DrayTek

VigorSwitch V1281

Gigabit Network Switch

Quick Start Guide

V1.0

VigorSwitch V1281
Gigabit A/V Ethernet Switch
Quick Start Guide

Guide Version: 1.1

For support and updates for users in the
UK &/Ireland, visit www.draytek.co.uk

During installation, check for new firmware
and update to that if available.

Edition: January 2018

Intellectual Property Rights (IPR) Information

Safety Instructions and Approvals

Safety Instructions	l Read the installation guide thoroughly before you set up the switch. l The switch should only be repaired by authorized and qualified personnel. Do not try to open or repair the switch yourself; doing so is hazardous and will void your warranty. l Do not place the switch in a damp or humid place, e.g. a bathroom. l Do not stack the switches directly on top of one another. l The switch should be used in an indoor location, within a temperature range of +5 to +40 Celsius (including when placed inside a rack). l Do not expose the switch to direct sunlight or other heat sources. The housing and electronic components may be damaged by direct sunlight or heat sources. l Do not deploy network or power connections outdoors to prevent electronic shock hazards. l Keep the packaging out of reach of children for safety. l When you dispose of the switch, please follow local regulations.
Warranty	DrayTek Corp. warrants to the original end user (purchaser) that the router will be free from any defects in workmanship or materials for a period of two (2) years from the date of purchase from a DrayTek authorized dealer in the UK/Ireland. Keep your purchase receipt as it serves as proof of date of purchase. During the warranty period, and upon proof of purchase, should the product have indications of failure due to faulty workmanship and/or materials, we will, at our discretion, repair or replace the defective products or components, without charge for either parts or labour, to whatever extent we deem necessary tore-store the product to proper operating condition. Any replacement will consist of a new or re-manufactured functionally equivalent product of equal value, and will be offered solely at our discretion. This warranty will not apply if the product is modified, misused, tampered with, damaged by external factors, used with unapproved accessories or subjected to abnormal working conditions. Warranty applies to hardware only, not software or firmware. Defects which do not significantly affect the usability of the product will not be covered by the warranty. We reserve the right to revise the manual and online documentation and to make changes from time to time in the contents hereof without obligation to notify any person of such revision or changes.

Regulatory Information

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- l Reorient or relocate the receiving antenna.
- l Increase the separation between the equipment and receiver.
- l Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- l Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device may accept any interference received, including interference that may cause undesired operation.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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Join the UK mailing list	Users in the UK & Ireland can sign up to our mailing list which goes out approximately 4 times per year with products news, updates, hints & tips and offers. For details, please visit **www.draytek.co.uk/list**
Firmware & Tools Updates	Due to the continuous evolution of DrayTek technology and emerging risks, router firmware updates may be issued. You should keep the firmware/software of all equipment up to date. Please consult the DrayTek web site for more information on newest firmware, tools and documents: www.draytek.co.uk (For UK/Ireland)

1 **Introduction**

Thank you for purchasing a DrayTek product.   The VigorSwitch V1281 is a Gigabit Ethernet switch optimized for the switching of A/V signals over IP. The V1281 is designed with an intuitive and easy to use interface for both installers and the end users who will be using the product.   As a Gigabit switch, as well as handling your A/V switching, it can also be used for your networking (Data/LAN) requirements, connecting regular LAN components at full Gigabit speed, isolated from the A/V signals so that there is no performance impact.

Package Contents

Please check that you have received the following items:

VigorSwitch V1281

Main Unit
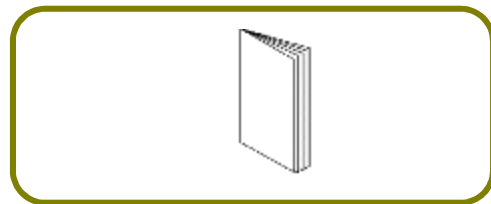
Quick Start Guide

(You're reading that now)
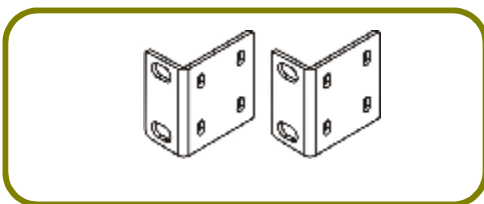
Rack Mount Kit (brackets) & screws

Also Rubber Feet (not shown)

UK-type Power Cord

If any of these items is missing or damaged when you receive the product, please immediately contact your supplier.

You will also need HDMI-to-IP extenders/convertors – one for each A/V source or output. These are not supplied with the VigorSwitch (see later).

Panel LEDs and Ports

RJ45 LNK/ACT
Port 1 to Port 24

Combo
Ports 25-28

SFP
Ports 25-28

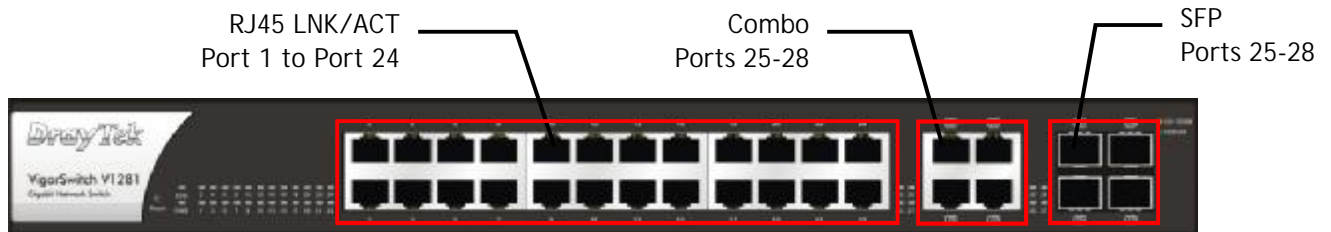| LED	Status	Explanation
SYS	On (Green)	The switch finishes system booting and the system is ready.
	Blinking (Green)	The switch is starting up (booting)
	Off	The switch is not ready or there is an error.
PWR	On (Green)	The device is powered and running normally.
	Off	The device is powered off.
RJ-45 LNK/ACT Port 1 ~ 28	On (Green)	The device is connected at 1000Mbps.
	On (Amber)	The device is connected at 10/100Mbps.
	Blinking	The port is sending or receiving data.
	Off	The port is not connected.

Interface / Port	Description
RJ-45 LNK/ACT Ports 1 ~ 24	Port 1 to Port 24 are standard RJ-45 Ethernet ports supporting Gigabit speed.
RJ-45 or SFP Ports 25 ~ 28	Port 25 to Port 28 are used either as Fibre ports or RJ-45 ports. If you use, for example, Port 25 as RJ-45, you cannot use the corresponding SFP Port 25 and vice-versa.
IEC/C24 Socket on Rear	Power inlet: AC 100~240V/AC, 50/60Hz.

Principles of Operation

Although you may have used DrayTek switches for regular networking applications previously, the V1281 is different because it's designed for switching A/V.

Sources and Outputs

Throughout this Quick Setup Guide and also within the V1281's admin interface we will refer to <u>sources</u> and <u>outputs</u>.

- A <u>source</u> is any device which is providing a video or audio output – most commonly a DVD/Blu-ray player, a satellite receiver or other set-top box or a CCTV system.

- An <u>output</u> is what you'll be watching or listening on, such as a TV, a projector or an amplifier/receiver.

Also, in our setup guides and in the switch GUI we will generally colour code sources in red and outputs in green to aid with illustration and clarity.

> If you are reading the printed version of this guide in Black & White, you may prefer to download the colour PDF version from our web site.

HDMI vs. Ethernet Cabling

Like any Ethernet switch, the V1281 has RJ-45 sockets on the front, not HDMI. Although native HDMI switches do exist, cable lengths are limited and the cables themselves are more costly and complex to wire up.

Using Ethernet means you use low cost CAT5e (or higher) cable which often already exists in a location. If you use fibre optic cable, Ethernet can carry for many kilometers if needed; the VigorSwitch can support up to 4 SFP fibre modules.

Using CAT5e also means that the V1281 is very scalable – you can add as many or few sources or outputs as you need up to the maximum number of ports whereas with a native HDMI switch, it will have a fixed number of ports, which you pay for whether you need them or not.   With the V1281 your AV signals can also share the network or networking infrastructure with your data networking for PCs or other devices.

Converting HDMI to IP – Using Extenders

The source's HDMI output has to be converted into a TCP/IP stream which can be handled by the V1281 and to connect to CAT5e RJ-45 connections (or CAT6). For this you need an **HDMI to IP adaptor (or 'extender).** These are available from many vendors and DrayTek have our own model, the HVE290. Prices vary considerable depending on features, brand/quality and resolution or picture quality.

A VigorSwitch V1281 might, for example, have two sources (e.g. two satellite receivers) and eight TVs around the premises, or it might have ten sources and just two screens – you can have any combination, providing just the right number of converters/extenders so you're not paying for HDMI ports you don't need – you just purchase the right number of HDMI-to-IP convertors.
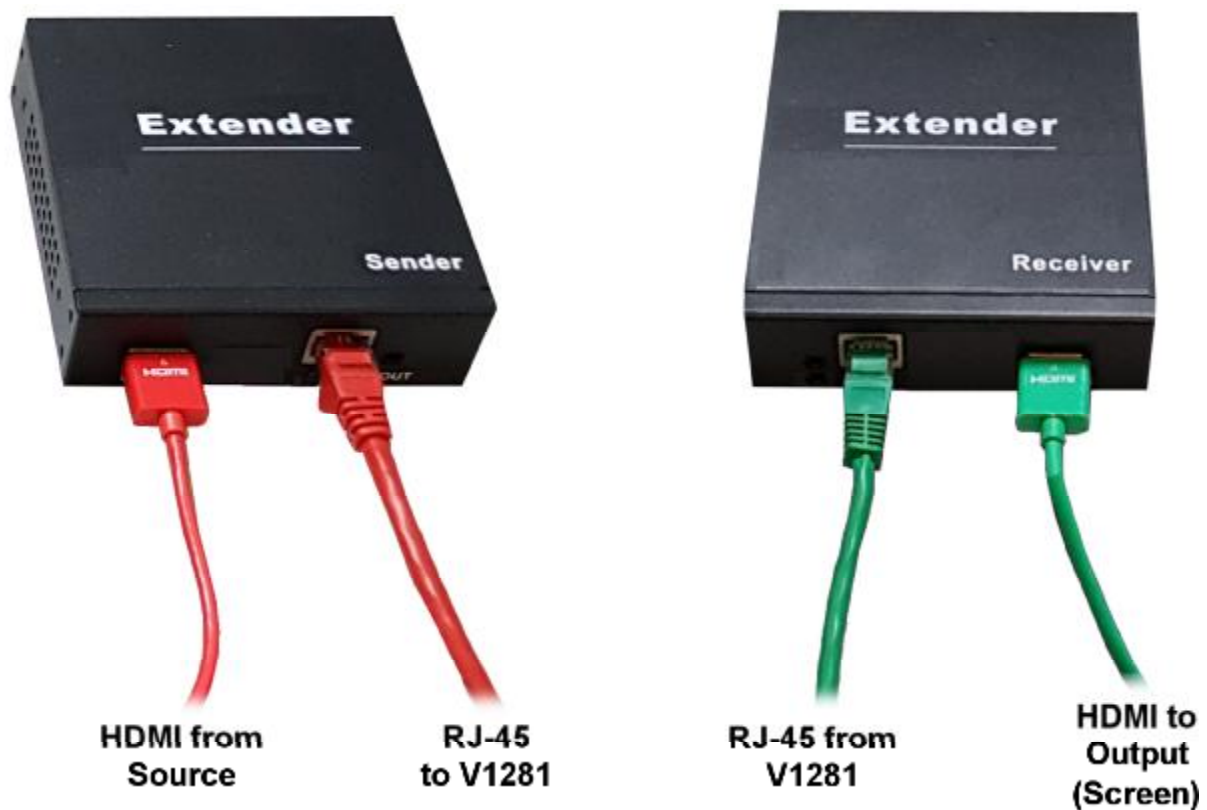

As there are many similar looking products, it is essential is that the HDMI-to-IP adaptor/extender that you use supports IP. Some devices can send an HDMI signal over CAT5/CAT6 cable, but using a proprietary method, and not IP or Ethernet. That type of device will **not** work with the VigorSwitch V1281 and may even cause damage so please be sure that the device you connect uses IP **and** Ethernet (10/100/1000BaseT). Any additional functions or features, such as IR (infra-red) pass-through, RS-232 pass-through, HDMI loop-through, maximum resolution or the type of codec used will depend on your requirements and budget. Also consider how the extenders are powered and whether you need to rack mount them.

4 VigorSwitch Installation

Rack-Mounted or Desktop

The VigorSwitch V1281 can sit on a desk or shelf; please fit the rubber feet (supplied) only if you will be using it in that way. If you will be mounting the switch in a standard 19″ rack, attach the rack mount 'ears' to each side of the switch using the screws provided. Do not use any other screws. Tighten securely.
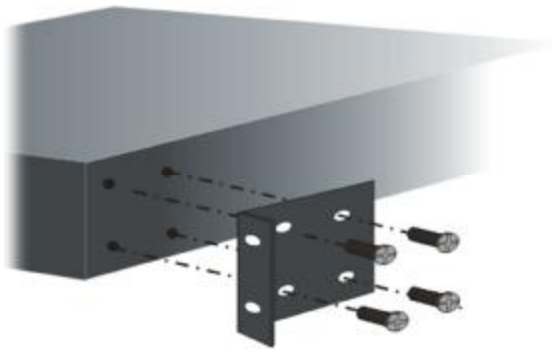
You can then fit the switch to your rack. Mounting hardware for that is not supplied and will depend on your rack type.

Topology and Hardware Installation

Installing and configuring your VigorSwitch V1281 should be very straightforward if you plan carefully and are clear about your network/AV topology.

Before starting, ensure that you know how many **sources** (Satellite Receivers, Blu-Ray, DVD, STB etc.) you will have and how many **outputs** (screens/projectors) you'll be feeding to. You will need an HDMI-to-IP sender for each source and a receiver for each output (see previous section).

In the example below, a pub has with three source devices on the left and four output screens on the right:
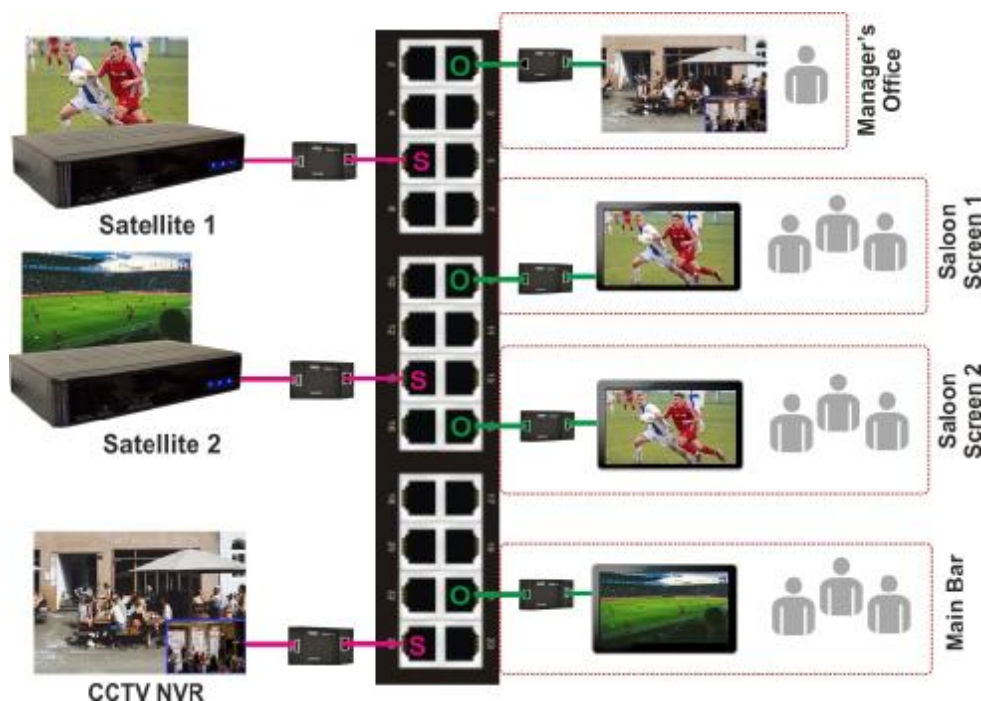
For this example, you would need three HDMI-over-IP senders and four receivers. Any port on the V1281 can be defined as one of three modes (source, output or LAN) so it doesn't matter which port you select for your sources or outputs. Later, when you configure the V1281, you will allocate each port's function.

Coloured cables are used only for illustration – Red are our sources, Green our outputs and the Purple cables are LAN (networking connections) for PCs, routers, uplinks, wireless bases etc.   Remember, any port can be set to any of those functions but we've grouped them in this photograph because it's simpler (and looks pretty). Also, you won't necessarily have 4+4+3 – you can have any combination.

Device Connection

Connect an HDMI-to-IP sender unit to each source device (Set-top boxes, DVD players etc.). The sender units will also need power (not shown).   Connect the Ethernet end of the sender to your VigorSwitch V1281. In the example photo below, we have used two satellite TV receivers as the sources:

Connect an HDMI-to-IP receiver unit to all output devices (TVs or Projectors) and connect an Ethernet cable from the receiver unit to the VigorSwitch V1281 (via your structured cabling or RJ-45 sockets around the building etc.). Receiver units will also need power (not shown):

HDMI-to-IP senders and receivers look alike so double check you have them the right way around. Senders connect to your source (e.g. DVD player) and receivers connect to your output (e.g. television).

Connect your VigorSwitch V1281 to your computer network (we suggest using port 1). You can connect a PC to the VigorSwitch if you want to use that for configuration, or you can use a wireless laptop if you have WiFi on your LAN.

Note down what is connected to each port on the V1281, especially if you won't be able to see the switch from where you're going to configure it. We also recommend that you label all cables and HDMI extenders which will make changes easier later.

6 Switch Configuration

Your VigorSwitch V1281 is configured and controlled from its web interface.

The web interface is 'responsive' which means it will dynamically adapt to different browsers, devices and screen sizes (e.g. phones, PCs or tablets). For the initial configuration it's quicker and easier to use a PC with a keyboard/mouse.

If you connected the VigorSwitch V1281 to your network (see earlier), the V1281 will obtain its own IP address from your network DHCP server (your router or other device providing DHCP). You will now need to locate the IP address that the switch has been given in order to access its web interface.

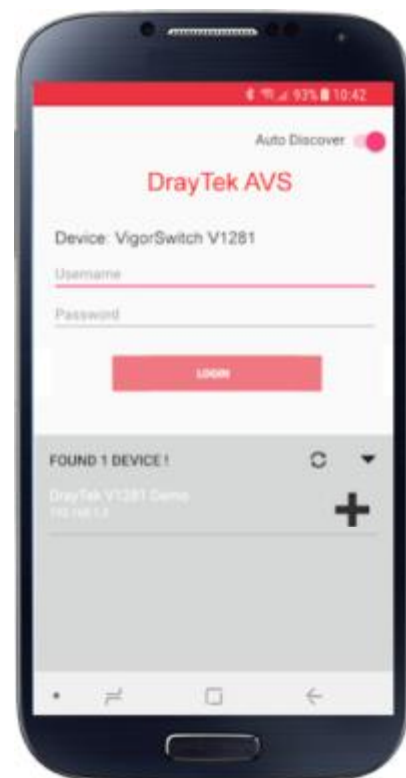## Locate the VigorSwitch's IP Address

If you have Wireless LAN (WiFi) on your network, you can use the companion app for iOS or Android (Search for "DrayTek AV Switch" on the app stores).

Ensure that your phone is connected to the correct WiFi network.

Click the 'Discover' button in the app and will locate the V1281 and tell you its IP address (the app won't do anything else yet).

You can also use the Windows "DrayTek Device Finder" utility (download from our web site) which will locate the switch on the network.

Either way, note down the V1281's IP address.

If you can't use the app and your router acts as your DHCP server, you can check the router's 'DHCP table' to locate the switch (the VigorSwitch's MAC address will start 00-1D-AA...). The DHCP table is typically under a diagnostics menu on most routers. If you are using a DrayTek router, you can also use the "External Device" menu to discover and show the switch's IP address.

> If your V1281 switch cannot get an address by DHCP, it will assume a default address of 192.168.1.224. A PC connected directly to the switch, with a fixed/static IP address in the same subnet (e.g. 192.168.1.10) will be able to access the switch's GUI in order to set its IP address manually.

Access the VigorSwitch's Web Interface (GUI)

Once you know the switch's IP address you can access its web interface. Open your browser (Firefox, Edge, Chrome, Safari etc.) and in the address bar, type **https://192.168.1.50**   (replace that address with your actual address located earlier).   Note that we prefix with **https** to force a TLS encrypted connection. We recommend always using encryption to access network devices.

> Note: As you are requesting an https (TLS encrypted) connection, your browser will try to validate the certificate against your switch's dynamic LAN IP address, which will fail. If you've entered the correct address for the switch, you can proceed past this message (which will vary depending on your browser). You may need to press 'Advanced' to get to the 'continue' link and then permit access or add an exception. If you can't use https, use http in the address bar instead.
>
>
>
> **There's a problem with this website's certificate**
>
> This might mean that someone's trying to fool you or steal any info you send to the server. You should close this site immediately.
>
> ⬜ Go to my homepage instead
>
> ⊗ Continue to this webpage (not recommended)

The Login screen should now appear for your VigorSwitch. The default admin username is '**admin**' and the password is also '**admin**'. **You should change this immediately** (you will be invited to do so by the switch). Remember your new admin password – there is no way to recover it or access the switch otherwise.

After logging in, the main dashboard of the VigorSwitch V1281 will be shown:

Define your Port Functions

The first task in configuration is to tell the switch what each port will be used for. You have 28 ports in total and any port can server one of three functions:

Source   Output   LAN (Data)

When you receive a new V1281, all ports are set by default to be LAN/Data ports. The port(s) to which you have connected a PC, or the uplink to your LAN must always be set as LAN ports.   Port 1 on the V1281 is always a data port.

For our example, we are going to have 4 sources and 3 inputs set as follows:

Port No.	Function	Device/Purpose
Port 1 (GE1)	LAN	Network (WiFi Router)
Port 9 (GE9)	Source	Sky+HD 1
Port 11 (GE11)	Source	Sky+HD 2
Port 13 (GE12)	Source	Blu-Ray
Port 15 (GE15)	Source	Fire TV
Port 17 (GE17)	Output	Lounge
Port 19 (GE19)	Output	Playroom
Port 21 (GE21)	Output	Master Bed

On the left hand side of the router's GUI, click the 'Port Setup' menu.
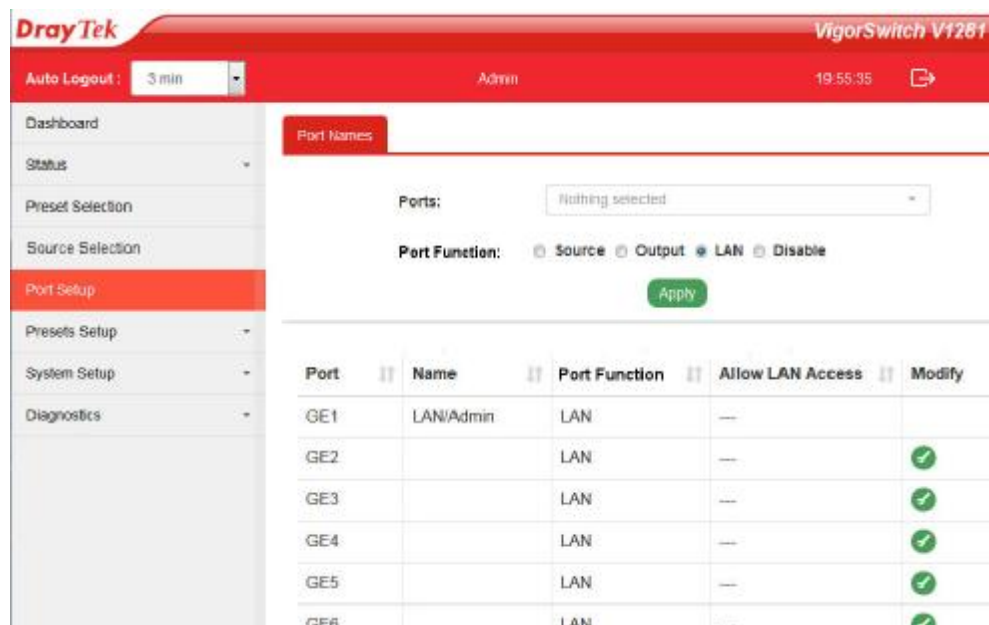
For each port we want to use, we need to specify its function and give it a name. To edit each port's properties individually, you can click the green spanner (wrench) icon to the right of the appropriate port.

We need to set the function of the ports, but rather than having to edit each individually, the top pulldown 'Ports' box allows you to select multiple ports and apply the same function to them all at once, so here we select ports 9, 11, 13 and 15, select the 'Source' button and click 'apply'.

Now you can do the same for the outputs 17, 19 and 21. Select those, select 'Output' and click 'apply':

You may notice the 'Allow LAN Access' checkbox for output ports. Do not click this unless you need to share the output's Ethernet cable with a data device.

Remember that the port numbers used in these images correspond to our example as shown in the original table. Your port numbers and the function of each will, of course, be completely different.

Now you can edit the ports individually to give them corresponding names.

Click the green spanner icon next to each of the 7 ports and name them all. The example on the right is for Port 9, your Sky+HD box.

7 User Operation

If the ports have been set up and all of your sources, output devices are connected, the VigorSwitch V1281 is ready to use. Remember to select the correct HDMI input on your screens/TVs/monitors.

You can now select any of your sources from any output device – your TVs or projectors around your home, office or other premises.

You can select sources either from the web interface (the same GUI which you used to configure the switch) or by using the DrayTek AVS app on a phone or other compatible mobile device.

Within the router's GUI, you can use the **Source Selection** menu:

If you are using the DrayTek AVS app on your mobile device, that has the same function, allowing you to select your source for each output (room/TV).

Regular (non-admin) users should be given a username and password which does not have administrator privileges, otherwise they can log in and change the switch configuration. Only admins can disable a port temporarily (e.g. if it's bedtime!). Users can share the same non-admin login, or you can set different logins for each user. Users can be restricted to controlling only specific outputs or be able to select only certain sources.

Further help

For further documentation on the other functions and advanced applications of your VigorSwitch V1281 please visit www.draytek.co.uk/support (UK/Ireland).

CE

DrayTek

EU Declaration of Conformity

We, DrayTek Corp. declares under our sole responsibility that the product:

- l **Product name:**   **24 Ports Gigabit A/V Switch**
- l **Model number:**   **VigorSwitch V1281**
- l **Manufacturer:**   **DrayTek Corp.**
- l **Address:**   **No.26, Fu Shing Road, HuKou County,**
  Hsin-Chu Industrial Park, Hsinchu 300, Taiwan , R.O.C.

is in conformity with the relevant Union harmonization legislation:

EMC Directive 2014/30/EU, Low Voltage Directive 2014/35/EU and RoHS 2011/65/EU with reference to the following standards:

Standard	Version / Issue date
EN 55032	2015 class A
EN 61000-3-2	2014 Class A
EN 61000-3-3	2013
EN 55024	2010+A1:2015
EN 60950-1	2006 +A11:2009 +A1:2010 +A12:2011+ A2:2013

Calvin Ma

Hsinchu   **22nd June,   2017**   **Calvin Ma / President   .**

(Place)   (Date)   (Legal Signature)