# Best Practices

# Pre-Deployment Information

- LAN IP schemes for each site
- ISP static IP's at any of the sites
- Resources currently onsite with Static IP's
  - Servers
  - Phone Systems
  - Printers
  - Other
- VoIP configurations
  - On Prem or Off Prem?
  - Server IP's
  - Phone IP's and VLAN's
- Any DHCP servers onsite
- Current configuration of deployed equipment
  - VLAN's
  - Subnets
  - Port Forwarding
- Pre deployment Speed Testing
- Current Wi-Fi SSID's and Passwords
- Plug in the gateway to allow all new firmware updates are complete

# Required Equipment for Installations

- Surge protector
- Power cable for gateway
- PoE injector for Access Point
- Ethernet cables
  - 1 between ISP modem and Uplevel Gateway
  - 1 between Uplevel Gateway and PoE injector
  - 1 between PoE injector and access point
  - Any other Ethernet cables for wired devices
- Cisco Style Serial Cable (for static IP configuration)
- Laptop with PuTTY and serial cable Drivers installed (for IP configuration)
- Rack Mount shelf or other shelf mount (if applicable)
- Access point Mount gear
- Login Credentials for the Uplevel Dashboard

# Onsite Prep

- Perform a series of speed tests to determine the ISP reliability
  - This is especially important for VoIP services and QoS configurations
- Survey of all existing devices on site
- Note the LAN scheme of the ISP modem

# Installation Process

- Once all important information is noted in the Checklist unplug any existing infrastructure
- Plug in the gateway power
- Plug the gateway Port 1 into ISP modem LAN Port
- *Optional* Set Static IP via Cisco Style Serial Cable (if needed) (see appendix for instructions)
  - NOTE the Uplevel Gateway does not require a static IP!
- Plug 1 cable from the Uplevel gateway (any open port) to the PoE injector. Plug 1 cable from the PoE injector to the AP. Ensure the injector is also plugged into power.
  - If using an Uplevel PoE Switch simply plug the AP directly into the switch
  - Note the AP should be plugged directly into an Uplevel Swith or the Uplevel Gateway through a PoE injector (not into a 3rd party switch)
- Wait at least 5 minutes for the gateway and AP to boot up
  - The Access Point will be the last thing to come online. This is normal!!
- Log into the dashboard to watch the gateway come online (appear green)
  - If the gateway does not come up after at least 5 minutes proceed to the trouble shooting instructions located in the Appendix

# Once Online

- Ensure connection to a physical port allows for connection to the internet
  - Keep in mind it will take about 5 minutes for the gateway to initially come online
- It will take anywhere from 2-3 minutes for any configuration changes in the dashboard to get pushed down to the gateway

# Dashboard Configuration

** Configuration Changes will take up to 3 minutes to go into affect **

## Proceed to the desired customers configuration page

## To change the Customer name proceed to Site Settings -> Edit Customer

This will change the customer name in the dashboard as well as any alert emails

## To change the Customer DNS proceed to Site Settings -> Edit Customer

This is the internal DNS of the gateway. This should follow the form Customer.DomainName.com.

*WARNING* Inputting the customer website into this field will result in an unreachable website from within the LAN

## To change the Site name proceed to Site Settings -> Edit Site

This will change the site name in the dashboard as well as any alert emails

## To set the LAN IP scheme proceed to Site Settings -> IP DHCP

Here you can configure the scheme as well as LAN DHCP ranges previously recorded.

Ensure the ISP modem internal IP range does not conflict with the LAN scheme of the Uplevel Gateway. There should be 16 VLANs available for the Uplevel gateway. This means for a /20 network and the site set to 192.168.0.0 the ISP modem should be greater than 192.168.16.0 if it is not in bypass mode.

Setting the Employees network will auto configure the entire site and allow for a flat network configuration. To change this proceed to the advanced option.

Ensure DHCP ranges do not conflict with any existing Static IP's onsite

If you are deploying to multiple sites view the Multi Site option in the appendix to see specific multi site instructions

## To create any new VLAN's proceed to the Overview page

Here ensure the Multiple Groups is enabled (located at the very bottom of the screen). From here you may add groups and assign resources to it which will create a VLAN and subnet. This IP scheme can be changed under Site Settings -> IP DHCP -> Advanced

## To set any required port forwarding rules proceed to Firewall -> Port Blocking

Here you can add any rules which will punch a hole through the Stateful Port Blocking Firewall.

# Dashboard Configuration (Continued)

** Configuration Changes will take up to 3 minutes to go into affect **

## To configure Wi-Fi SSID's of the Uplevel Access Point proceed to Wi-Fi

To configure all SSID's and Passwords for the Corporate Network proceed to Create SSID's under the Corporate Network box

To configure a Guest Wi-Fi with password and bandwidth restrictions for the Guest Network proceed to Create a Guest SSID

Specify the power levels and channels by going to Wi-Fi-> Configure Access Point

## To partition off part of the 1TB NAS by going to Storage -> Add a Drive

To configure backups for these particular drives proceed to Storage -> The Drive in question -> Configure Backup -> Both local and cloud backups can be found here

## To configure a VoIP phone system proceed to VoIP -> Edit -> Enable

Here you can select from a predefined list the on prem or off prem service. This will allow the Uplevel to automatically configure the Firewall Rules. These firewall rules can be found under the Firewall tab.

You can also specify the Upload and Download speed limits gathered previously

This will configure a VoIP VLAN and define the QoS based on the input speeds

## To configure Ethernet ports to already configured VLAN's proceed to Ethernet

By clicking Edit you can also enable and disable ports as you need

You will see all VLANs (including VoIP) in the drop down list to the right

## To configure any Remote VPN Clients proceed to VPN -> Enable -> Add a VPN user

The will require you specify a username, password, and VLAN for the particular VPN Client

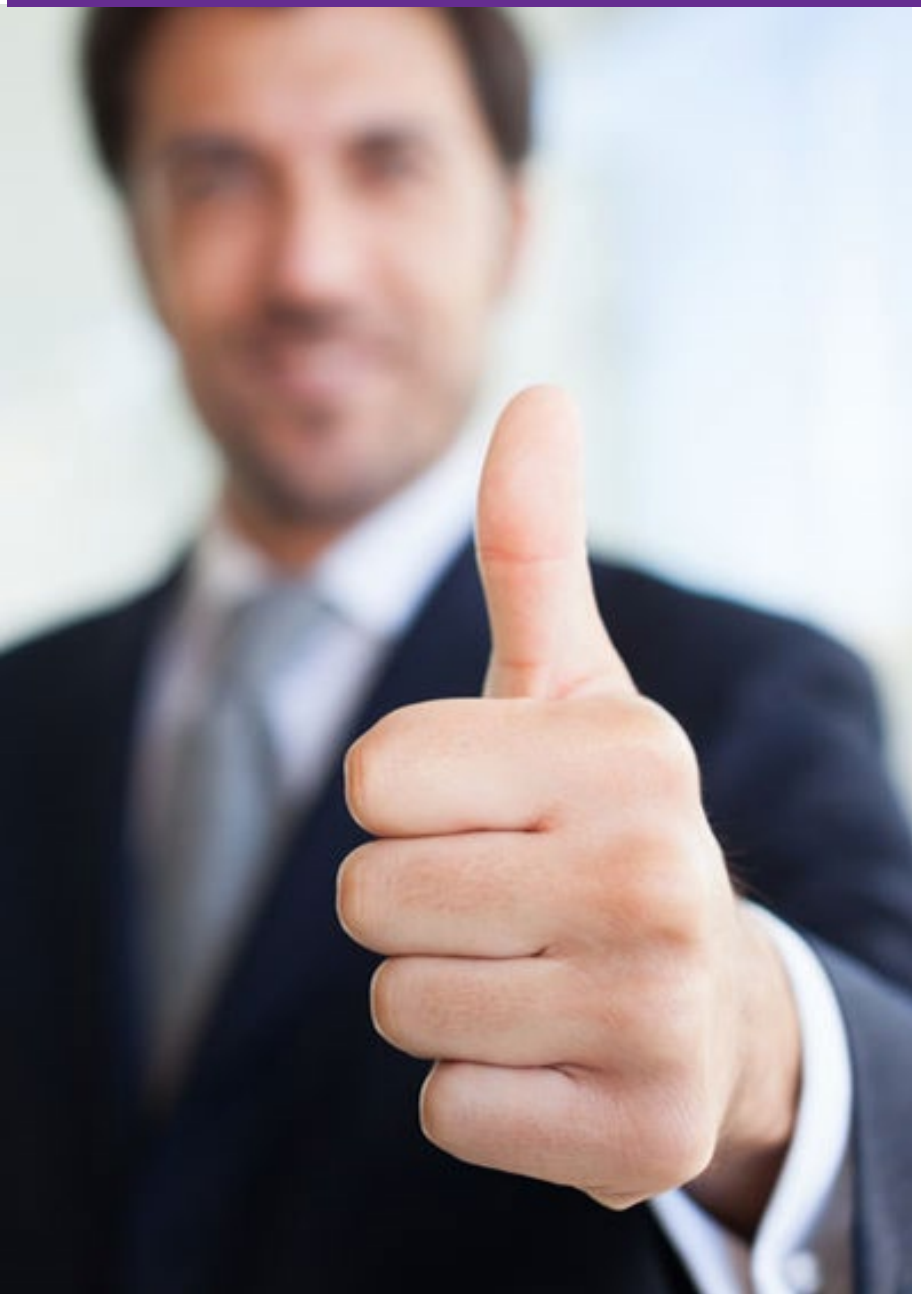
## To configure Site to Site VPN proceed to Site to Site VPN

This will allow you to specify the VLAN's that you wish to have Site to Site VPN access

## To configure Threat Scanning proceed to Firewall -> Threat Scanning -> ⋮ -> Enable Threat Scanning

Here you can specify the initial alerting and dropping posture of the deep packet inspection firewall

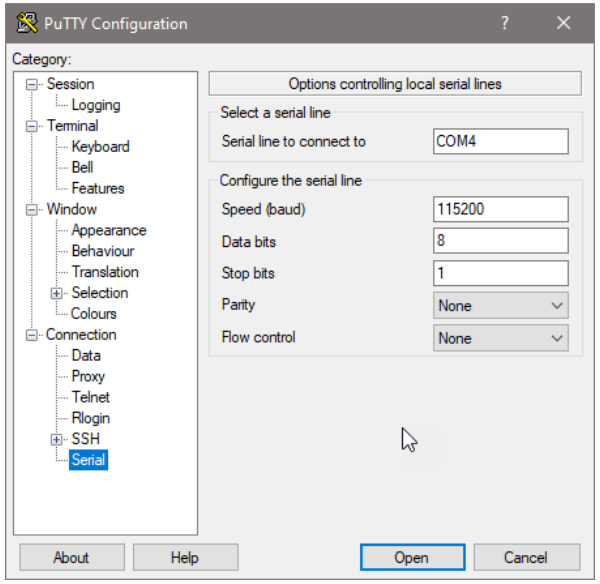
# Service Checks

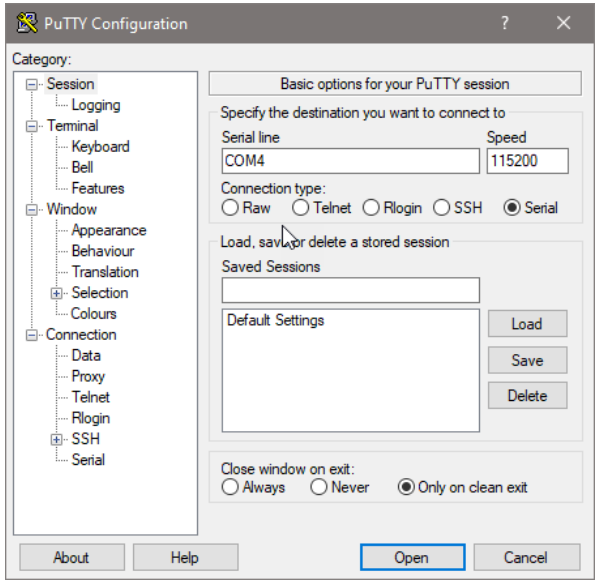


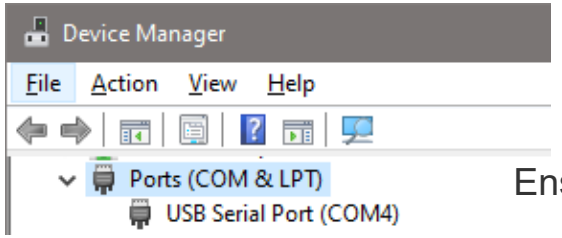
- Connect a device to a physical port on the gateway to ensure connectivity to the internet
- Connect a device to an SSID created to ensure connectivity to the internet
- Configure a VPN Client to connect remotely
- Map a drive onto a machine on the network
  - Add a folder to this drive
- Ensure VoIP phones are operating as expected
- Scan the network to ensure all devices are responding
  - Devices -> Ping Etc -> Scan Network

# Appendix

# Static IP – Connect to the Console Port




## Microsoft Windows 10

Ensure your computer has PuTTY downloaded (download at www.putty.org)

Ensure you have a Blue USB-to-Serial Port Console Cable

Ensure your computer also has the drivers installed. The Windows Driver is available at the Cisco Download Site (requires free account)

- Plug the serial cable into the console port of the gateway and connect to a computer
- Open PuTTY
- PuTTY configuration:
  - Select "Serial" as the Connection type
  - 115200 baud
  - No parity
  - 8 data bits
  - 1 stop bit
  - No hardware flow control
  - Input the serial line defined by your device - COM"X"
  - Open

To locate the COM Port: Device Manager > Ports (COM & LPT) > USB Serial Port (COM"X")

# Setting Static IP Address – Help Command

Tip: You can type “help” after any command to see the available options.

```
Please press Enter to activate this console.
Type 'help' for help.  You need to reboot to put configuration changes into effect.
> help
Documented commands (type help <topic>):
========================================
configure  dhcp  dig  exit  help  login  ping  reboot  show  traceroute
> configure
>CONFIGURE> help
Documented commands (type help <topic>):
========================================
exit  help  password  primaryWAN  secondaryWAN
>CONFIGURE> primaryWAN
>CONFIGURE>PRIMARY-WAN> help

Documented commands (type help <topic>):
========================================
exit  help  ip
```

# Setting a Static IP Address

Tip: To set the AUX WAN use “secondaryWAN”

Tip: “mode dhcp” will wipe the static ip subnet on reboot.

Tip: Run “show config” to check your IP configuration

```
Please press Enter to activate this console.
Type 'help' for help.  You need to reboot to put configuration changes into effect.
> help
Documented commands (type help <topic>):
========================================
configure  dhcp  dig  exit  help  login  ping  reboot  show  traceroute
> configure
>CONFIGURE> help
Documented commands (type help <topic>):
========================================
exit  help  password  primaryWAN  secondaryWAN
>CONFIGURE> primaryWAN
>CONFIGURE>PRIMARY-WAN> help

Documented commands (type help <topic>):
========================================
exit  help  ip

> configure
>CONFIGURE> primaryWAN

>CONFIGURE>PRIMARY-WAN> ip

>CONFIGURE>PRIMARY-WAN>IP> mode static primary>ip>mode successfully set to:static
>CONFIGURE>PRIMARY-WAN>IP> address XXX.XXX.XXX.XXX
primary>ip>address successfully set to:XXX.XXX.XXX.XXX
>CONFIGURE>PRIMARY-WAN>IP> netmask XXX.XXX.XXX.XXX
primary>ip>netmask successfully set to:XXX.XXX.XXX.XXX
>CONFIGURE>PRIMARY-WAN>IP> gateway XXX.XXX.XXX.XXX
primary>ip>gateway successfully set to:XXX.XXX.XXX.XXX
>CONFIGURE>PRIMARY-WAN>IP> exit
>CONFIGURE>PRIMARY-WAN> exit
>CONFIGURE> exit
```

# Check Your Configuration

Tip: Run “show config” to view the subnet configuration of the Gateway.

```
> show config
{
    "secondary-ip": {
        "netmask": "0.0.0.0",
        "address": "0.0.0.0",
        "gateway": "0.0.0.0",
        "mode": "dhcp"
    },
    "ip": {
        "netmask": “XXX.XXX.XXX.XXX",
        "address": “XX.XXX.XX.XX",
        "gateway": “XX.XXX.XX.X
        "mode": “static"
    },
    "password": null
}
```

# Trouble Shooting Installation

## 1: Is the status LED GREEN?

- Great! The gateway is online and connected up to the cloud. It may take 5 minutes for all of the services to fully enable. In the mean time breathe.  Go check the online dashboard.

## 2: Is the status LED BLUE or PURPLE?

- All good! The gateway is interacting with the cloud server to pull updates and configurations.  Just chill out for a bit until it goes green.

## 3: Is the status LED RED?

- Not good!
  - Check your ISP gateway and Unbox gateway configuration.
  - Use a laptop to verify that the ISP gateway is configured properly and can get Internet access.
  - Replace cables between the Unbox gateway and the Internet.
  - If none of that works then call support

# Trouble Shooting Walk through

## 1: Check the Dashboard… is the customer GREEN?

- Great! The gateway is online and connected up to the cloud. It may take 5 minutes for all of the services to fully enable but it is on!
- Is the AP reporting as Red?
  - That's okay. The AP is the last thing to come online so this will appear as red the longest.
  - If the AP does not come up after 5 minutes ensure that the cables are good and that the AP is connected either directly to the gateway through a PoE injector or an Uplevel switch. Using a 3rd party switch can cause AP connection issues so avoid this!

## 2: Is the Dashboard customer appearing as RED?

- Is the C' light Green?
  - The gateway is in **Recovery Mode**
  - Is the A' light also Green?
    - Don't worry the gateway has an IP address and is doing a firmware update. This will take about 30 minutes to complete however will come back up on its own afterward. Breathe. To avoid this in the future once the gateway is plugged in do not prematurely pull the power.
- Is the A' light **OFF**?
  - The gateway HAS NOT received a DHCP IP address.
  - This light will remain off if a static IP is set however if the Status light is also RED ensure that the static has been set correctly and the ISP modem is set into bypass mode. You can set the static IP using a serial cable (instructions on slide 10). After this is complete the gateway will begin booting up (keep in mind if it is also in recovery mode this will take about 30 minutes).
  - There are specific instructions for specific ISP modems. If you are experiencing difficulties please call Uplevel Support for more information about the specific ISP modem.
- Is the Status' light RED?
  - The gateway can not reach the internet. Ensure that the A' light is Green and has an IP address, if not see above.

# Trouble Shooting Installation

## 3: Is the Dashboard appearing as RED? (Continued)

- Is the status LED BLUE or PURPLE?
  - All good! The gateway is interacting with the cloud server to pull down updates and configurations. Just chill out for a bit until it goes green.
- Is the status LED GREEN?
  - All good! The gateway is operating properly.
- Is the status LED RED?
  - Not good! The gateway does not have internet access. Double check that the gateway has been given a DHCP (Is the A light on?) or that the static IP has been set properly.

# Mapping a Drive to a Device


## Ensure you are connected to the network either by physical port or SSID and that that connection has access to the drive.

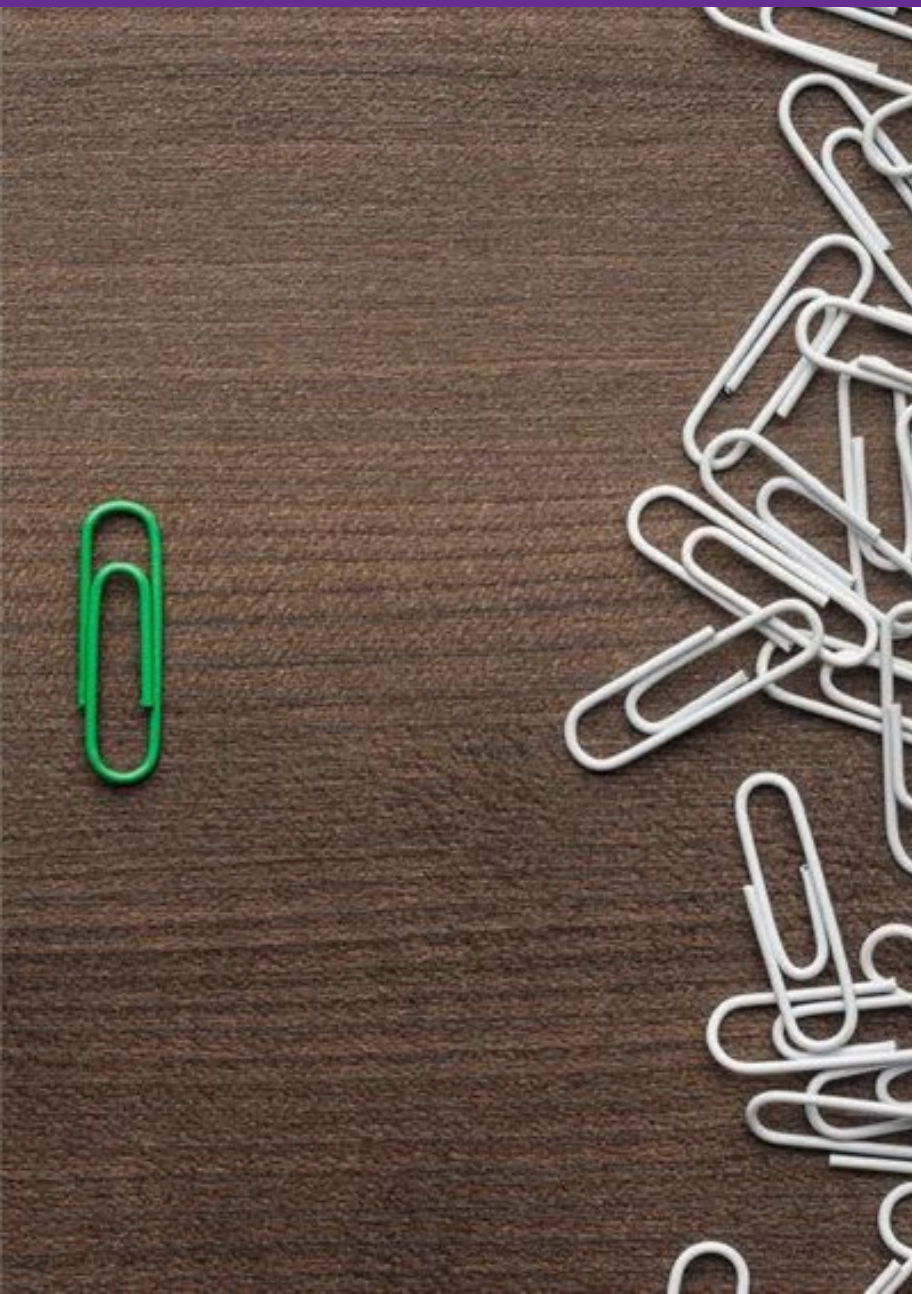
## For PC's

- Proceed to the File Explorer icon
- Select Network
- Ensure that Network Sharing is enabled *it may take a minute or two to load all of the devices*
- Select the Site desired (by default this will appear as Site 1)
- From here you should be able to view all Drives configured on the site
    - Keep in mind it does take up to 5 minutes for these configurations to work through the system so if it does not automatically appear right away give it a few more minutes.
- Once you have ensued that the drive is fully configured on the network proceed to "This PC" seen in the left hand panel
- Select Map Drive at the top of the window
- From here you can either browse for the device or input the share path.
    - The share path can be either;
        - \\VLAN IP\Drive name (this will be displaced under storage on the Uplevel dashboard)
        - \\Site name\Drive name

## For Mac's

- Select GO under Finder
- Select "Connect to Server"
- Input the path of "smb://VLAN IP/Drive name" the VLAN IP can be found under storage of the Uplevel Dashboard

# Configure VPN Client



- Proceed the devices network settings (this process varies by OS) and select VPN.
- Create a new VPN Connection
- You will need the following information from the Uplevel VPN configuration page
  - Server
  - Shared Key
  - Username
  - Password
- From there input the information into the VPN connection on the device
  - It is either an L2TP with IPsec shared key or SSTP (requires a certificate be downloaded). For more information about VPN client configurations please visit https://www.dropbox.com/sh/ygu8uk6vaivep7h/AAA04nr1HzFW-BUT99sp04aPa?dl=0

# For Multi Site Deployments

## Ensure that the IP Schemes of each LAN do not conflict

The gateway requires a 16 block for each site to account for 9 possible VLAN's so if there are 2 sites it is imperative that their LAN IP's be 16 blocks apart. For example: Site 1: 192.168.0.0 and Site 2: 192.168.16.0

## Each site will be configured separately

There are several things that will simultaneously configure across customers:

- VLAN's will configure across the entire customer
- Wi-Fi SSID's and passwords configure across the entire customer
- Threat Scanning Firewall Rules will configure across the entire customer
- VoIP settings will configure across the entire customer