

# Application Note

## Dell PowerConnect Initial Configuration Instructions:

The Dell PowerConnect 35xx series (including PoE versions) managed network switch requires an initial setup to operate with the Just Add Software MediaSwitcher™ HD over IP™ Control Center. Out of the box, the switch is not properly configured to accept user connections via the TCP/IP networking protocol that MediaSwitcher™ requires.

The most reliable way to perform this initial setup is via an RS-232 serial connection to the switch. In order to perform this setup, the following items will be needed:

- Windows PC or Mac computer
- A spare RS-232 port
- RS-232 connection cable (usually included with the switch)
- IP Address information for the network being configured
- An RS-232 terminal emulator program

*Note: All Mac and many Windows computers do not have built-in RS-232 serial ports and instead have only USB ports. In these cases a USB to serial converter is required. These can be purchased at numerous stores and online sites. A recommended unit for any platform (Windows or Mac) is the Keyspan USA-19HS. It is available from Amazon.com for \$30.23 (<http://www.amazon.com/Keyspan-Speed-Serial-Adapter-USA-19HS/dp/B0000VYJRY>)*

### **IP Address Information:**

Before any configuration is done, information regarding the IP address to be used on the switch will need to be determined. What this address will be is dependent upon the application of where the switch will be used.

*Note: Some networks may dynamically assign IP addresses to devices on the network using a protocol known as "DHCP." While the PowerConnect switches can be configured to operate this way, it is highly recommended to configure the switch with a fixed or permanent IP address. If DHCP is running on the network, you will need to make sure the IP address used by the switch is outside the range of IP addresses assigned by the DHCP server (usually the router on the network).*

#### 1.) Standalone Network:

By standalone, this means that the HD over IP™ network will be the ONLY network operating on the switch - no other networks in the home or business will be connected to the switch. The switch and anything connected to it will therefore not have internet access.

In the case of a standalone network, the choice for the IP address can be of the user's choosing. The standard IP address ranges for private networks are as follows:

10.0.0.0        - 10.255.255.255  
172.16.0.0     - 172.31.255.255  
192.168.0.0    - 192.168.255.255

Of these 3 address blocks, the 10.0.0.0 and 192.168.0.0 subnets are the most common. The Just Add Power HD over IP™ system uses the 192.168.168.0 subnet and in order to not interfere with any of the devices in the system, it is recommended to not use that subnet.

Another item needed will be the “subnet mask” - this defines the range of addresses that will be addressable in the network. For the purposes of this document, this can always be assumed to be 255.255.255.0.

Finally, a third term that will be seen is the “gateway IP.” A gateway on a network is a “door” or “connection” to another network. Since this is the case of a standalone network, there will be no gateway address needed.

The computer running MediaSwitcher™ will need to be configured to use the same IP subnet as is chosen for the switch. For more information please see the Just Add Software Application note titled, “Configuring the MediaSwitcher™ computer for your HD over IP™ network.”

## 2.) Interconnected Network:

By interconnected, this means that the HDMI over IP network will be operating on the same network that other devices also occupy. It is perfectly acceptable to have the HD over IP™ network connected to the same LAN that is occupied by computers or other devices. The VLAN functions of the switch isolate the HD over IP™ devices and therefore, they are not seen by anything else on the network. The advantage of this approach is that one network can now be used for all traffic in the home or business. In addition, it is generally assumed that an interconnected network will also have connection to the internet. This allows such things as being able to remotely manage the HD over IP™ network from just about anywhere in the world! Or if the network has wireless access points, the computer running MediaSwitcher™ need not be wired to the switch in order to control the HD over IP™ matrix.

In the case of an interconnected network, it is essential to determine the IP subnet of the existing network. And it is essential to determine an available IP address that can be used for the switch. Depending on the installation, it may be necessary to speak with the network administrator or property owner to obtain this information.

In the case of an interconnected network you will need the following information:

- IP address to be used for the switch (if DHCP is running on the network it must be outside the range of addresses used by the DHCP server - generally the router on the network)
- Subnet Mask
- Gateway IP address (this is not necessarily needed but a good idea to have it)

Once the IP address that will be assigned to the switch has been determined configuration can begin.

### **Terminal Emulator Software**

In order to communicate with the switch over the RS-232 Serial connection, a terminal emulator program will be needed. If the computer doing the configuration is running Windows XP, the software HyperTerminal is included and can be accessed from the start menu as follows:

Start > All Programs > Accessories > Communications > HyperTerminal

If the computer in question is running Vista or Windows 7, then HyperTerminal is not included. There are numerous terminal emulator programs that can be obtained that will function well. The link below has instructions for downloading and using an open source emulator called "putty." This program works very well and is easier to use than HyperTerminal.

<http://www.cyberciti.biz/tips/replace-windows-vista-hyperterminal-with-putty.html>

For Mac OS, the best terminal emulator is called ZTerm. It is available from the following website:

<http://homepage.mac.com/dalverson/zterm/>

It has not been updated in several years and is built using PowerPC binaries. On Intel Macs, Rosetta is required to be enabled to run the software. If Rosetta has not been enabled, OS X will prompt you when you first attempt to run the software. Even though it has not been updated in several years, it is still a very good program.

Given the number of different possible terminal programs that exist, this document won't attempt to explain how to open connections or set baud rates. Please see the documentation for those programs to determine how to operate the software properly.

For the Dell switches the following communication parameters will be needed:

- Set the data rate to 9600 baud
- Set the data format to 8 data bits, 1 stop bit, and no parity
- Set flow control to *none*
- Set the terminal emulation mode to VT100

The required serial cable for connecting to the Dell is a crossover or "null modem" cable. The unit should have the proper cable shipped with it. If the cable has been lost, it will be necessary to obtain the correct cable. Alternatively, a standard RS-232 cable can be used with a null modem adapter.

### **Performing the Configuration**

With the Dell PowerConnect series, there are two ways to do the initial configuration. The easiest or "out of box" method consists of following some on screen terminal prompts for the initial configuration wizard. Information on the wizard will be provided here and it is covered in greater depth in the PowerConnect user's guide on pages 49 through 54.

#### **Steps for Configuration using the Setup Wizard:**

- 1.) Connect the serial cable to the console port on the back of the switch. Connect the other end to your computer.
- 2.) Using your terminal program configure the connection to use the 9600,N,8,1 parameters discussed above.
- 3.) Apply power to the switch.

4.) If the switch is brand new out of the box and has never been booted or configured, a prompt to enter the setup wizard will be displayed once the switch performs its initial power-on diagnostics:

```
Welcome to Dell Easy Setup Wizard
The Setup Wizard guides you through the initial switch configuration,
and gets you up and running as quickly as possible. You can skip the
setup wizard, and enter CLI mode to manually configure the switch. The
system will prompt you with a default answer; by pressing enter, you
accept the default.
You must respond to the next question to run the setup wizard within 60
seconds, otherwise the system will continue with normal operation using
the default system configuration.
Would you like to enter the Setup Wizard (you must answer this question
within 60 seconds? (Y/N)[Y]Y You can exit the Setup Wizard at any time
by entering [ctrl+Z].
```

Enter “Y” to begin the wizard.

5.) The first question the wizard asks is if you would like to set up SNMP. Answer No (N) to this question unless SNMP monitoring of the switch will be used on the network (SNMP monitoring is not needed for the Just Add Power HDMI over IP video matrix). Setting up SNMP is beyond the scope of this document as it is not needed.

6.) The next question prompts the user to enter the administrator (Level 15) user account and password. The default user account is admin and the default password is blank. These can be set to whatever is desired, but remember them as MediaSwitcher™ will need these values to log in and control the switch. The wizard text is shown below:

```
Now we need to setup your initial privilege (Level 15) user account.
This account is used to login to the CLI and Web interface. You may
setup other accounts and change privilege levels later. For more
information on setting up user accounts and changing privilege levels,
see the user documentation.
To setup a user account: Enter the user name<1-20>:[admin] Please enter
the user password:* Please reenter the user password:*
```

7.) The next questions deal with the IP address setup. The first prompt asks you to enter your IP address and the second, asks for the subnet mask. This IP address is the address determined in the “IP Address Information” section of this document. The wizard prompt text is displayed below:

```
Next, an IP address is setup.
The IP address is defined on the default VLAN (VLAN #1), of which all
ports are members. This is the IP address you use to access the CLI, Web
interface, or SNMP interface for the switch.To setup an IP address:
Please enter the IP address of the device (A.B.C.D):[1.1.1.1]
Please enter the IP subnet mask (A.B.C.D or nn): [255.255.255.0]
```

8.) Finally set up the default gateway in the next prompt (generally this is optional and is never needed in a standalone network configuration).

9.) Once the gateway information has been entered, the user is given a prompt to save the information to the start-up configuration file. If all the information entered is correct, enter “Y” and the configuration will be saved.

10.) Now you are at the command line interface prompt. Congratulations! The switch is now configured for use with MediaSwitcher™! The rest of the configuration needed to set up the HD over IP™ matrix can be performed from inside MediaSwitcher™.

If the switch was previously configured or has been in use for some time without an IP address assigned (ie: using RS-232 control only), then there are a couple of different options for setting the IP address.

Option 1: Delete the startup-config file and reboot the switch to force the wizard to start. WARNING: Doing this will erase ANY existing configurations on the switch. Only do this if a complete re-initialization of the switch is OK:

If the switch is not already in “Enable” mode (# is the prompt character), enter “Enable” to put the switch into enable mode. You will be asked for a password. If a password was set, enter that or if no password was set, hit return.

Once in enable mode enter the following commands (for all commands shown <cr> means the carriage return key. Do not type the literal characters “<cr>”).

```
del startup-config <cr>
```

You may be prompted if you are sure you wish to delete the file. Say yes. Next enter:

```
reload <cr>
```

You may be asked to confirm the reboot. Say Y. The switch will now reboot itself and the wizard will start. Follow the steps provided above.

Option 2: This option provides the commands to manually set the IP address on the switch. Do this if, a reinitialization of the switch is not possible.

- Put the switch in enable mode if not there already.
- Once in enable mode enter:

```
config <cr>
```

- You will now be taken into Global Configuration mode - the prompt shows (config)#. Now enter:

```
interface vlan 1 <cr>
```

The prompt now changes to (config-if)#.

- Now enter:

```
ip address A.B.C.D E.F.G.H I.J.K.L <cr>
```

Where:

A.B.C.D = The IP address for the switch chosen above

E.F.G.H = The IP subnet chosen above

I.J.K.L = The address of the Gateway on the network (OPTIONAL)

Now type:

*Exit <cr>*

*Exit <cr>*

This will get you back to the enable (#) prompt. Now type:

*copy running-config startup-config*

You will be asked to confirm this - enter y.

Your settings will now be saved and the switch usable by MediaSwitcher™.

If you have any further questions or need additional assistance please contact your authorized Just Add Power/Just Add Software dealer or distributor for more information or contact Just Add Software at [support@justaddsoftware.net](mailto:support@justaddsoftware.net) and we will do our best to help promptly.