



Tel: +44 (0) 1295 266277
Fax: +44 (0) 1295 268199
sales@msdist.co.uk
www.msdist.co.uk

Unit G171
Cherwell Business Village
Southam Road
BANBURY
OX16 2SP UK

UniFi Information Sheet

The details below will aid you in understanding, configuring, installing and troubleshooting both UniFi products and its controller.

Contents Page

Page 2	– UniFi Controller Ports
Page 3	– Discovery Utility / Discovery Tool
Page 3	– DNS
Page 4	– DHCP Option 43 – Linux Setup – Cisco Setup
Page 5	– DHCP Option 43 – MikroTik Setup
Page 5	– SSH Manual Adoption – Local & Layer 3
Page 6	– UAP Colour Codes – LED Lights
Page 7	– SSH and TFTP Recovery
Page 8	– Minimum RSSI



Tel: +44 (0) 1295 266277
Fax: +44 (0) 1295 268199
sales@msdist.co.uk
www.msdist.co.uk

Unit G171
Cherwell Business Village
Southam Road
BANBURY
OX16 2SP UK

UniFi Controller Ports

Default UniFi ports are:

TCP unifi.shutdown.port = 8081 (for management purpose)
TCP unifi.http.port = 8080 (device inform)
TCP unifi.https.port = 8443 (controller UI / API)
TCP portal.http.port = 8880 (portal redirect port for HTTP)
TCP portal.https.port = 8843 (portal redirect port for HTTPS)
TCP unifi.db.port = 27117 (local-bound port for DB server)
UDP port = 3478 (Amazon Cloud)

Below is the procedure to change the default ports:

- Make sure UniFi is not running.
- Modify `<unifi_base>/data/system.properties` and make sure all ports needed by UniFi are available.
- Restart UniFi.



Tel: +44 (0) 1295 266277
Fax: +44 (0) 1295 268199
sales@msdist.co.uk
www.msdist.co.uk

Unit G171
Cherwell Business Village
Southam Road
BANBURY
OX16 2SP UK

Discovery utility

Not many environments have a DHCP server that will allow you to configure DHCP options, nor a DNS server that will allow you to add static "A" records. That is where UniFi Discovery Utility comes in. It listens to the multicast / broadcast packets from UniFi APs and allows you to tell the AP to inform any URL you would like.

Only APs in default state or not in contact with any controller will be displayed.

UniFi Discovery utility is installed along with your UniFi controller.

- On Windows, it is in [Start Menu->Ubiquiti UniFi->UniFi-Discover](#)
- On Mac, [/Applications/UniFi-Discover.app](#) (or use Spotlight to find it)
- Run "`java -jar <unifi_base>/lib/ace.jar discover`"

To perform L3 adoption with the discovery utility:

1. Wait until the AP shows up.
2. If the AP is not in default state click 'reset', specify the SSH username / password and click 'Apply'.
3. Click on 'manage', modify the inform URL and leave the SSH username / password as ubnt / ubnt and click 'Apply'.
4. Open a browser to your remote UniFi controller and you should see 'Pending Approval'.
5. Click on 'Approve'. You will see it going to 'Adopting' state; ignore this as it will eventually become 'Adoption Failed' or 'Disconnected'.
6. **Perform [3] again** (there is no need to wait for [5] to finish).
7. AP is now managed by the controller.

Discovery utility also works with APs with firmware 1.2.3 and 1.3.2. Once adopted by the 2.0 controller, it will upgrade these units automatically.

DNS

- You will need to configure your DNS server to resolve 'UniFi' to your controller's IP address. Make sure that the **AP can resolve the controller's domain name**. For example, if you are setting <http://XYZ:8080/inform>, then ping from AP to determine if XYZ is resolvable / reachable.
- Or, if using **FQDN** for the controller inform URL, <http://FQDN:8080/inform>
- Troubleshooting – AP (with static IP) fails to connect to the L3 controller.
 - When configuring an AP from DHCP to static in the controller UI, make sure you have put **the IP of DNS**. If not, then the AP cannot contact DNS to resolve the controller domain name.
 - If the AP has been reset (by pushing the reset button), make sure that you have informed AP **twice** (using the discovery utility) of the controller's location (this will be improved in the coming release of 2.3.0).



Tel: +44 (0) 1295 266277
Fax: +44 (0) 1295 268199
sales@msdist.co.uk
www.msdist.co.uk

Unit G171
Cherwell Business Village
Southam Road
BANBURY
OX16 2SP UK

DHCP option 43

To use DHCP option 43 you will need to configure your DHCP Server. For example:

Linux's ISC DHCP server: dhcpd.conf

```
# ...  
option space ubnt;  
option ubnt.unifi-address code 1 = ip-address;  
  
class "ubnt" {  
    match if substring (option vendor-class-identifier, 0, 4) = "ubnt";  
    option vendor-class-identifier "ubnt";  
    vendor-option-space ubnt;  
}  
  
subnet 10.10.10.0 netmask 255.255.255.0 {  
    range 10.10.10.100 10.10.10.160;  
    option ubnt.unifi-address 201.10.7.31; ### UniFi Controller IP ###  
    option routers 10.10.10.2;  
    option broadcast-address 10.10.10.255;  
    option domain-name-servers 168.95.1.1, 8.8.8.8;  
    # ...  
}
```

Cisco CLI

```
# assuming your UniFi is at 192.168.3.10  
ip dhcp pool <pool name>  
network <ip network> <netmask>  
default-router <default-router IP address>  
dns-server <dns server IP address>  
option 43 hex 0104C0A8030A # 192.168.3.10 -> CO A8 03 0A
```

```
# Why 0104C0A8030A ?  
#  
# 01: suboption  
# 04: length of the payload (must be 4)  
# C0A8030A: 192.168.3.10
```



Tel: +44 (0) 1295 266277
Fax: +44 (0) 1295 268199
sales@msdist.co.uk
www.msdist.co.uk

Unit G171
Cherwell Business Village
Southam Road
BANBURY
OX16 2SP UK

Mikrotik CLI

```
/ip dhcp-server option add code=43 name=unifi value=0x0104C0A8030A  
/ip dhcp-server network set 0 dhcp-option=unifi
```

```
# Why 0104C0A8030A ?  
#  
# 01: suboption  
# 04: length of the payload (must be 4)  
# C0A8030A: 192.168.3.10
```

Cisco has a good [write-up for DHCP option 43 setup](#).

To use the IP of the controller

- You can also use the **IP** of the controller in the inform URL instead of the domain name.

SSH Manual Adoption (Local & Layer 3)

If you can SSH into the AP, it is possible to do L3-adoption via CLI command:

- Log into the unit via SSH `ubnt / ubnt`.
- Once logged in type **mca-cli** and then hit enter.
- Once in the engineering interface you can manually set the controller IP address for adoption:
 - set-inform http://[IP-OF-CONTROLLER]:8080/inform**
 - Then hit enter.
- Once the command had been set, go to the controller and adopt the pending device.
- Once adoption is in progress, go back to the SSH terminal and enter the command again to save the configuration.

EXAMPLE:

```
Login as: ubnt  
admin@192.168.1.20's password:
```

```
BusyBox v1.11.2 (2014-05-19 19:05:53 PDT) built-in shell (ash)  
Enter 'help' for a list of built-in commands.
```

```
BZ.v3.1.13# mca-cli  
UniFi# set-inform http://192.168.88.250:8080/inform
```

Adoption request sent to 'http://192.168.1.250:8080/inform'.

- Please adopt it on the controller.
- Issue the set-inform command again.
- <inform_url> will be saved after device is successfully managed.



Tel: +44 (0) 1295 266277
Fax: +44 (0) 1295 268199
sales@msdist.co.uk
www.msdist.co.uk

Unit G171
Cherwell Business Village
Southam Road
BANBURY
OX16 2SP UK

UniFi Colour Patterns

UAP-Normal / Long Range / Outdoor

Orange Blinking (second interval) – initializing
Orange Steady – factory defaults; awaiting adoption
Orange Flashes (every 10 seconds) – reset device & readopt
Green Steady – adopted
Green Flashing (every 3-4 seconds) – isolated AP; looking for uplink
Green Flashing (intervals < 1 second) – AP being located in controller
No Light Steady – Check power / cable / POE

UAP-Pro

White Flashing – initializing
White Steady – factory defaults; awaiting adoption
White/Blue Flashing – busy with process (i.e. firmware); do not disconnect!
Blue Steady – device is successfully integrated in UAP network
Blue Steady Flashing (every 3-4 seconds) – isolated AP; looking for uplink
Blue Flashing (intervals < 1 second) – AP being located by controller
Blue/White Flashing – busy with process (i.e. firmware); do not disconnect!

SSH

If you can SSH into the AP, it is possible to do L3-adoption via CLI command:

1. Make sure the AP is running the same firmware as the controller. If it is not, see this guide: [Upgrading UniFi firmware via SSH](#).
2. Make sure the AP is in factory default state – if it is not, do **syswrapper.sh restore-default**
3. SSH into the device and type **mca-cli** the CLI interface:
set-inform http://ip-of-controller:8080/inform

Prior to beginning the TFTP recovery, identify the correct firmware by going into your controller (also see notes below steps). You can find the correct FW path on your controller for the device you need to revive by using:

- The chart found [HERE](#), or
- The following file on the controller: [\[unifi_base_dir\]/dl/firmware/bundles.json](#)

For example I have a Debian 7 x64 controller, ver. 3.1.3.2187, and I needed to revive a Unifi AP std, so my path was: [/usr/lib/unifi/dl/firmware/BZ2/3.1.3.2187/firmware.bin](#)
Then, set a static IP on your PC's NIC from 192.168.1.0/24 range, but not 192.168.1.20 (this is the Unifi AP default TFTP IP).

Follow the steps to unbrick your UAP:

1. Set your PC to be able to access the bricked unit and prepare the firmware file.
2. Prepare your TFTP client to push the firmware.bin file so you can start it with just a hit of a button. Do not start the push yet.
 - Using the Windows integrated TFTP client, the command to prepare is: **"tftp -i 192.168.1.20 PUT [path to file]firmware.bin"**
3. Unplug the bricked unit.
4. Plug the LAN connection of the PoE injector directly to your PC's NIC.
5. Keep the unit's reset button depressed and plug in network / PoE in the unit.
 - Keep the reset button depressed until you see the light cycling relatively quickly through amber / green / off colours (~14 seconds from power on) -> Release it. Now the device is in TFTP transfer mode.
6. Engage the TFTP push command and wait. The device will write the firmware and it will reboot.
 - If you wait too long to start the TFTP, the push will not work as the device will stall. Please redo from step 3.
7. To ensure all goes clean, after the device gets stable (blinking or steady amber LED), give it a reset:
 - Remove the power. Reconnect holding the reset button for ~7 seconds (green LED will flash once) -> release reset button and wait for the device to stabilize again.
8. After device is stabilized, power cycle it again, and you are ready to go on adopting the device in the controller again.

NOTE: UAP-AC, UAP-AC-Outdoor, UAP-Pro, and UAP-Outdoor+ are different. You cannot fully restore these models with the included binary. You will need to contact Ubiquiti support about this.



Tel: +44 (0) 1295 266277
Fax: +44 (0) 1295 268199
sales@msdist.co.uk
www.msdist.co.uk

Unit G171
Cherwell Business Village
Southam Road
BANBURY
OX16 2SP UK

How to configure Minimum RSSI

Starting from v3.1.3, minimum RSSI configuration is done through a config.properties file under each [UniFi base]/data/sites/the_site directory. The reason behind this decision is that (1) it is an advanced feature, and (2) it requires a fine degree granularity of configuration down to each AP and each band, hence it becomes quite cumbersome if done in UI.

To configure it;

- In controller, create (or modify) config.properties file under each [UniFi base]/data/sites/the_site directory.
- For each needed AP and band (ng or na), add a mapping line in the following format:
config.minrssi.[AP MAC addr].[ng|na]=[Minimum RSSI value]

Trigger a re-provision (NOT a restart) to the AP. For example, enable / disable or disable / re-enable the guest portal, changing TX power of an AP, etc. If you do not want to re-provision the entire network, it *is* possible to re-provision selected APs to make it effective on those APs only.

[Notes]

- the_site => the site ID that an AP resides in. This is the ID you set while adding a new site. The default ID for the first site is 'default'.
- AP MAC address is Ethernet MAC address (or if you type ifconfig on AP, the one that is under br0, NOT athX MAC address).
- The kick station is done at AP side.
- To verify if the Minimum RSSI is working, SSH into the AP, and type 'ps' command. If Minimum RSSI is working, you will see something similar to the below output:
 - 5134 admin 1568 S /bin/stamgr -i 1 -b ng -r 20 -n 0, where -b is the band, and -r is the RSSI value being set.
 - The AP will then kick stations based on that.

For example:

```
config.minrssi.002712345678.ng=20  
config.minrssi.dc9f22345678.ng=20  
config.minrssi.002732345678.na=20  
config.minrssi.002742345678.ng=20
```



Tel: +44 (0) 1295 266277
Fax: +44 (0) 1295 268199
sales@msdist.co.uk
www.msdist.co.uk

Unit G171
Cherwell Business Village
Southam Road
BANBURY
OX16 2SP UK

Source Information:

http://wiki.ubnt.com/UniFi_FAQ

<http://community.ubnt.com/t5/UniFi-Troubleshooting/UniFi-TFTP-soft-recovery-for-bricked-access-point/ta-p/607605>

http://community.ubnt.com/t5/UniFi-Controller-Installation/UniFi-Layer-3-methods-for-UAP-adoption-and-management/ta-p/455643#Section_5

<https://community.ubnt.com/t5/UniFi-Frequently-Asked-Questions/UniFi-What-do-the-LED-color-patterns-represent-for-UAPs/ta-p/412583>