host name = your address (eg. test.dyndns.org)
  - User Name = your DDNS user name
  - Password = your DDNS password
- Click Save

### 3.4 Port forwarding

By default the modem rejects incoming connections from your computer. However we intend to communicate to the logger through the modem. Therefore the modem must be configured to forward certain connection types to the logger.

**NAT CONFIGURATION**

NAT Configuration  Enable  Disable

**IP MAPPING SETTINGS**

Mapping no

Protocol

Source IP Address

Incoming Port Range  to  (1-65535)

Destination IP Address

Destination Port Range  to  (1-65535)

Item	Protocol	Incoming Address	Incoming Port	Destination Address	Destination Port	
1	all	0.0.0.0	80 - 80	192.168.1.2	80 - 80	Delete Entry
2	all	0.0.0.0	843 - 843	192.168.1.2	843 - 843	Delete Entry
3	all	0.0.0.0	7700 - 7700	192.168.1.2	7700 - 7700	Delete Entry
4	all	0.0.0.0	502 - 502	192.168.1.2	502 - 502	Delete Entry
5	all	0.0.0.0	8 - 8	192.168.1.2	8 - 8	Delete Entry
6	all	0.0.0.0	1024 - 5000	192.168.1.2	1024 - 5000	Delete Entry
7	all	0.0.0.0	21 - 21	192.168.1.2	21 - 21	Delete Entry

**Figure 4 - NAT Configuration Window**



To forward a port in the CDR-790:

- Click the NAT menu item
- Enter each port or range individually
  - Mapping no = an arbitrary number. For convenience enter them sequentially.
  - Protocol = TCP
  - Source IP address = 0.0.0.0 (allow access from any computer)
  - Incoming port range = (see Table 1 below for which ports to forward)
  - Destination port range = 192.168.1.2 (the address of your logger)
  - Destination port range = same as incoming port range (usually automatic)
- Click Save

Model	Service	Port(s)
DT80 Series	Basic web server	80
	dEX web applications	80, 843
	Command Interface	7700
	FTP Push	Nil Required
	FTP Server (Incl. Firmware upgrades)	21,1024-5000
	Modbus Client	502
DT800	Command Interface (TCP mode)	8
	FTP Server (Incl. Firmware upgrades)	21,1024-5000

**Table 1 - Ports to Forward**

**Note:** The hyphenated values represent a port range. Only enter the values that are required by your system.

## 4 Set up a System Monitor on the Modem

A system monitor will periodically test to ensure that the cellular data connection is still active. If it fails the test then the modem will reset, which will force the modem to re-connect to the service provider.

PERIODIC PING SETTINGS	
Destination Address	<input type="text" value="www.google.com"/>
Second Address	<input type="text" value="www.google.com.au"/>
Periodic PING Timer	<input type="text" value="1800"/> (0-65535) secs
Periodic PING Accelerated Timer	<input type="text" value="30"/> (0-65535) secs
Fail Count	<input type="text" value="3"/> (0-65535)
Force reset every	<input type="text" value="1440"/> (0-65535) mins

**Figure 5 - System Monitor Configuration Window**

- Click the System Monitor menu item



- Enter the following settings
  - Destination Address = a reliable server which will always be working, in this example we have chosen [www.google.com](http://www.google.com)
  - Second Address = a secondary server which will be tested against if the primary address fails to respond
  - Periodic PING Timer = 1800 seconds (half hour)
  - Accelerated Timer = 30 seconds
  - Fail Count = 3 (number of retries before resetting)
  - Force Reset Every = (OPTIONAL) this value is specified in minutes and in the above example 1440 minutes is used so that the modem will reset once per day. It is recommended that this value not be more frequent than this.

## 5 Enhance Security (Optional)

Please read the technical note “Securing the dataTaker DT80 Series Web Services” for more information about increasing the levels of security on the DT80 series loggers.