

DX940e - How to configure Cellular option

John M - 2019-12-23 - DX/10XTS Routers

Pre-Requisite: The DX940e device can be an AT&T or Verizon SIM enabled software, depending on which Cellular service provider you selected during the ordering process. Accordingly, the Provider firmware is loaded on the device.


Call the Cellular Service provider to get an activated SIM for the device.

Depending on a Cellular Service provider, there are some default Profiles created for the Cellular connection. If the profile is not on the list, the AT&T or Verizon will provide you Profile Parameters (APN name) to create one to get your Cellular connection up and running.

Note:

- After inserting SIM in DX940e device, user must reboot the device in order to use the cellular service.
- Once the Cellular interface is enabled, you will see C1 LED status turns bright green, along with signal strength on the Virtual Front Panel. See picture below:

Virtual Front Panel



The diagram shows a virtual front panel of a router. At the top center is a cellular antenna. Below it, the panel is divided into two rows of ports. The top row includes a WAN port (W1), a cellular port (C1) with a green signal strength indicator (highlighted in red), and three alarm ports (ALARM, 51, 53). The bottom row includes six Ethernet ports (E1-E6) and three console ports (CONSOLE, 52, 54). All ports have green status indicators.

| | | | |
|-------------------------|-------------------|------------------------------|---------------------|
| ▶ System Name: | System Name | ▶ System Location: | System Location |
| ▶ IP Address: | 192.168.1.2 | ▶ System Description: | DX940e v1.0.1 (RC1) |
| ▶ MAC Address: | 00:20:61:1F:10:10 | ▶ Uptime: | 48 minutes |
| ▶ Upgrade State: | UPGRADED | ▶ Licenses: | SECURE |

Steps to configure the cellular Interface in DX940e

1. Once the SIM is activated by the carrier, and inserted in the SIM slot.

2. Login to your Magnum DX940e using web GUI. You can use the default IP address to access the Web GUI on any browser: <https://192.168.1.2>
3. Make sure your Laptop IP is configured in the same subnet as the default IP address of DX940e, and Ethernet cable is connected to Port 6 or the highest port on DX940e device. In factory default mode this is the only Ethernet port enabled, and rest of the ports are disabled because of security reason.
4. Once you are logged in with Username: manager, Password: manager, Click on “Cellular” option from the Menu on the left side of the Virtual Front Panel
5. Click on Configuration, Go to Profile section
6. Enter the Profile name of your choice, and enter the APN (Access Point Name) name provided by your service Provider in this case it’s AT&T, and we are using “i2gold” as APN name or select from an existing profile in the list

With AT&T Service Provider: Existing Profiles in this case is “i2gold” which is a default Public APN name

Cellular : Profiles

Add New Profile

| Profile Name | APN Name | Net Type | PDP Type | IP Address | Primary DNS | Secondary DNS | Auth | Username | Password |
|--------------|----------|----------|----------|------------|-------------|---------------|------|----------|----------|
| New Profile | New APN | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | |

Reset Settings Apply Settings

Existing Profiles

| Profile Name | APN Name | Net Type | PDP Type | IP Address | Primary DNS | Secondary DNS | Auth | Username | Password | Delete |
|--------------|----------|----------|----------|------------|-------------|---------------|------|----------|----------|--------------------------|
| AT&T | i2gold | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | | <input type="checkbox"/> |

Reset Settings Apply Settings

For Verizon Service Provider: Existing Profiles: Default profile is “vzwinternet” which is a default Public APN

Cellular : Profiles

Add New Profile

| Profile Name | APN Name | Net Type | PDP Type | IP Address | Primary DNS | Secondary DNS | Auth | Username | Password |
|--------------|----------|----------|----------|------------|-------------|---------------|------|----------|----------|
| New Profile | New APN | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | |

Reset Settings Apply Settings

Existing Profiles

| Profile Name | APN Name | Net Type | PDP Type | IP Address | Primary DNS | Secondary DNS | Auth | Username | Password | Delete |
|--------------|-------------|----------|----------|------------|-------------|---------------|------|----------|----------|--------------------------|
| Profile1 | vzwims | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | | <input type="checkbox"/> |
| Profile2 | vzwadmin | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | | <input type="checkbox"/> |
| Profile3 | vzwinternet | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | | <input type="checkbox"/> |
| Profile4 | vzwapp | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | | <input type="checkbox"/> |
| Profile5 | vzw900 | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | | <input type="checkbox"/> |
| Profile6 | vzwadmin | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | | <input type="checkbox"/> |
| Profile7 | New APN | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | | <input type="checkbox"/> |
| Profile8 | APN | lte | ipv4 | 0.0.0.0 | 0.0.0.0 | 0.0.0.0 | none | | | <input type="checkbox"/> |

You can select one of the existing profiles, if the profile with APN name is not in the list, you can create one based on Profile parameters provided by Verizon Service Provider. Click on Apply settings.

7. Next Step: Go to **“Cellular”** à **“Config”** from the Menu

For AT&T Service Provider:

Select the profile name you have created in step 6, or select from the existing profiles from the list, and change the Admin status to Enabled.

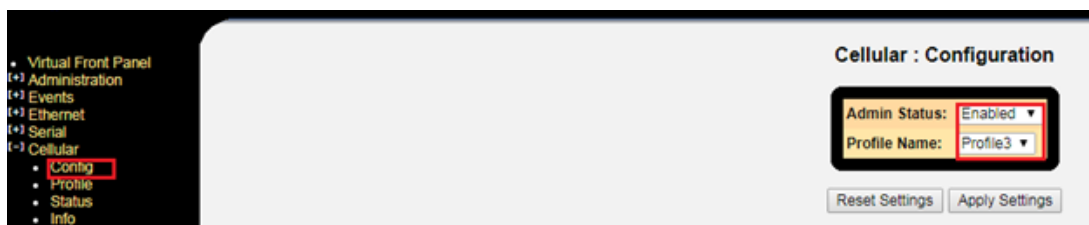


Click on Apply settings.

Note: Make sure to save your configuration changes, any time you see a yellow color **“Save”** button on the bottom right page. Click on it to save the configuration to NVRAM so you don't lose the configuration, if the device reboots or the power goes off.

For Verizon Service Provider:

Select the profile name you have created in step 6, or select from the existing profiles from the list, and change the Admin status to enabled.



Verification of Cellular Interface working:

- Go to **“Routing”** option, and click on **“IP addresses”**. You will see a Cellular interface with static IP address from the service provider.

Routing : IP Addresses

| Interface | DHCP? | Address | Subnet Mask | Remote Address | System | Status |
|-----------|-------|-----------------|-----------------|-----------------|----------------------------------|--------|
| Default | No | 192.168.1.2 | 255.255.255.0 | | <input checked="" type="radio"/> | Up |
| CELL1 | No | 166.130.101.233 | 255.255.255.252 | 166.130.101.234 | <input type="radio"/> | Up |

[Other Options](#)

You should also see the routing information in the **“Routing table”**

Routing : Table

| Route Destination | Route Mask | Next Hop | Administrative Distance | Metric | Age | Type |
|-------------------|-----------------|-----------------|-------------------------|--------|-----|-------|
| 0.0.0.0 | 0.0.0.0 | 166.130.101.234 | 0 | 0 | | |
| 127.0.0.1 | 255.255.255.255 | 127.0.0.1 | 0 | 0 | | |
| 166.130.0.0 | 255.255.0.0 | 166.130.101.233 | 0 | 0 | | Local |
| 166.130.101.233 | 255.255.255.255 | 166.130.101.233 | 0 | 0 | | |
| 192.168.1.0 | 255.255.255.0 | 192.168.1.2 | 0 | 0 | | Local |
| 192.168.1.2 | 255.255.255.255 | 192.168.1.2 | 0 | 0 | | |
| 224.0.0.0 | 240.0.0.0 | 255.255.255.255 | 0 | 10000 | | |
| 255.255.255.255 | 255.255.255.255 | 255.255.255.255 | 0 | 10000 | | |

- Go to **“Cellular”** à **“Info”**, you should see SIM, Service Activated, and cellular modem firmware information.

Cellular : Info

| ESN | IMSI | IMEI | Service Activated | Firmware Version |
|----------|-----------------|-----------------|-------------------|--|
| 01651740 | 310410102231103 | 359072061173502 | yes | SWI9X30C_02.24.05.06 r7040 CARMD-EV-FRMWR2 2017/05/19 06:23:09 |

- Go to **“Cellular”** à **“Status”** option we should see the Operation status, Registration info, Signal strength, connection status, Service Indication, Roaming and ESN information.

Cellular : Status

| Oper Status | Reg State | Modem State | Signal Strength | Service Indication | Roaming | ESN | MCC | MNC | Conn. UpTime |
|-------------|------------|-------------|-----------------|--------------------|---------|----------|-----|-----|--------------|
| Up | Registered | CONNECTED | Excellent | LTE | no | 01651740 | 310 | 410 | 759 |

In the above example, the cellular interface is connected to the network, and the Operation Status is Up. The signal strength is **Excellent**, as the signal strength indicator displays.

If the operation status is “Up”, the cellular connection is active, a data connection has been established and the cellular interface is ready for data transfer.

You can also see signal strength in the Virtual Front Panel

Registration State is the status of the device with the service provider, whether it's registered or unregistered.

Modem State: Displays the state of Cellular Interface. Possible values:

- **Detached** - the cellular interface has not been detected by MNSDX.
- **Disconnected** - there is no active data connection.
- **Initiated** - the data connection has been initiated and the cellular interface is awaiting a handshake from the carrier network.
- **Disconnecting** - the data connection is in the process of being terminated.
- **Dormant** - the data connection is in progress but in a dormant state i.e. not connected to any network, awaiting a connection request.
- **Connecting** - the data connection is in progress but not connected.
- **Connected** - the data connection is connected.
- **Dormant-Connecting** - the cellular interface is indicating that the data connection is coming out of the dormant state.
- **Resetting** - the cellular interface is resetting.

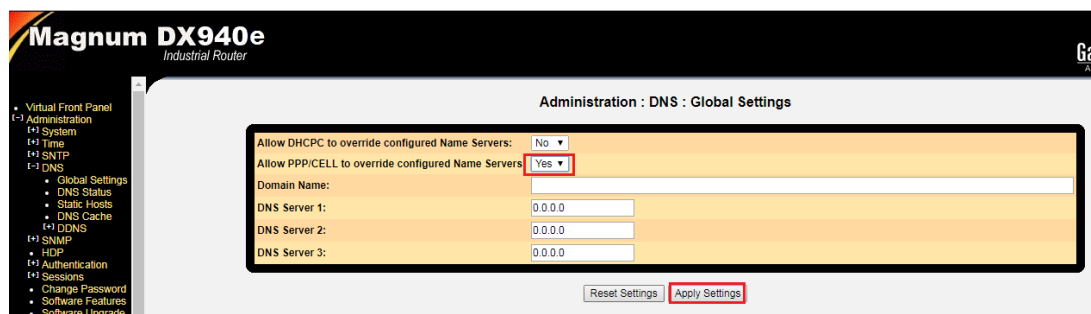
To verify you have access to the Internet using Cell Interface, please configure the DNS to Cellular ISP

Steps to Configure DNS to Cellular ISP

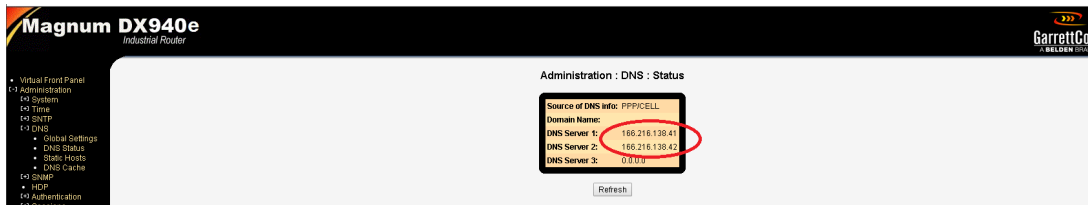
From Web:

1. Go to Administration -> DNS -> Global Settings

Change field Allow PPP/CELL to override configured Name Server to Yes.



2. Go to Administration -> DNS -> DNS Status to check if DNS Server has been updated.



From CLI:

1. Set PPP/CELL Override Yes.

MagnumDX# **dns set ppp-override y**

2. Check If DNS Server Name has been updated or not using following command.

MagnumDX# **dns sh status**

Source of DNS info : PPP/CELL

Domain Name :

DNS Server 1 : 166.216.138.41

DNS Server 2 : 166.216.138.42

DNS Server 3 : 0.0.0.0

3. Now try to ping www.google.com, If it is able to resolve the Domain Name or not.

MagnumDX# ping google.com

Pinging yx-in-f113.1e100.net (64.233.177.113) with 64 bytes of data:

Reply from 64.233.177.113 bytes=64 ttl=41 icmp_seq=0 time=66ms

Reply from 64.233.177.113 bytes=64 ttl=41 icmp_seq=1 time=100ms

Reply from 64.233.177.113 bytes=64 ttl=41 icmp_seq=2 time=100ms

Reply from 64.233.177.113 bytes=64 ttl=41 icmp_seq=3 time=100ms

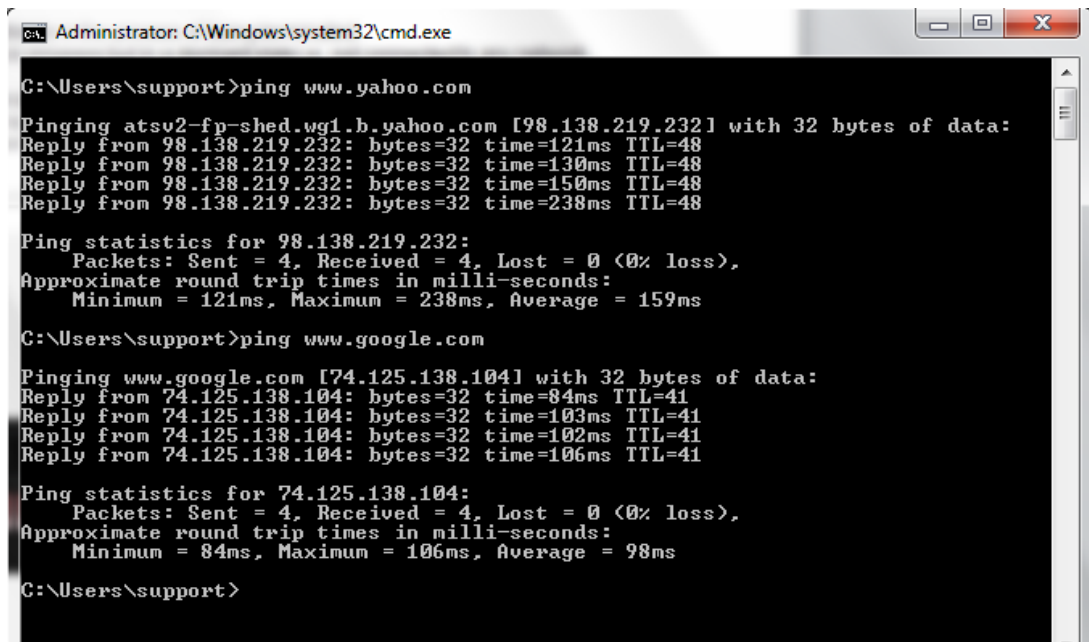
Reply from 64.233.177.113 bytes=64 ttl=41 icmp_seq=4 time=100ms

---yx-in-f113.1e100.net PING Statistics---

5 packets transmitted, 5 packets received, 0% packet loss, time 262095583 ms

round-trip (ms) min/avg/max = 66/93/100 ms

from your WindowsMS- DOS prompt, ping www.yahoo.com, or www.google.com. You should be able to ping the Internet, if cellular interface is up, properly configured, and signal strength is good.



```
Administrator: C:\Windows\system32\cmd.exe

C:\Users\support>ping www.yahoo.com

Pinging atsv2-fp-shed.wg1.b.yahoo.com [98.138.219.232] with 32 bytes of data:
Reply from 98.138.219.232: bytes=32 time=121ms TTL=48
Reply from 98.138.219.232: bytes=32 time=130ms TTL=48
Reply from 98.138.219.232: bytes=32 time=150ms TTL=48
Reply from 98.138.219.232: bytes=32 time=238ms TTL=48

Ping statistics for 98.138.219.232:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 121ms, Maximum = 238ms, Average = 159ms

C:\Users\support>ping www.google.com

Pinging www.google.com [74.125.138.104] with 32 bytes of data:
Reply from 74.125.138.104: bytes=32 time=84ms TTL=41
Reply from 74.125.138.104: bytes=32 time=103ms TTL=41
Reply from 74.125.138.104: bytes=32 time=102ms TTL=41
Reply from 74.125.138.104: bytes=32 time=106ms TTL=41

Ping statistics for 74.125.138.104:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 84ms, Maximum = 106ms, Average = 98ms

C:\Users\support>
```