Installing a GW9000 Series Router

Issue: 2.0

Date: 09 December 2014

_____

_____

_____

1 Virtual Access support details

Virtual Access support is available in agreement with your support SLA.

You can contact Virtual Access support by telephone or email. Alternatively, you can access our website for configuration guides and user manuals.

1.1 Email support

Email support is available 24 hours a day depending on your support SLA. To enable us to deal with your query efficiently, please include a detailed description of the issue, what has been done to try and resolve the issue and the serial number of your router.

1.2 Telephone support

If you would like to talk to one of our support team, phone support is available 24 hours a day depending on your support SLA. To enable us to deal with your query efficiently, please include a detailed description of the issue, what has been done to try and resolve the issue and the serial number of your router.

- UK technical support:
  0870 850 2937

- Non-UK technical support:
  +353 1 604 1842

1.3 Website documentation

The Virtual Access website contains a large amount of support documentation. Customers have full access to all documentation on the website.

For information on how to configure your GW9000 Series router, read 'How to Configure the GW9000 Service Managed Gateway.

Click the following link to access the customer support page.

http://www.virtualaccess.com/customer-support.php

For help with advanced configuration of the GW9000, click the following link.

http://www.virtualaccess.com/smg-docs/start.htm

_____

Error! Reference source not found.: **Error! Reference source not found.**

_____

2 GW9000 pack contents

Check that you have all the components listed below.

1x GW9000	
1x purple ADSL cable	Both ends of the cable looks like this:
1x purple dial modem cable for PSTN	Both ends of the cable looks like this:
1x yellow Ethernet cable.	Both ends of the cable look like this:
If your GW9000 Series router has a serial port, you need a serial cable. We do not provide a serial cable with the GW9000 Series.	Contact your distributor to purchase a serial cable that complies with the interface that you use.
Your GW9000 Series router has 4 RS-232 serial ports and 2 RS485 ports. Generally these cables are not supplied as the devices connecting to the GW9000 often have proprietary pin assignments. If you need a cable, please request prior to shipment.	
1x regional power cable. | **AC Power**	**DC Power**
100V-240V AC, 20 Watts IEC mains connector	DC -48V ± 10% DC power input Dual power feed		
2 x multi-I/O cables to connect to the analogue inputs, digital inputs and digital outputs (optional).	
1 x antenna (for 3G models only).	
2 x rack mounting brackets (may vary from image shown)	

Table 1: Components for installing your GW9000

3 Installing a GW9000 series router

3.1 Locating the serial number

When you receive your GW9000 package, retain the outer packaging. The label containing the model number, serial number (S/N) and part number (P/N) is located on the side of the packaging box.

Each router is assigned a unique serial number. Record your router's serial number on a printed copy of your warranty or somewhere you can easily access it. You must reference your unique serial number when you contact your distributor or Virtual Access support for installation and configuration information or if you need to request support help on the device.

Figure 1: The serial label showing serial number and part number

Unpack the contents. There is a matching label located on the bottom of the router that shows the same S/N and P/N.

3.2 GW9000 model variations

Use the table below to match your model number. Check that all the parts are in the GW9000 package before you install your router.

If there is a 'Y' in a field, you should have that part. If there is a '2' in a field, you should have two parts. If there are any parts missing, please contact your distributor.

Model Number	Port Description	Power Cable	WAN Connection Cable RJ11 (purple)	Modem (PSTN) Cable BT-RJ11 (black)	Ethernet Cable (yellow)	2 x Multi-I/O cables (Optional)
GW9010	Quad Ethernet	Y	Y	-	Y	Y
GW9025	Quad Ethernet, V.90 modem	Y	Y	Y	Y	Y
GW9110	Quad Ethernet, ADSL	Y	Y	-	Y	Y
GW9125	Quad Ethernet, ADSL, V.90 modem	Y	Y	Y	Y	Y

Table 2: GW9000 model numbers and parts

In addition to the interfaces listed above, there are also options for the following interfaces.

3G	HSPA, UMTS, EDGE, GPRS, GSM
E1/T1	Configurable as framed or unframed
Serial	V.24, V.35, V.36 or X.21 synchronous serial WAN

Table 3: Optional GW9000 interfaces

3.3 Rack mounting a GW9000

You can rack mount a GW9000 router in a 19-inch rack. The rack mountable brackets along with screws are included in the GW9000 package. You will need a Philips screwdriver to tighten the screws in the rack.
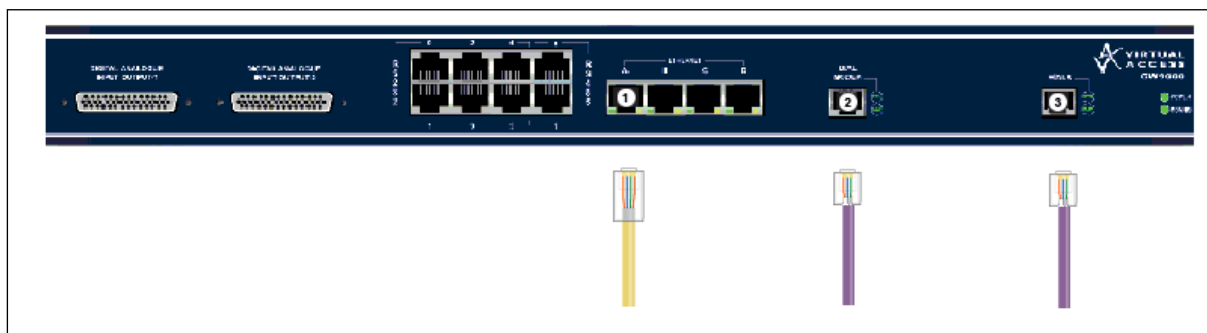
3.4 Connecting a GW9000 ADSL router

Figure 2: Connecting an ADSL connection

On your GW9000 Series router, connect one end of the yellow RJ45 Ethernet cable to the Ethernet port marked A. Connect the other end into the LAN port of your PC or to a LAN hub.

Connect the RJ11 end of the purple cable to the port marked DIAL MODEM. Connect the other end to the ADSL socket on the wall or to the splitter. This socket can be an RJ45 or an RJ11 port. The RJ11 connector will fit into both.

To connect directly to an ADSL service, connect one end of the RJ11 connector on a purple cable to the port marked ADSL-0. Connect the other end of the RJ11 connector to the ADSL socket on the wall. This socket can be an RJ45 or an RJ11 port. The RJ11 connector will fit into both.

If you are using a cable modem or ADSL modem and not a direct service connection, do not connect the ADSL cable. Connect on end of the Ethernet cable to the appropriate Ethernet port on the router. Connect the other end to the Ethernet port on your cable modem or ADSL modem.

Connect the power supply connector to the power port on the back of the router.

The config LED on the front of the router will flash if it is in factory config mode. If the router is pre-configured the config LED will be solid.

3.5 Connecting a GW9000 router with a serial connection

Figure 3: Serial and power connections on the rear of a GW9000 series router

If you are using a serial connection, connect the serial cable to the serial port on the back of the router.

Connect the power supply to the power port on the back of the router.

The config LED on the front of the router will flash if it is in factory config mode. If the router is pre-configured the config LED will be solid.

If your serial connection is configured and connected to the network correctly, the serial SYNC LED will be lit and solid. If data is transmitting correctly across the serial link, the data LED will blink intermittently. If the LEDs on your router

_____

are not correctly lit, check that the cables are attached correctly and your service has been enabled by your provider.

3.6 Connecting an E1/T1 connection

Figure 4: Connecting an E1/T1 connection

For a standard connection, connect one end of the E1/T1 cable to the E1/T1 port on the back of the router and the other end of the cable to an E1/T1 switch.

For a back-to-back connection, connect one end of an E1/T1 cross over cable to the E1/T1 port on the back of the router. Connect the other end of the cable into the E1/T1 port of another device.

Connect the power supply connector to the power port.

The config LED on the front of the router will flash if it is in factory config mode. If the router is pre-configured the config LED will be solid.

If your E1/T1 connection is configured and connected to the network correctly, the E1/T1 SYNC LED will be lit and solid. If data is transmitting correctly across the E1/T1 link, the data LED will blink intermittently. If the LEDs on your router are not correctly lit, check that the cables are attached correctly and your service has been enabled by your provider.

3.7 Connecting a 3G connection

WARNING
The SIM card MUST be inserted into the SMG before the unit is powered on.
Do not insert or remove the SIM card after the unit has been powered on.

The GW9000 Series router contains a 3G module.

_____

3.7.1 3G specifications

Air Interface	GSM/GPRS/EDGE/WCDMA/HSPA	
Frequency Bands	GSM/GPRS/EDGE: 850/900/1800/1900 WCDMA/HSPA: 850/1900 or 900/2100	
Speed	**GPRS/EDGE**	D/L: 247.4 Kbps
		U/L: 123.7 Kbps
	HSPA	D/L: 7.2 Mbps
		U/L: 5.76 Mbps
Certification	FCC, CE, R&TTE, PTRCB, GCF, Operator and Infrastructure IOT	

Table 4: 3G specifications for the GW9000

3.7.2 Inserting a SIM card

Ensure the GW9000 Series router is powered off.

Hold the SIM card with the chip side face down and cut corner top left.

Figure 5: Position of the SIM card

Gently push the SIM card into SIM slot 1 until it clicks in.

To remove the SIM card, gently push the SIM card. The card will click out.

Attach the antenna to the antenna connector beside the SIM slot.

Connect the power supply connector to the power port.

The power LED will light if the 3G card is receiving power and functioning correctly. The DATA LED will blink intermittently when data is being transmitted over the link.

If the LEDs on your GW9000 Series router are not correctly lit, check that the cables are attached correctly and that your service has been enabled by your provider.

3.7.3 3G signal quality

When connecting 3G it is important to take note of the 3G signal quality and strength. To check the signal type and strength, connect one of the Ethernet ports on the GW9000 to your PC.

Open a web browser and browse to the address of the router. If the router is in factory config the default IP address is **192.168.100.1/24**. To view a summary

of your 3G connection, on the start page, click **Status -> 3G info**. The 3G status page appears showing a summary of your 3G connection statistics.

<= -113dBm	No connection
-113dBm, <-89dBm	Low signal strength, connection not reliable
= -89dBm, < -69dBm	Medium signal strength, good connection
>= -69dBm	High signal strength, excellent connection

Table 5: Signal strength qualities

3.8 Connecting a GW9000 public Ethernet connection
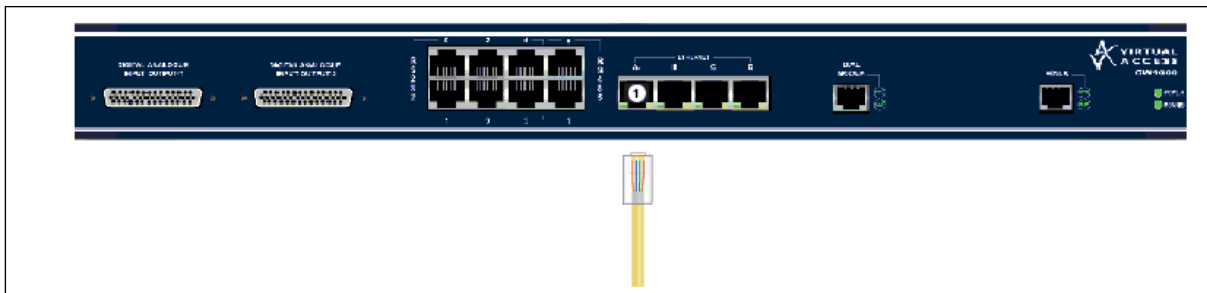
Figure 6: Connecting a public Ethernet connection

On your GW9000 Series router, connect one end of a yellow RJ45 Ethernet cable to the Ethernet port marked A. Connect the other end into the LAN port of your PC or to a LAN switch.

Connect one end of the Ethernet cable supplied by your service provider to any of the Ethernet ports on the router. The other end of the Ethernet cable will already be connected to the switch or socket provided by your service provider.

Connect the power supply connector to the power port on the back of the router.

If the LEDs on your GW9000 Series router are not correctly lit, check that the cables are attached correctly and that your service has been enabled by your provider.

3.9 Connecting multi-I/O cables on a GW9000

Figure 7: Connecting a multi-I/O connection

_____

To connect the analogue inputs, digital inputs and outputs to third party equipment, the multi-I/O cables must be connected to the analogue-digital ports.

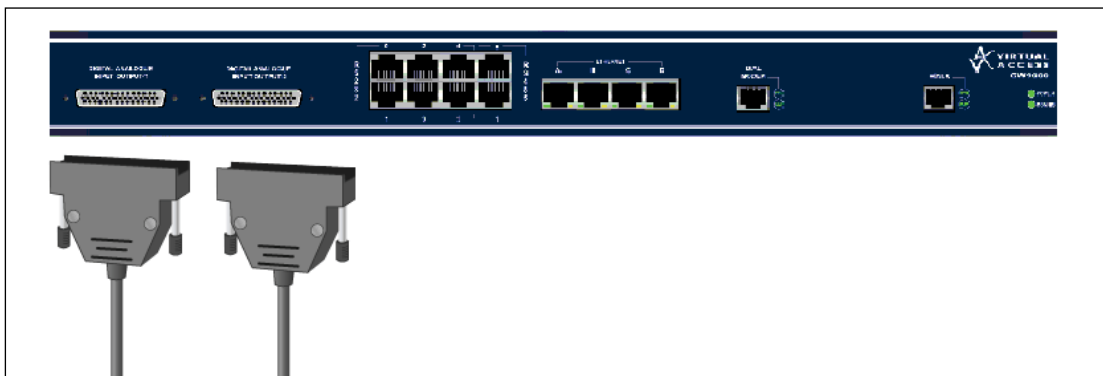| Cabling Element	DB44 Pin	Colour	First Cable Signal	Second Cable Signal
1	4	WHITE-Blue	Digital Input #0	Digital Input #14
1	5	BLUE-White	Digital Supply #0	Digital Supply #14
2	6	WHITE-Orange	Digital Input #1	Digital Input #15
2	7	ORANGE-White	Digital Supply #1	Digital Supply #15
3	8	WHITE-Green	Digital Input #2	Digital Input #16
3	9	GREEN-White	Digital Supply #2	Digital Supply #16
4	10	WHITE-Brown	Digital Input #3	Digital Input #17
4	11	BROWN-White	Digital Supply #3	Digital Supply #17
5	12	WHITE-Grey	Digital Input #4	Digital Input #18
5	13	GREY-White	Digital Supply #4	Digital Supply #18
6	14	RED-Blue	Analogue Input - #0	Analogue Input - #2
6	15	BLUE-Red	Analogue Input + #0	Analogue Input + #2
7	19	RED-Orange	Digital Input #5	Digital Input #19
7	20	ORANGE-Red	Digital Supply #5	Digital Supply #19
8	21	RED-Green	Digital Input #6	Digital Input #20
8	22	GREEN-Red	Digital Supply #6	Digital Supply #20
9	23	RED-Brown	Digital Input #7	Digital Input #21
9	24	BROWN-Red	Digital Supply #7	Digital Supply #21
10	25	RED-Grey	Digital Input #8	Digital Input #22
10	26	GREY-Red	Digital Supply #8	Digital Supply #22
11	27	BLACK-Blue	Digital Input #9	Digital Input #23
11	28	BLUE-Black	Digital Supply #9	Digital Supply #23
12	29	BLACK-Orange	Analogue Input - #1	Analogue Input - #3
12	30	ORANGE-Black	Analogue Input + #1	Analogue Input + #3
13	33	BLACK-Green	Digital Input #10	Digital Input #24
13	34	GREEN-Black	Digital Supply #10	Digital Supply #24
14	35	BLACK-Brown	Digital Input #11	Digital Input #25
14	36	BROWN-Black	Digital Supply #11	Digital Supply #25
15	37	BLACK-Grey	Digital Input #12	Digital Input #26
15	38	GREY-Black	Digital Supply #12	Digital Supply #26

_____

16	39	YELLOW-Blue	Digital Input #13	Digital Input #27
16	40	BLUE-Yellow	Digital Supply #13	Digital Supply #27
17	1	YELLOW-Orange	Relay Closed #0	Relay Closed #2
17	2	ORANGE-Yellow	Relay Common #0	Relay Common #2
18	3	YELLOW-Green	Relay Open #0	Relay Open #2
18	16	GREEN-Yellow	Relay Closed #1	Relay Closed #2
19	17	YELLOW-Brown	Relay Common #1	Relay Common #3
19	18	BROWN-Yellow	Relay Open #1	Relay Open #3
20	31	YELLOW-Grey	Isolated Ground #0	Isolated Ground #1
20	32	GREY-Yellow	Isolated Ground #0	Isolated Ground #1

Table 6: Multi-I/O cable pin assignment

3.10   Connecting to the RS2323 ports

The GW900 has 6 RS232 ports and are presented as an RJ45 port.

Signal Name	PIN Number
RTS	1
DTR	2
TxD	3
GND	4
GND	5
RxD	6
DSR	7
CTS	8

Table 7: The pin assignment for RS232

	DB9	RJ45
Receive Data	2	3
Transmit Data	3	6
Data Terminal Ready	4	7
Ground (use as shield)	5	5
Ground (use as shield)	5	4
Data Set Ready	6	2
Request to Send	7	8
Clear to Send	8	1

Table 8: RS232 cable: RJ45 to DB9

_____

3.11 Connecting to the RS485 ports

The GW9000 has two RS485 ports and are presented as an RJ45 port.

Signal Name	PIN Number
TX-	Pin 2
TX+	Pin 3
RX+	Pin 6
RX-	Pin 7

Table 9: Pin assignment for the RS485 port

_____

4 GW9000 installation summary

1. Rack mount the GW9000 in a 19-inch rack.

2. If you are installing a 3G model, the SIM card must be inserted into the router before it is powered on. Do not insert or remove the SIM card after the unit has been powered on.

3. Using the pin assignment in section 3.9, connect the multi-I/O cable to the analogue inputs, digital inputs and digital outputs.

4. Connect the WAN link (3G, E1/T1, Ethernet, ADSL).

5. Connect the Multi-I/O cable to the GW9000.

6. Connect the GW9000 RS232 ports to the third party equipment.

7. Connect the power to the unit.

8. Connect an Ethernet port to a PC.

9. Configure the router if it has not been pre-configured.