Bridging in Cisco Unified Network

Application note

The Cisco Unified Network is composed of “lightweight” access points and an Access point controller.

The Cisco Unified Network default configuration does not allow the use of third-party bridge devices.

Starting with the 7.0.116.0 version of the CISCO access point controller firmware, CISCO implements the “passive clients” mode. This mode is the recommended solution to use third-party bridge device. Please refer to the following documentation in order to configure it:
http://www.cisco.com/en/US/docs/wireless/controller/7.0/configuration/guide/c70wlan.html#wp1391015

If you cannot use the “passive clients” mode, please use the following instructions.

To use ACKSYS products in this architecture you need to activate the “NAT” function in your ACKSYS product. Then the ACKSYS product will not appear as a bridge to the Cisco network, instead it will appear as an Internet gateway, more specifically a NAT gateway.

In the ACKSYS “Wlg-” products series, the NAT function is a subfunction of the “bridge” WI-Fi mode. This application note explains how to activate the NAT in these products.

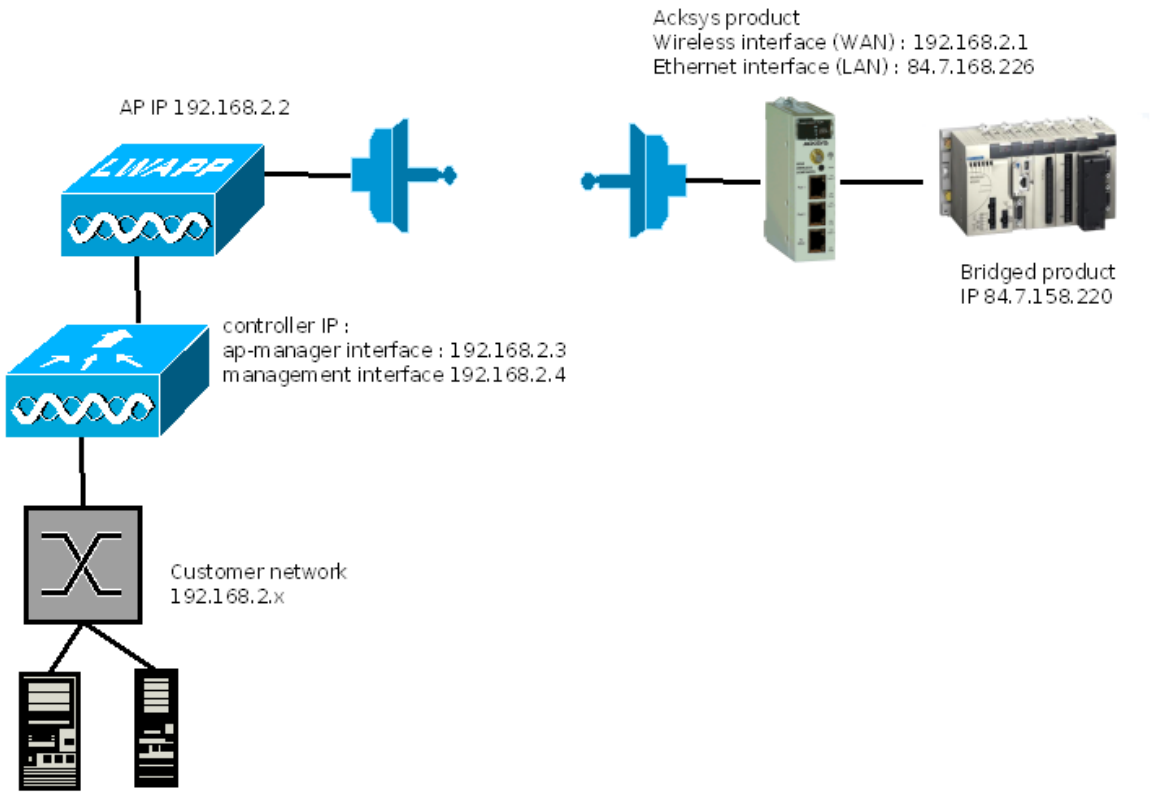
NOTE 1: To use this application note you will need the Wlg firmware version 5.18.3 or higher.

NOTE 2: A NAT gateway is a “level 3 bridge” and splits the network in two subnetworks, which must have different IP address ranges. This is different from a “level 2 bridge”, which is an AP/bridge combination where both sides of the bridge share the same IP network address.

NOTE 3: Cisco Lightweight access points, forbid quick association with third party devices. This can adversely affect roaming performance. Autonomous Cisco access points do not seem to exhibit this behavior.

NAT architecture

The shown IP addresses are examples. They can be changed as long as the two sides of the NAT have different subnetwork parts. Here, one side has a subnetwork part of 192.168.2.* and the other side has a subnetwork part of 84.*.*.* (the asterisks stand for the device address inside the subnetwork).



In the NAT architecture the network on the LAN interface side of the ACKSYS product (LAN network) is not on the same subnet that the network on the Wireless interface side (WAN network).

In the example the customer's backbone network is set on the subnet 192.168.2.0 and the bridged network is set on subnet 84.0.0.0

Addressing in the NAT architecture

The ACKSYS product can be accessed from the wireless side, with the IP address set in the “Basic → NAT” page described later (i.e. 192.168.2.1 in the example).

The devices on the LAN side of the ACKSYS product can be accessed from the wireless side, with the IP address set in the “Basic → NAT” page (i.e. 192.168.2.1 in the example) **but you must specify port forwarding rules before it works**.

The ACKSYS product can be accessed from its Ethernet interface side, with the IP address set in the “Basic → LAN” page (i.e. 84.7.158.226 in the example).

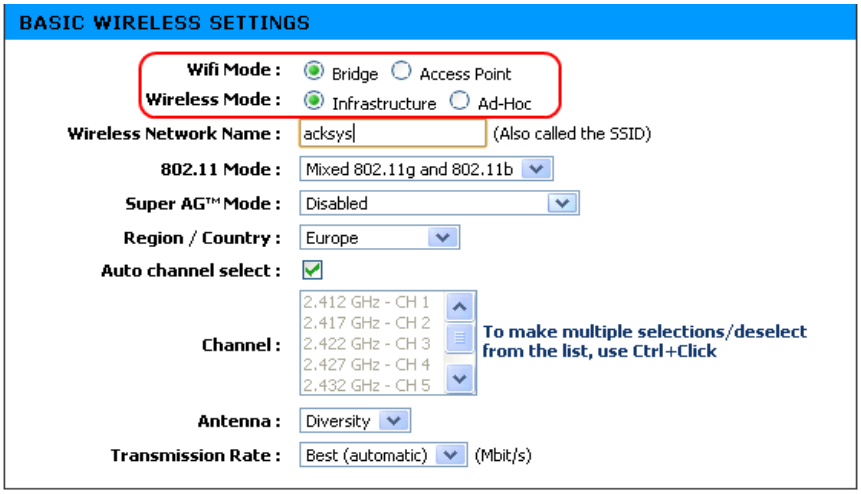
The devices on the wireless side of the ACKSYS product can be accessed with their proper address, **provided that a route through the NAT** was configured in those devices. (i.e. in the example: set “default route = 84.7.158.226” in the M340 bridged product at 84.7.158.220)

Enabling the NAT in the ACKSYS products

STEP 1:

In menu Basic → Wireless:

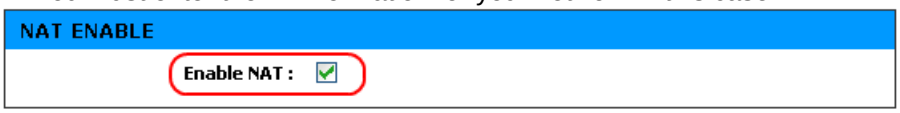
- Set the Wi-Fi mode to Bridge
- Reboot now if required to do so, then return to the Basic → Wireless page
- Set the Wireless mode to Infrastructure
- Set relevant Wi-Fi parameters as required (SSID, channel and so on)
- Save settings **without** rebooting

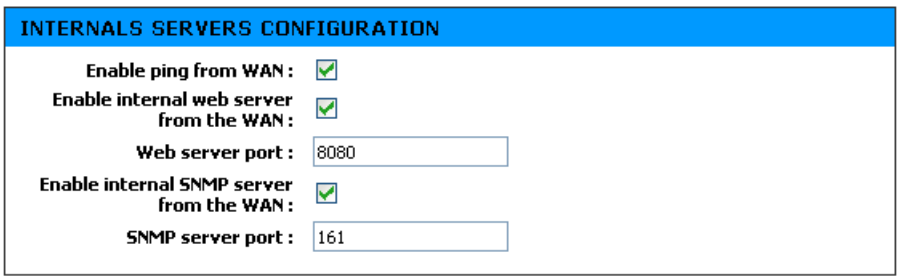


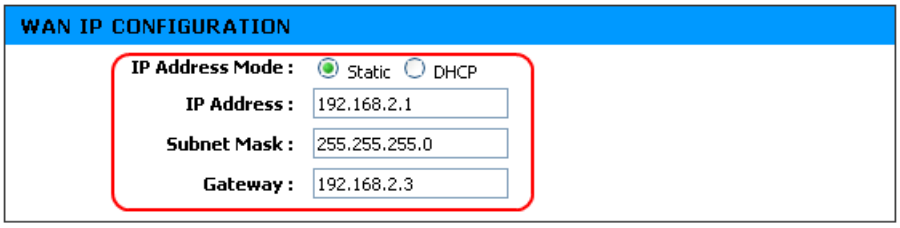
STEP 2:

In menu Basic → NAT:

- Enable the NAT (more parameters appear then)
- If your network uses a DHCP server set IP address mode to DHCP
- If your network doesn't use a DHCP server set IP address mode to static
  - You must enter the IP information for your network in this case



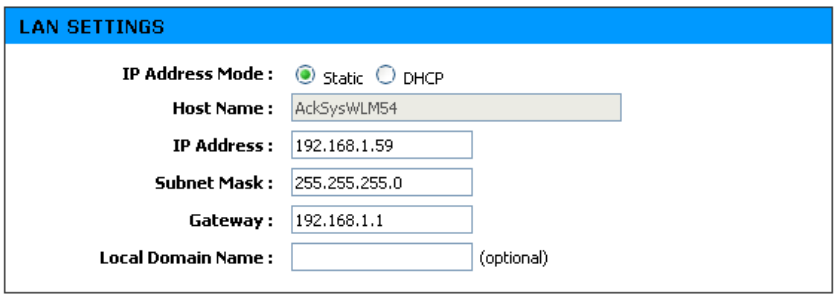




STEP 3 :

In Basic → Lan

- If your network uses a DHCP server set IP address mode to DHCP
- If your network doesn't use a DHCP server set IP address mode to static
    - You must enter the IP information for your network in this case



STEP 4:

- Save and reboot the product to apply settings

After reboot, the product will associate with the CISCO access point.

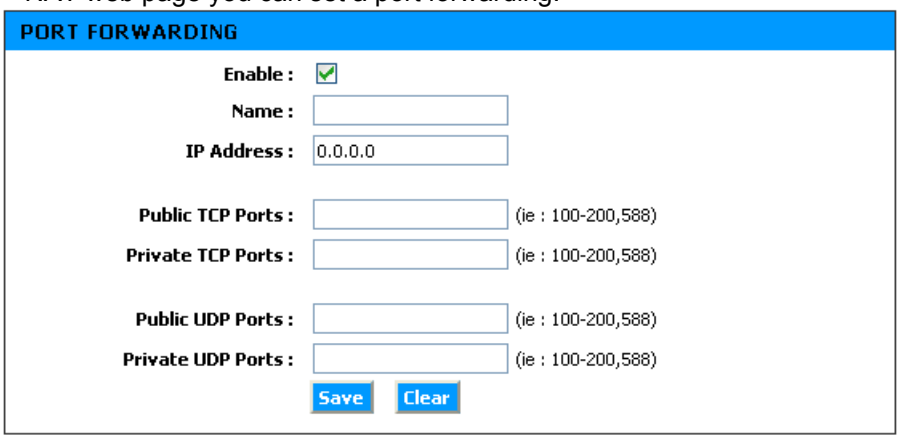
Change settings in the bridged product

The ACKSYS product in this setting is a gateway for the bridged network.
You need to configure in the bridged product, a default route (or a route to the backbone addresses) using the IP address of the ACKSYS product LAN interface as the gateway.

Set port forwarding

In NAT mode, all bridged products are hidden behind the Bridge as having a single IP address, namely the address of the bridge. To access to the bridged devices services from your network you need to set one port forwarding rule for each service.

In the Basic → NAT web page you can set a port forwarding.



For detailed information on these settings, please refer to the full documentation provided on the ACKSYS CD-ROM and on the ACKSYS website: « Wlg product user guide (DTUS061)» chapter IV.7.1.