Министерство образования Республики Беларусь

Учреждение образования
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ
ИНФОРМАТИКИ И РАДИОЭЛЕКТРОНИКИ

Факультет компьютерных систем и сетей

Кафедра электронных вычислительных машин

Дисциплина: Оборудование компьютерных сетей

ОТЧЕТ
по лабораторной работе № 4

ВАРИАНТ 11

Выполнил: А.Н. Климович

Проверил: И.И. Глецевич

МИНСК 2024

1 ПРАКТИЧЕСКАЯ ЧАСТЬ

1.1 Часть рабочей конфигурации N1

```
interface FastEthernet0/1
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface GigabitEthernet0/1
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface GigabitEthernet0/2
 switchport trunk allowed vlan 10,20,30,40,50,100
```

1.2 Часть рабочей конфигурации N2

```
interface FastEthernet0/1
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface FastEthernet0/2
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface FastEthernet0/3
 switchport trunk allowed vlan 10,20,30,40,50,100
```

1.3 Часть рабочей конфигурации N3

```
interface FastEthernet0/1
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface FastEthernet0/2
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface FastEthernet0/3
 switchport access vlan 10
 switchport mode access
!
interface FastEthernet0/4
 switchport trunk native vlan 10
 switchport trunk allowed vlan 10,20,30,40,50,100
 switchport mode trunk
!
interface FastEthernet0/5
 switchport trunk native vlan 10
 switchport trunk allowed vlan 10,20,30,40,50,100
```

```
 switchport mode trunk
!
interface GigabitEthernet0/1
 switchport trunk native vlan 10
 switchport trunk allowed vlan 10,20,30,40,50,100
 switchport mode trunk
```

1.4 Часть рабочей конфигурации N4

```
interface Port-channel1
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface FastEthernet0/1
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface FastEthernet0/2
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface GigabitEthernet0/1
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface GigabitEthernet0/2
 switchport trunk allowed vlan 10,20,30,40,50,100
!
```

1.5 Часть рабочей конфигурации N5

```
interface GigabitEthernet0/1
 switchport trunk allowed vlan 10,20,30,40,50,100
```

1.6 Часть рабочей конфигурации N6

```
interface FastEthernet0/4
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface GigabitEthernet0/1
 switchport trunk allowed vlan 10,20,30,40,50,100
```

1.7 Часть рабочей конфигурации N7

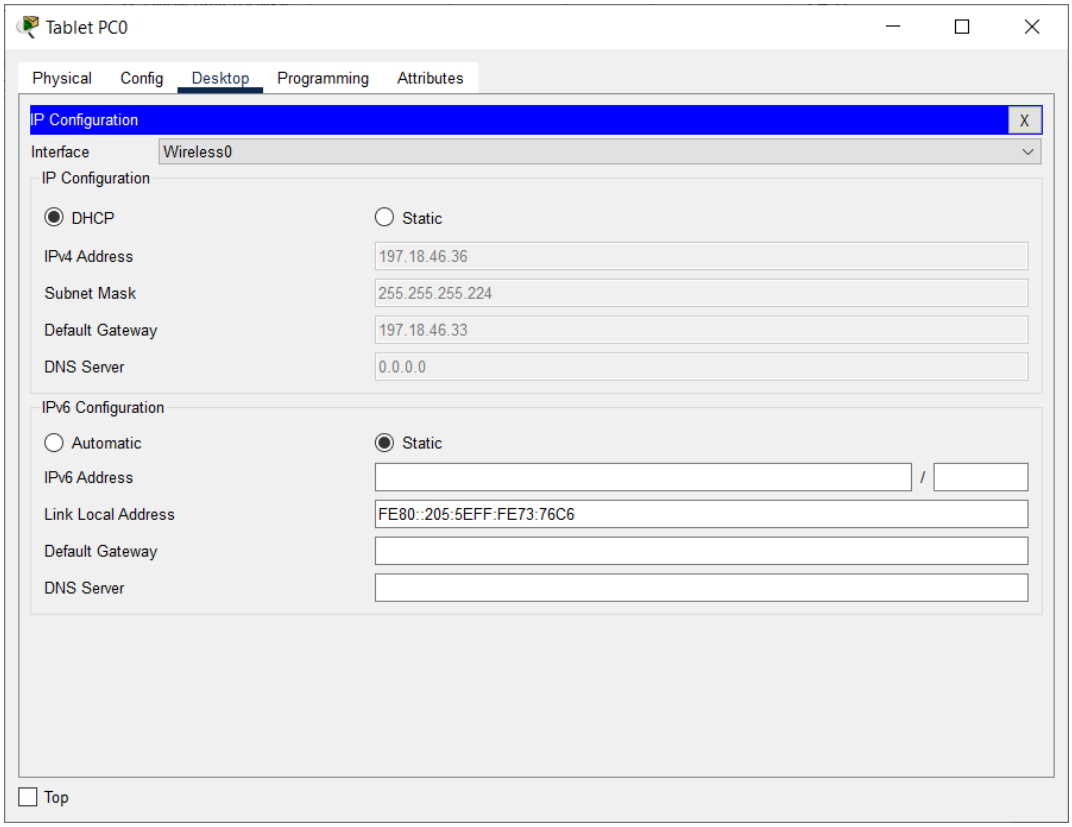
```
interface FastEthernet0/1
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface GigabitEthernet0/1
```

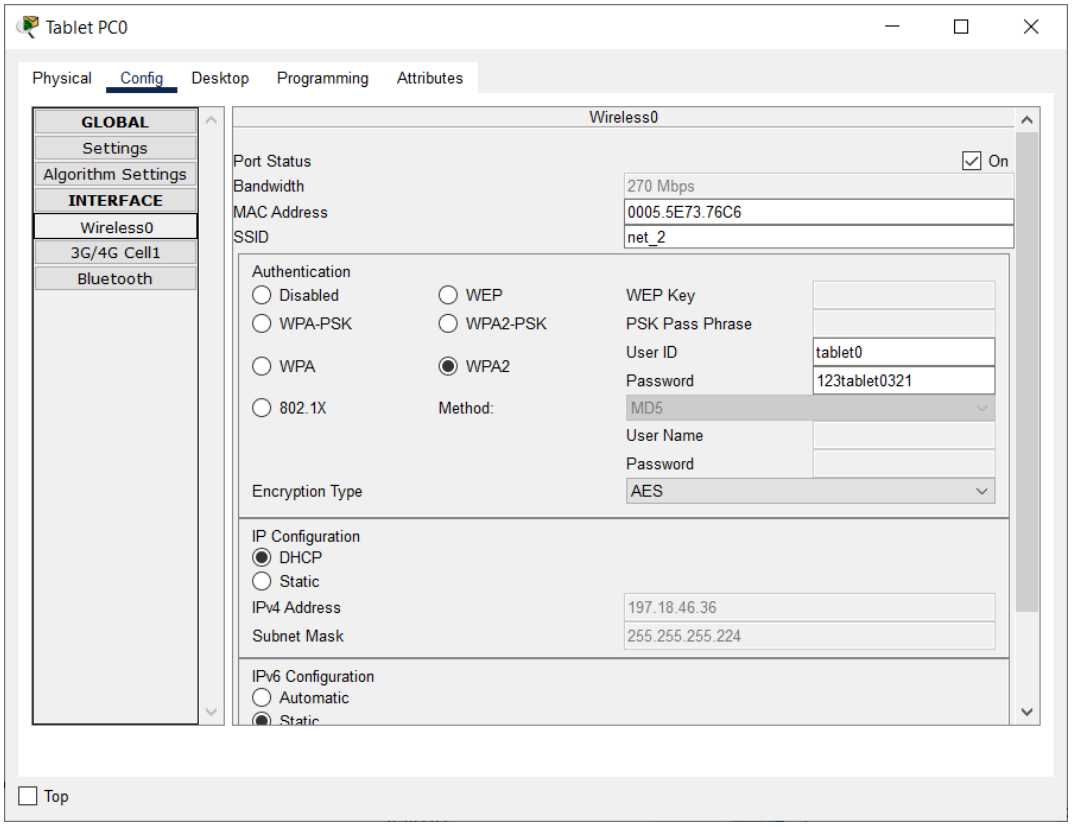
```
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface GigabitEthernet0/2
 switchport trunk allowed vlan 10,20,30,40,50,100
```

1.8 Часть рабочей конфигурации N8

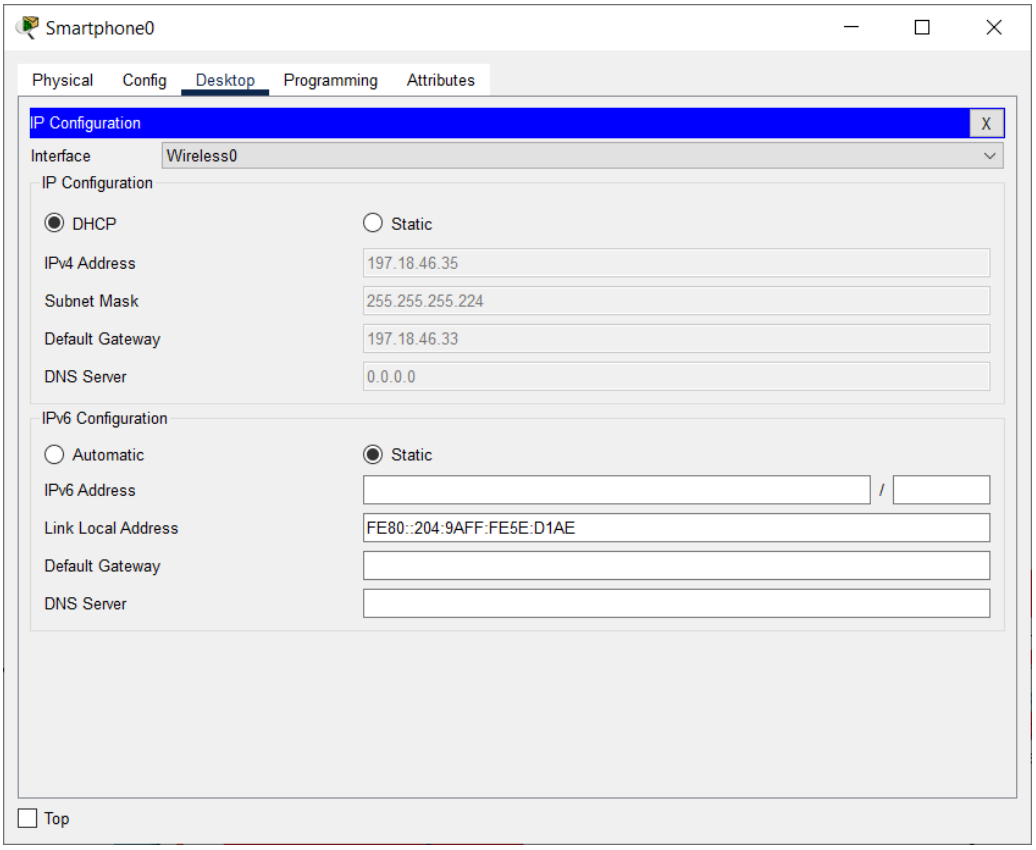
```
ip dhcp excluded-address 107.3.38.209
ip dhcp excluded-address 107.3.38.210
ip dhcp excluded-address 197.18.46.33
ip dhcp excluded-address 197.18.46.34
!
ip dhcp pool net_1_pool
 network 107.3.38.208 255.255.255.240
 default-router 107.3.38.209
ip dhcp pool net_2_pool
 network 197.18.46.32 255.255.255.224
 default-router 197.18.46.33
!
spanning-tree vlan 10,20,30,40,50,100 priority 24576
!
interface Port-channel1
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface FastEthernet0/1
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface FastEthernet0/2
 switchport trunk allowed vlan 10,20,30,40,50,100
!
interface Vlan40
mac-address 00d0.ba90.3c04
ip address 107.3.38.209 255.255.255.240
ip helper-address 9.192.0.13
!
interface Vlan50
mac-address 00d0.ba90.3c05
ip address 197.18.46.33 255.255.255.224
ip helper-address 9.192.0.13
!
```

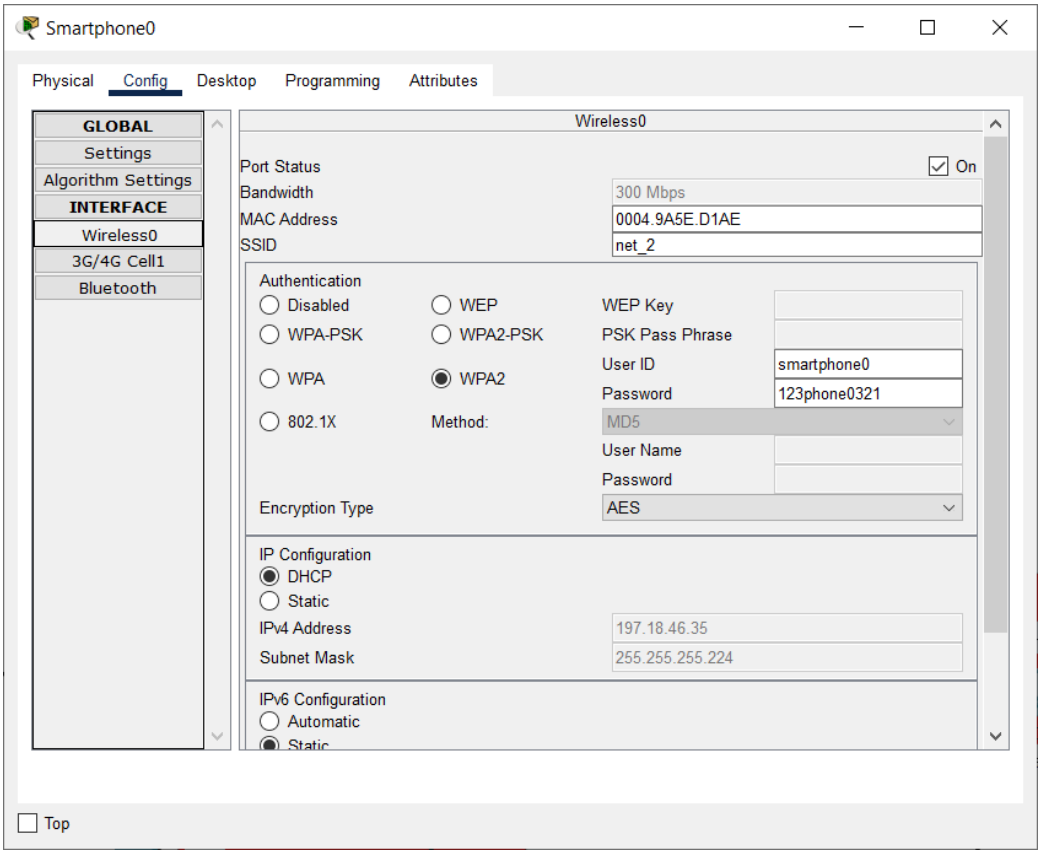
1.9 Настройка Tablet PC0



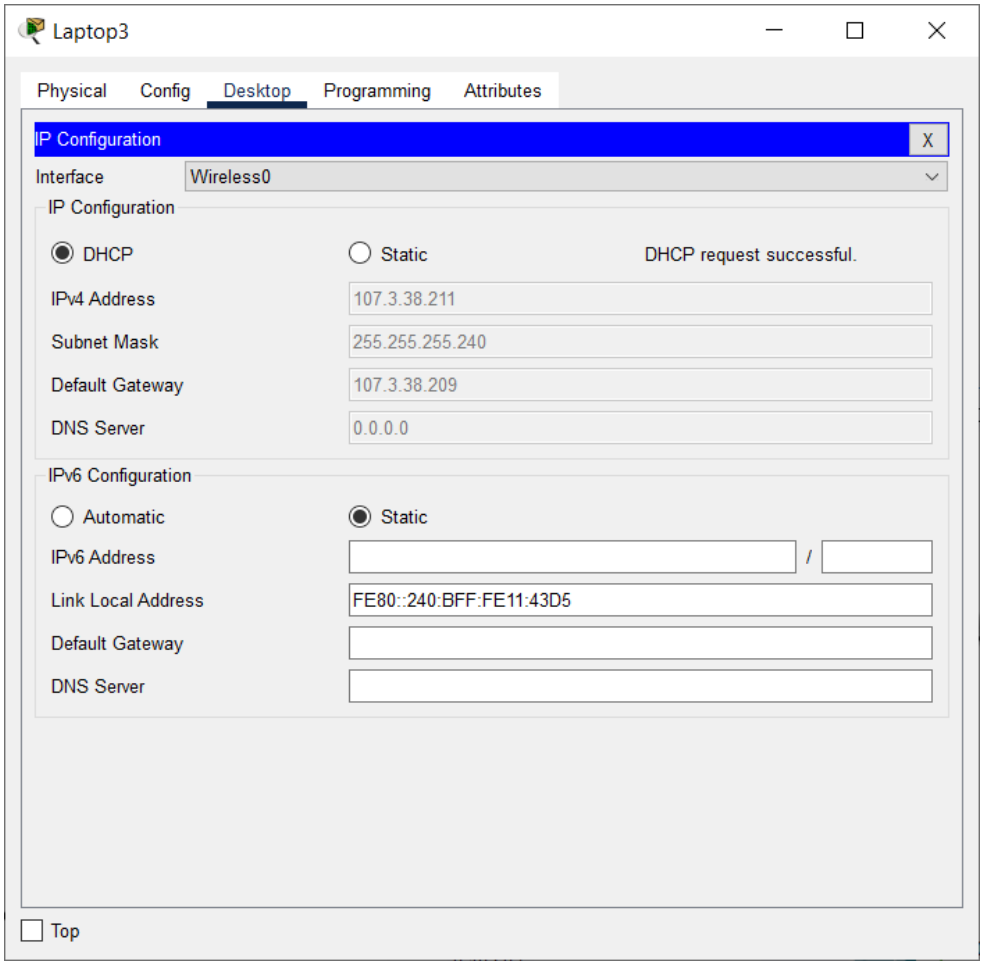


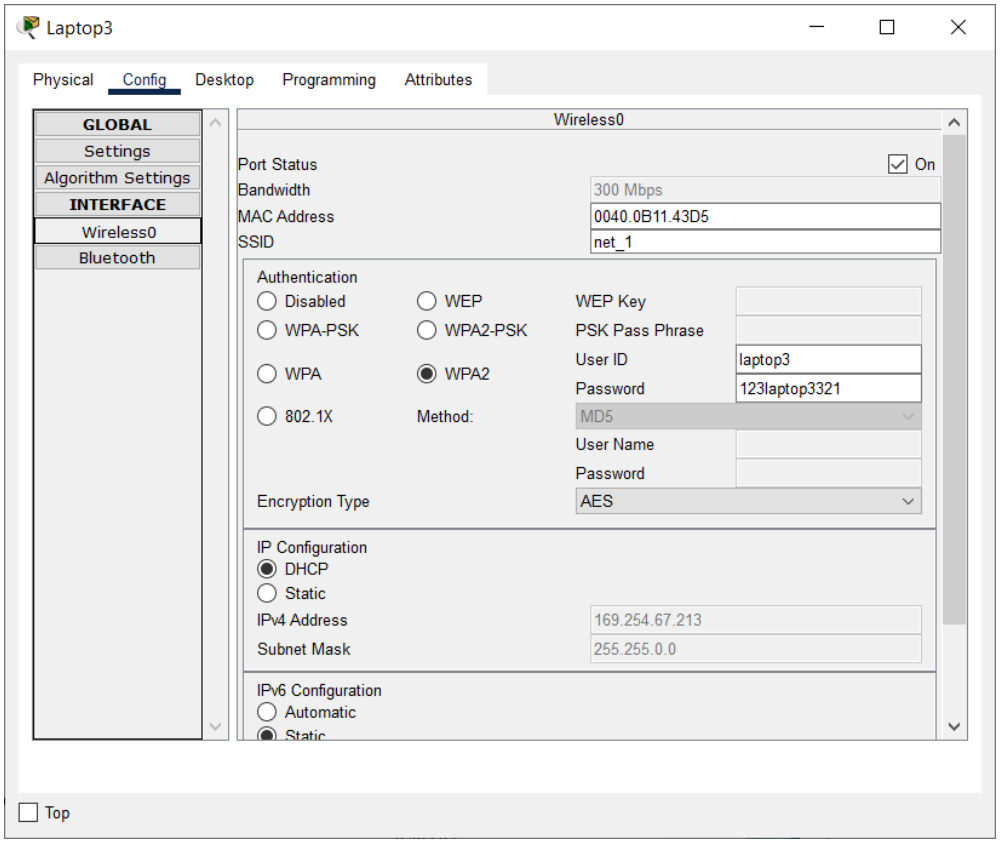
1.10 Настройка Smartphone0



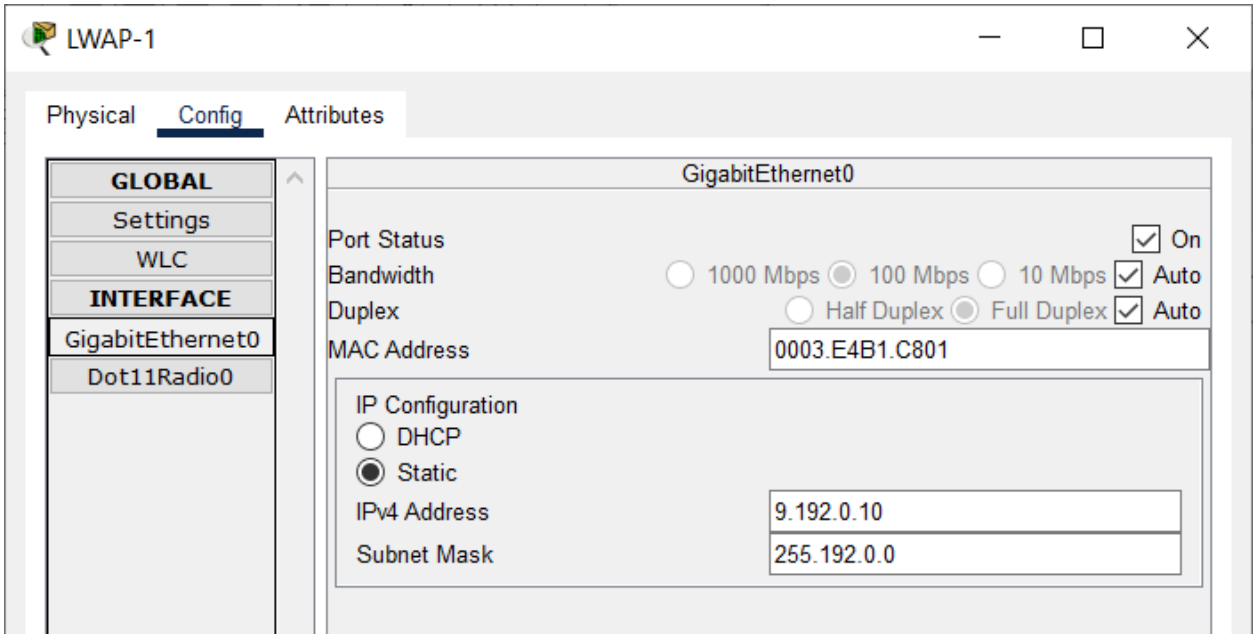


1.11 Настройка Laptop3

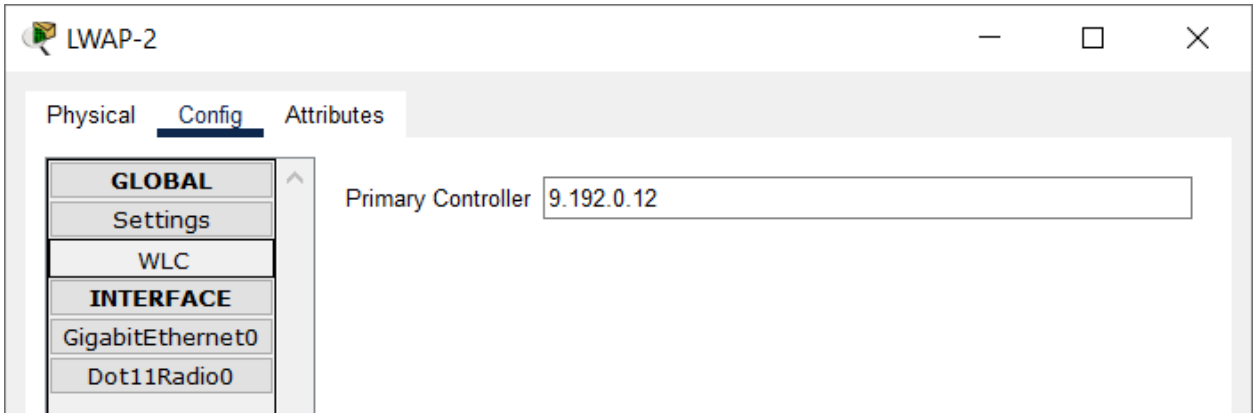


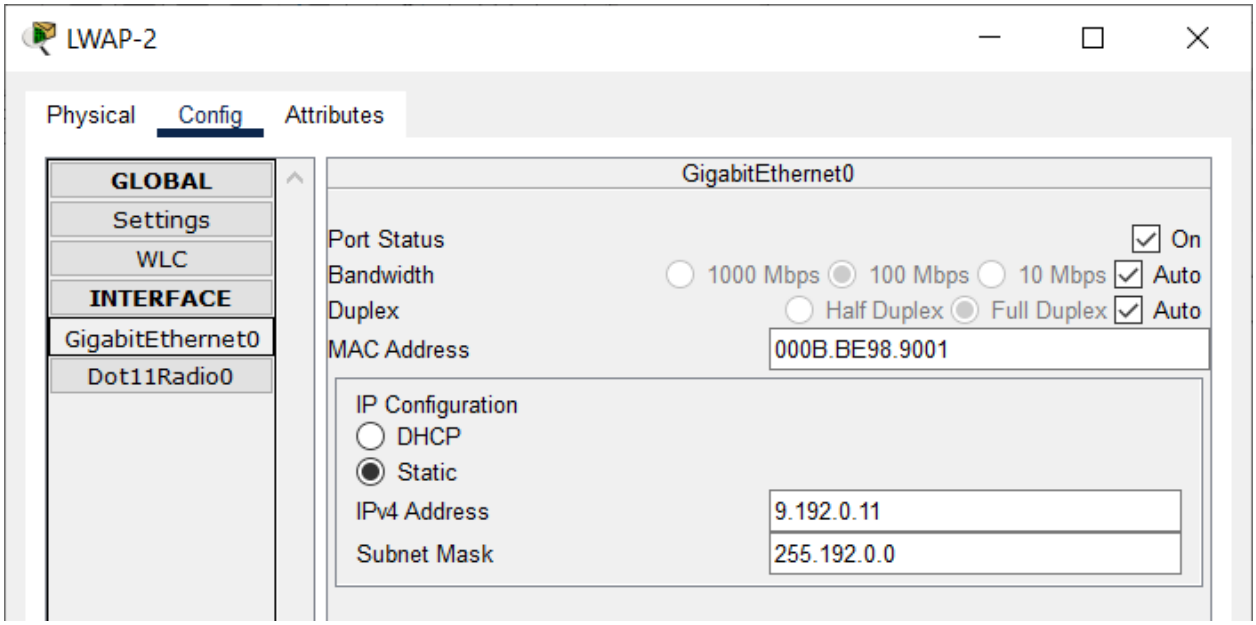


1.12 Настройка LWAP-1 (3702i)

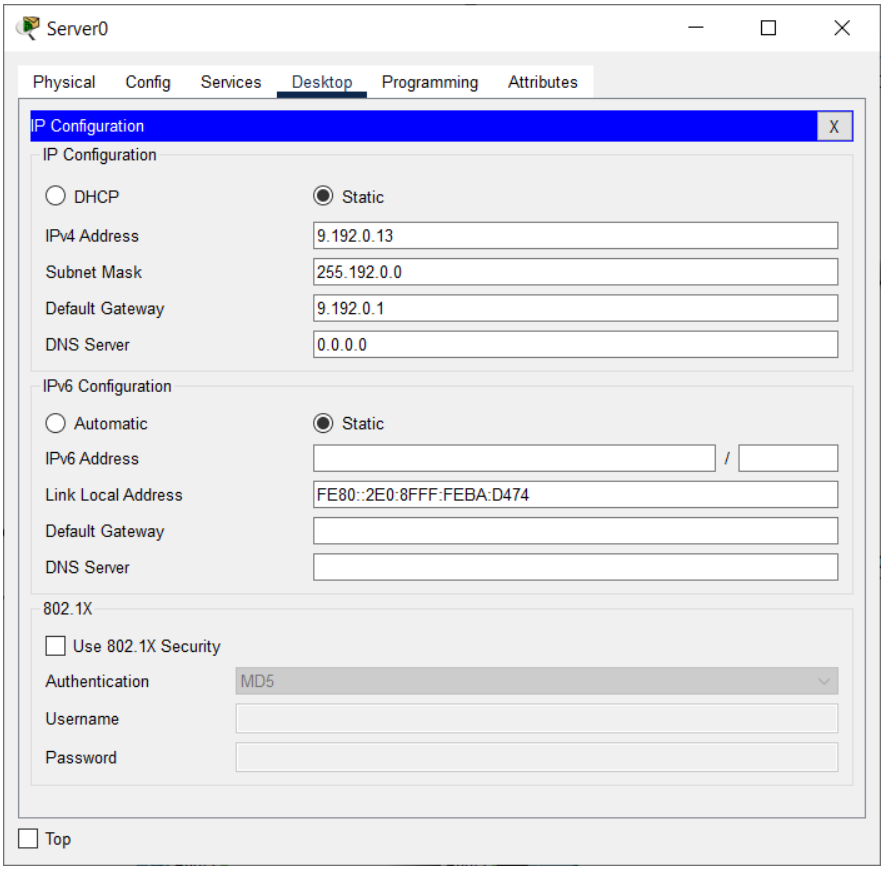


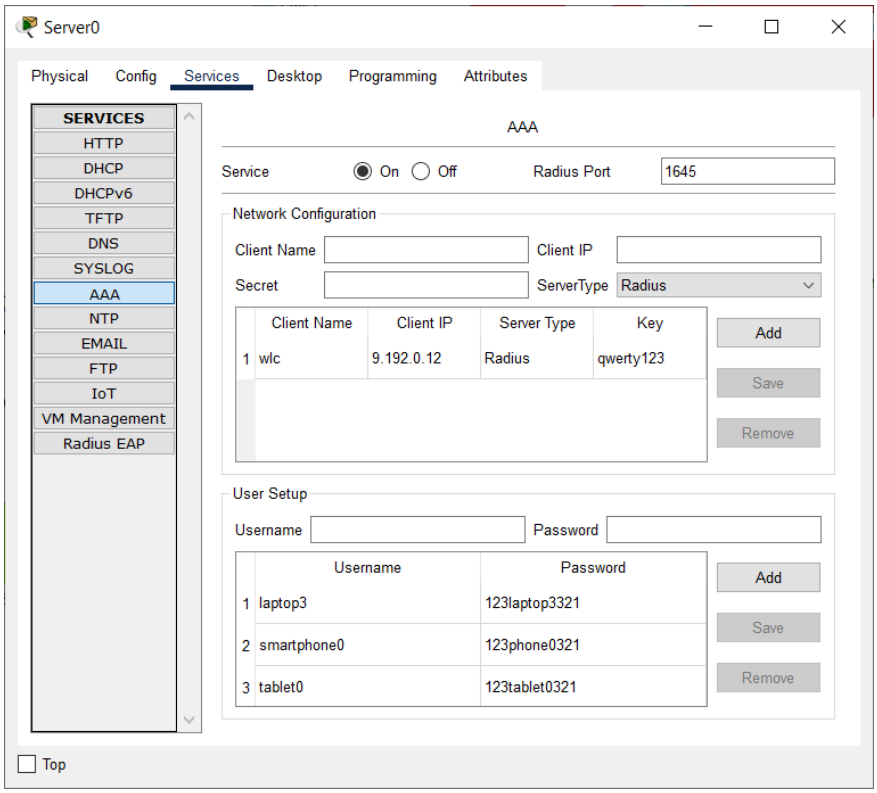
1.13 Настройка LWAP-2 (3702i)



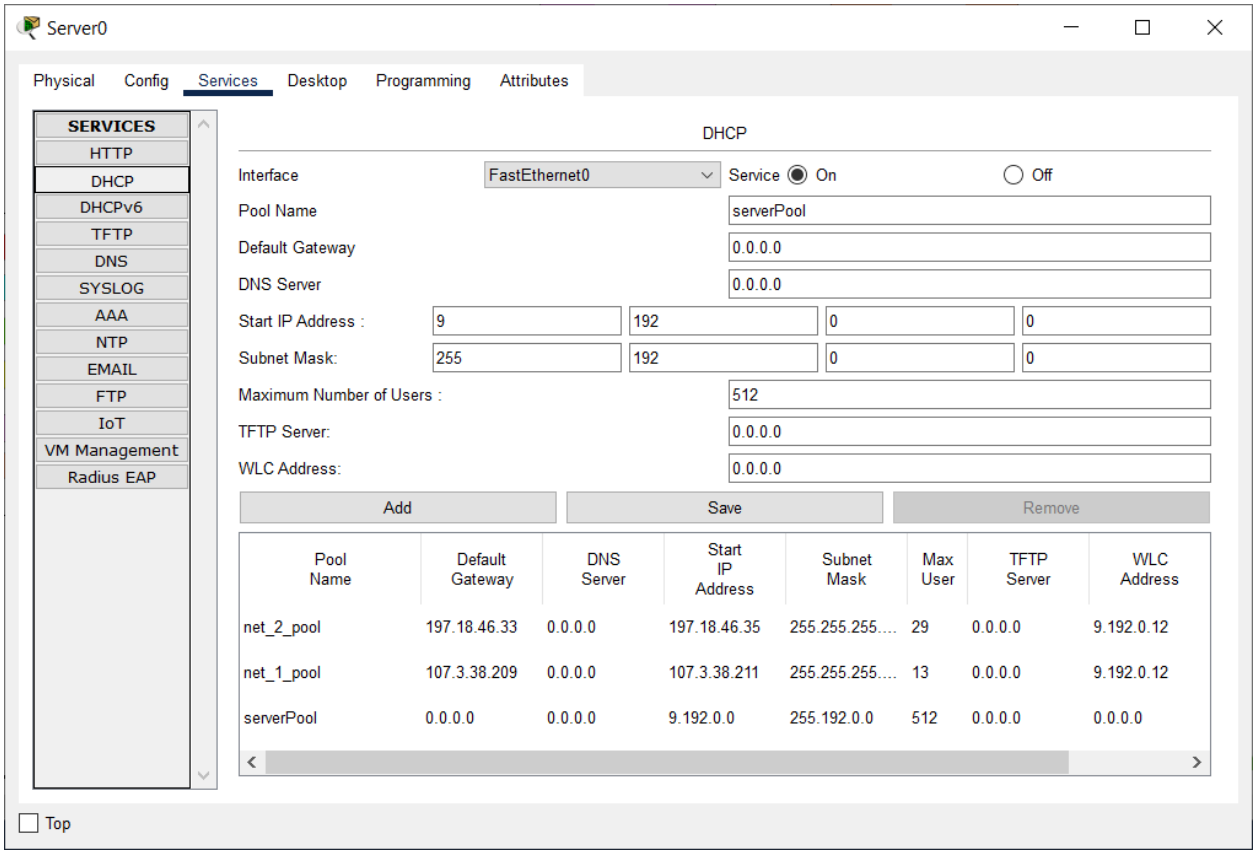


1.14 Настройка Server0

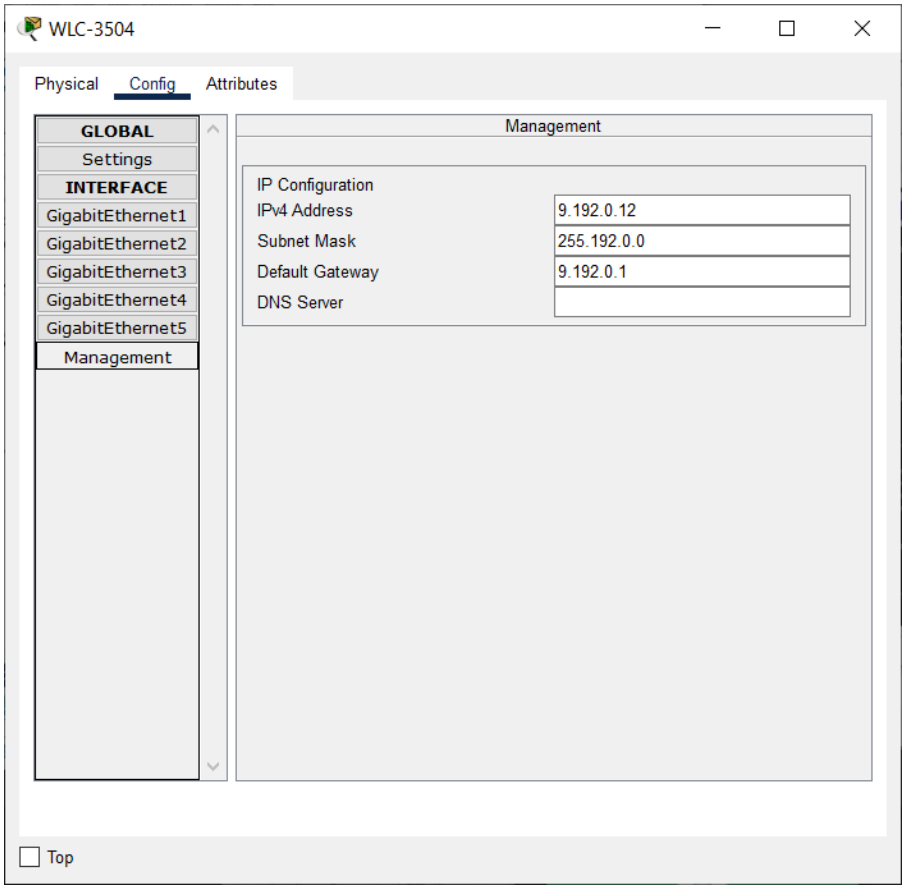


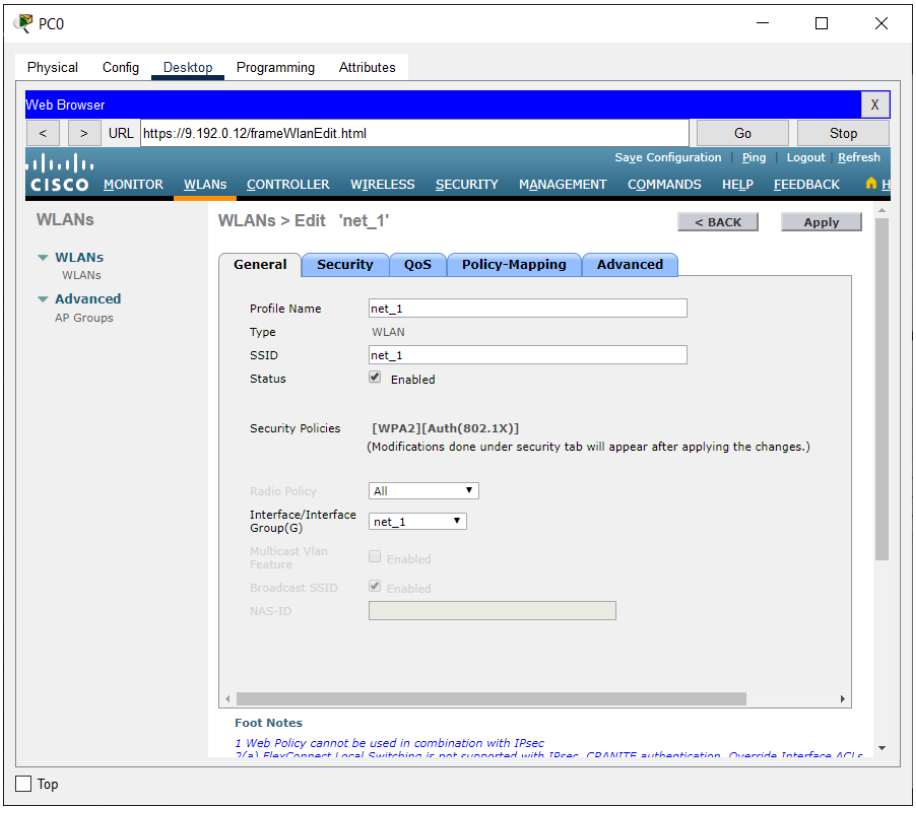


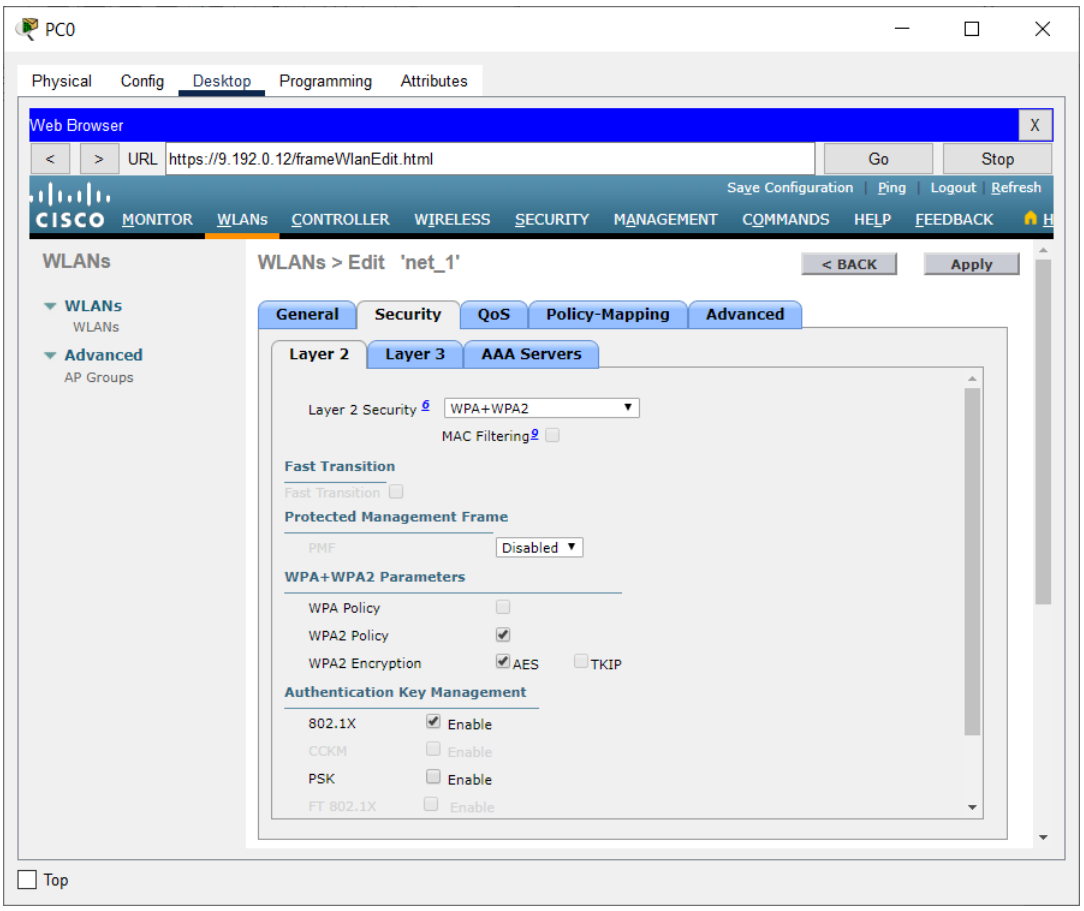
Если DHCP на сервере:

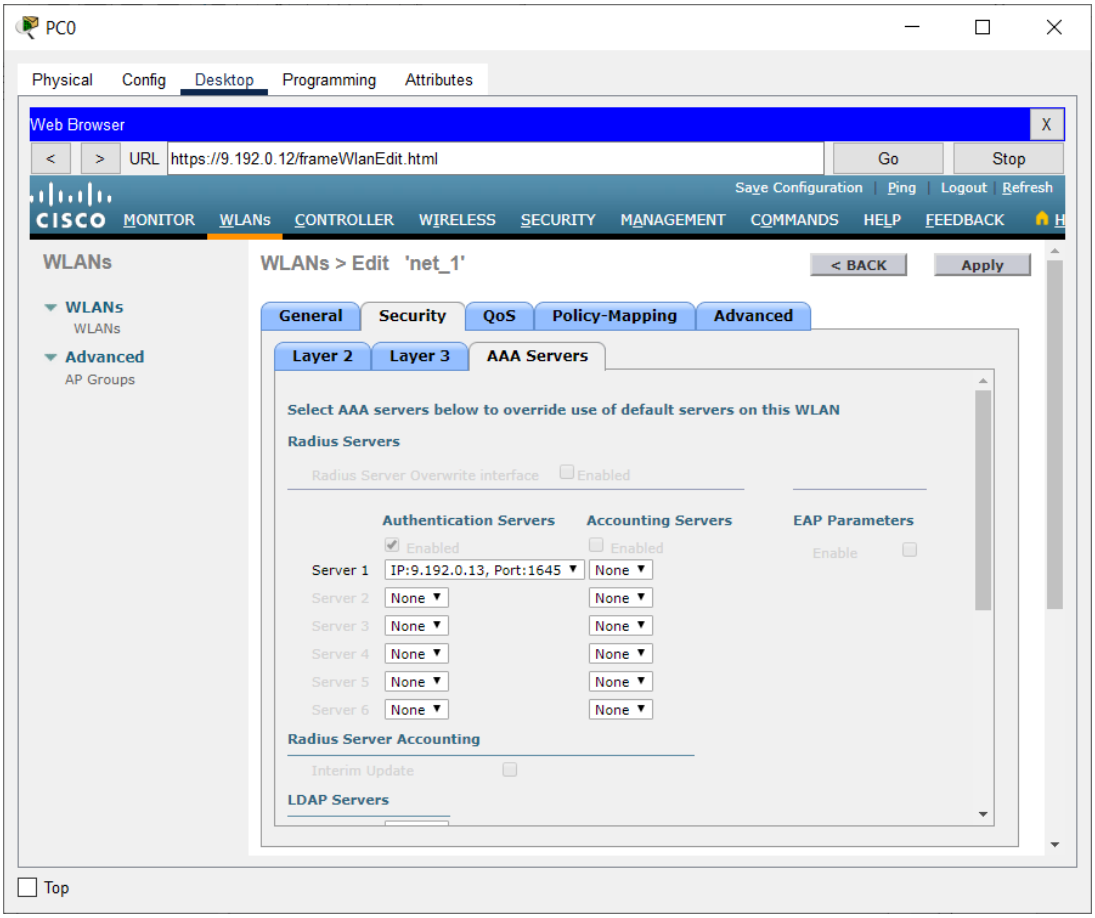


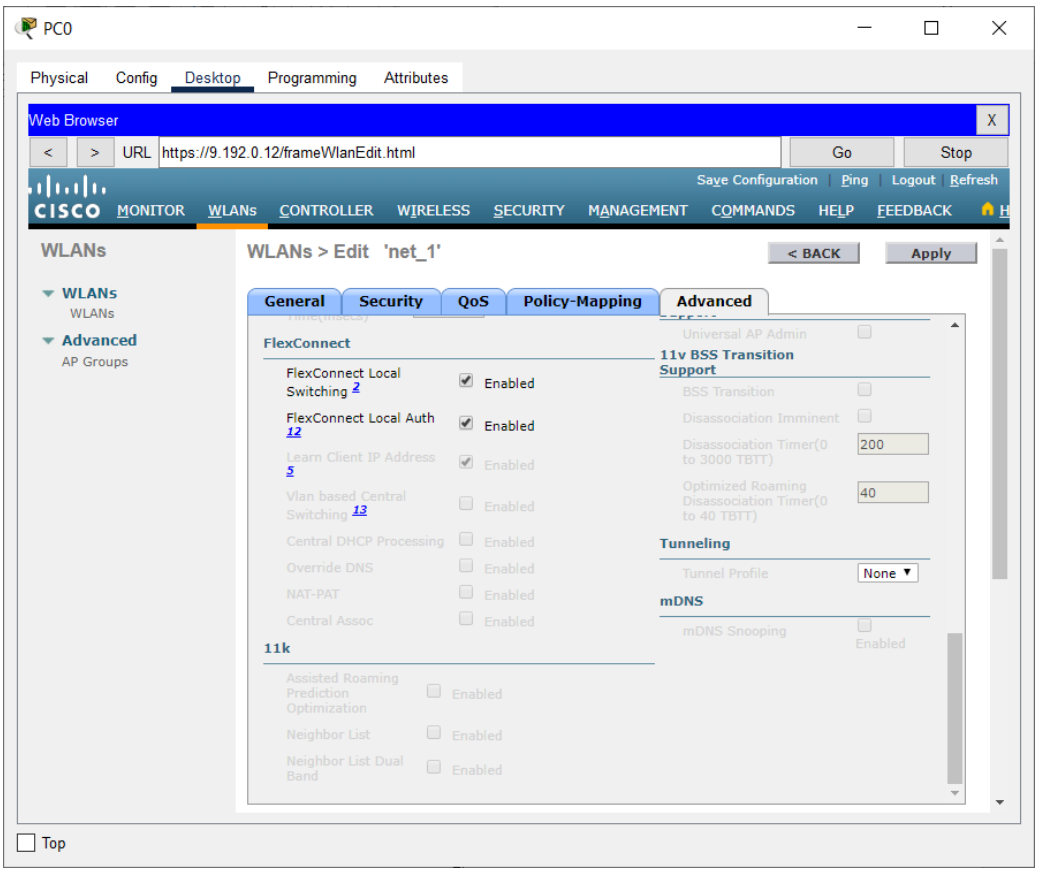
1.15 Настройка WLC-3504

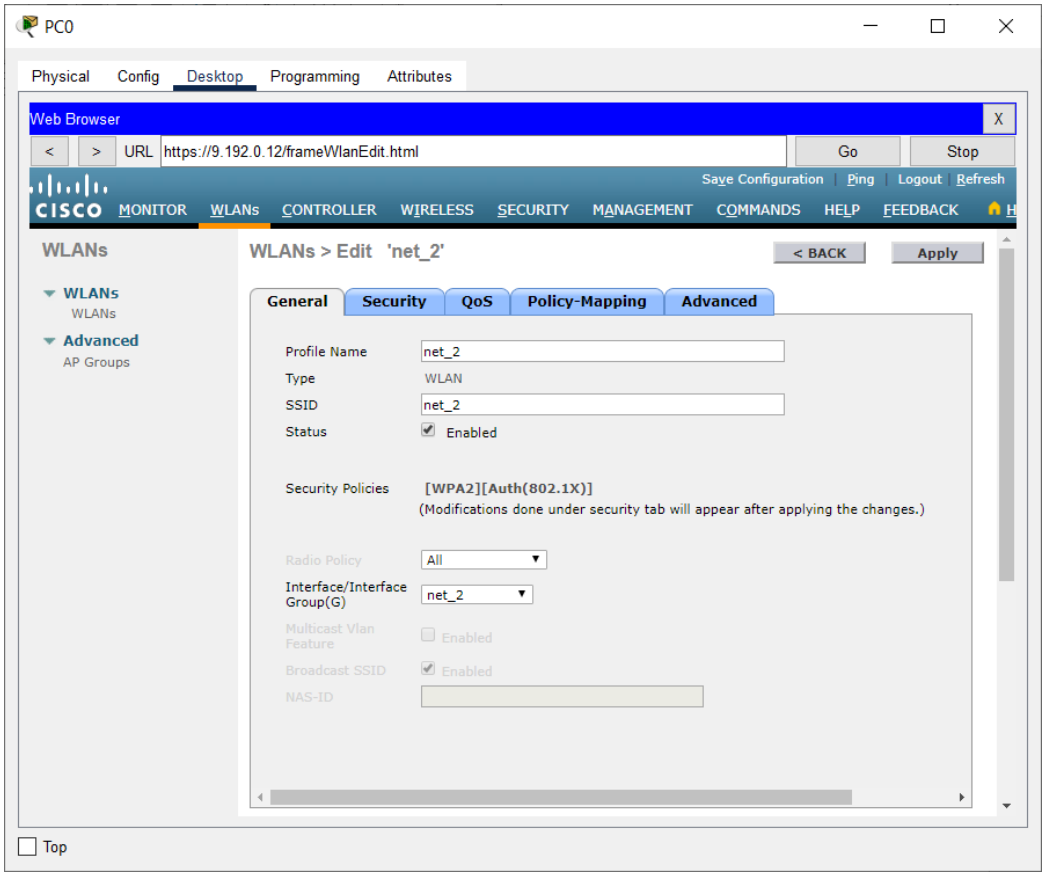


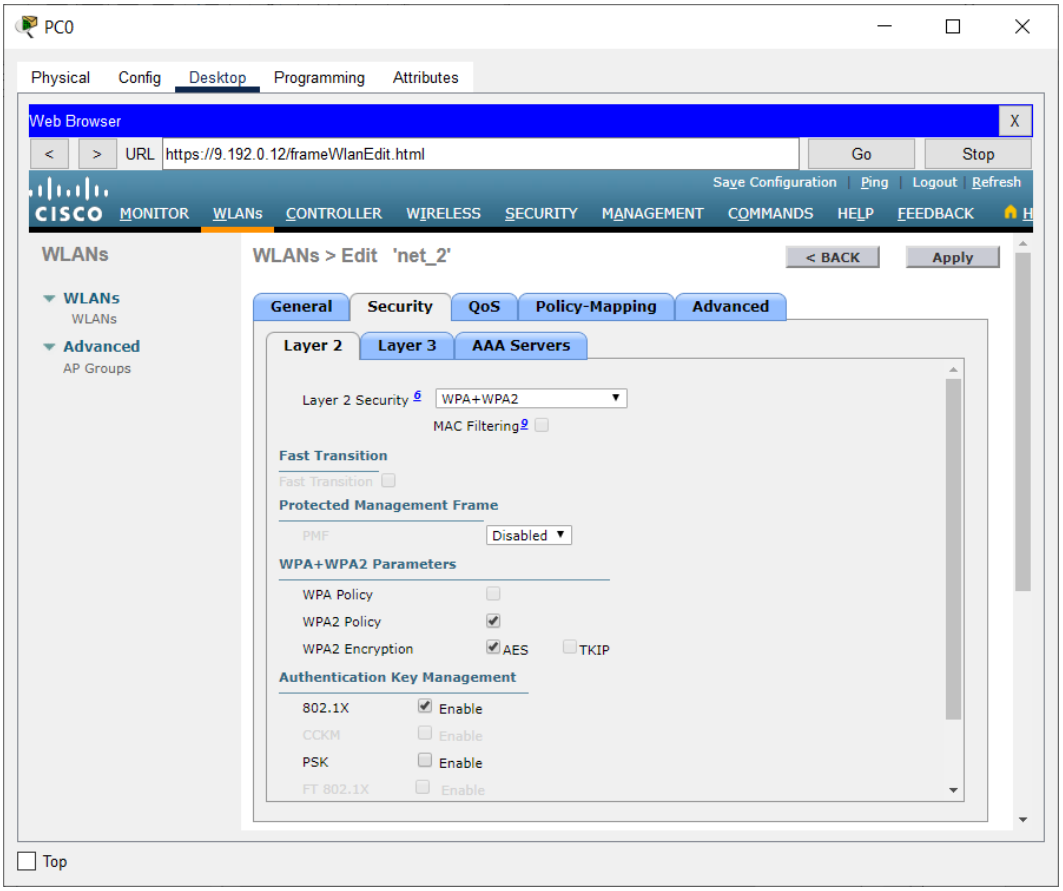


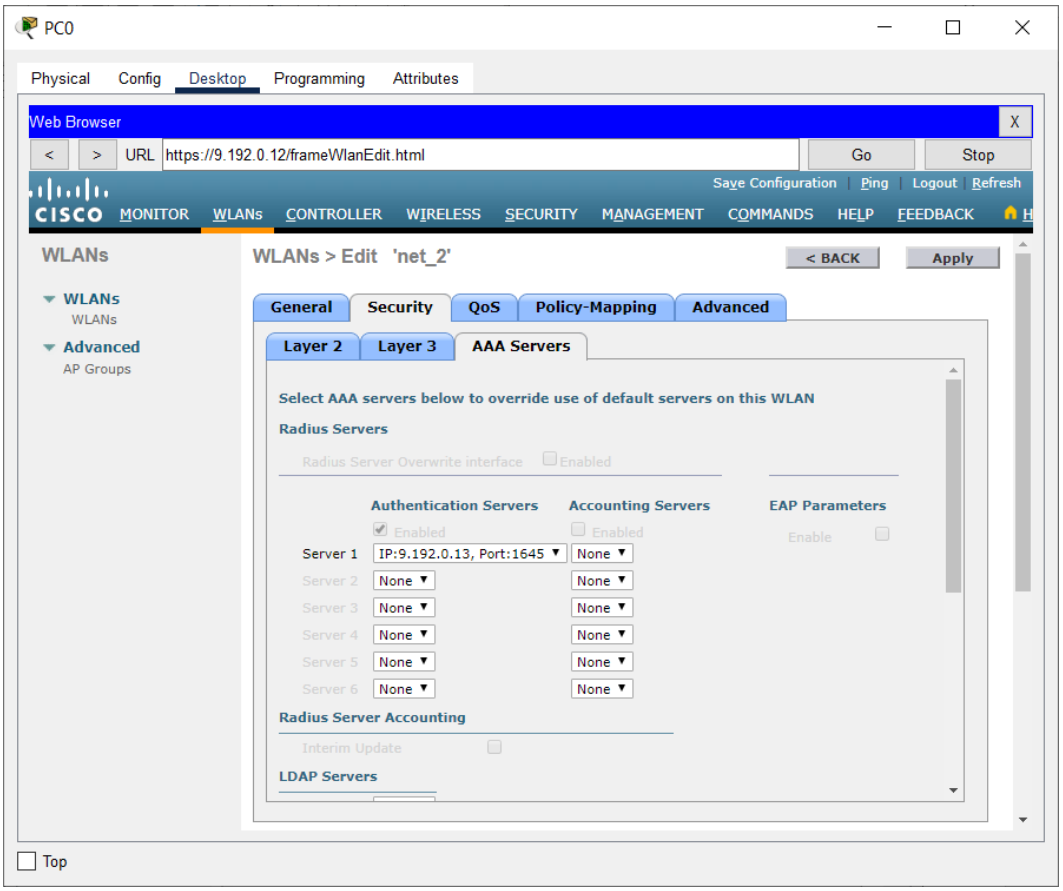

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameWlanEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
WLANs
WLANs
WLANs
Advanced
AP Groups
WLANs > Edit 'net_1'
< BACK
Apply
General
Security
QoS
Policy-Mapping
Advanced
Layer 2
Layer 3
AAA Servers
Layer 2 Security
WPA+WPA2
MAC Filtering
Fast Transition
Fast Transition
Protected Management Frame
PMF
Disabled
WPA+WPA2 Parameters
WPA Policy
WPA2 Policy
WPA2 Encryption
AES
TKIP
Authentication Key Management
802.1X
Enable
CCKM
Enable
PSK
Enable
FT 802.1X
Enable
Top

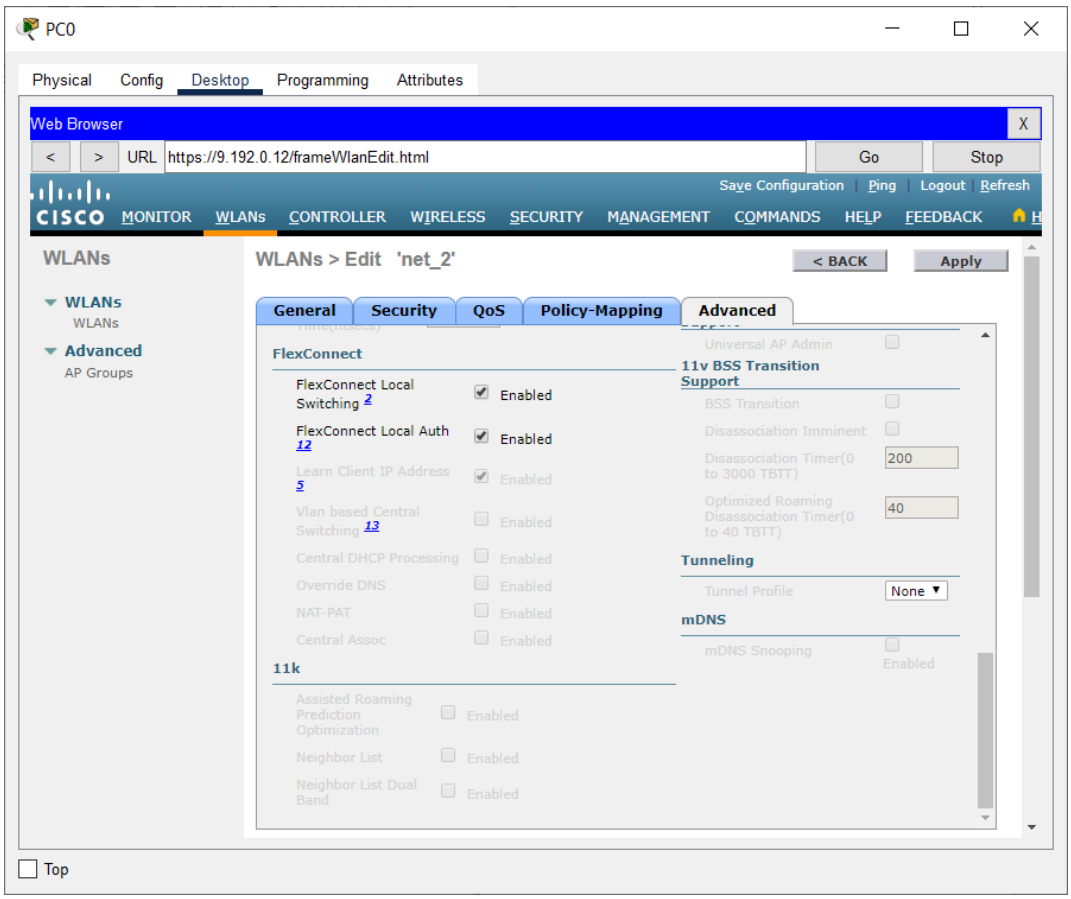

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameWlanEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
WLANs
WLANs
WLANs
Advanced
AP Groups
WLANs > Edit 'net_1'
< BACK
Apply
General
Security
QoS
Policy-Mapping
Advanced
Layer 2
Layer 3
AAA Servers
Select AAA servers below to override use of default servers on this WLAN
Radius Servers
Radius Server Overwrite interface
Enabled
Authentication Servers
Accounting Servers
EAP Parameters
Enabled
Enabled
Enable
Server 1
IP:9.192.0.13, Port:1645
None
Server 2
None
None
Server 3
None
None
Server 4
None
None
Server 5
None
None
Server 6
None
None
Radius Server Accounting
Interim Update
LDAP Servers
Top

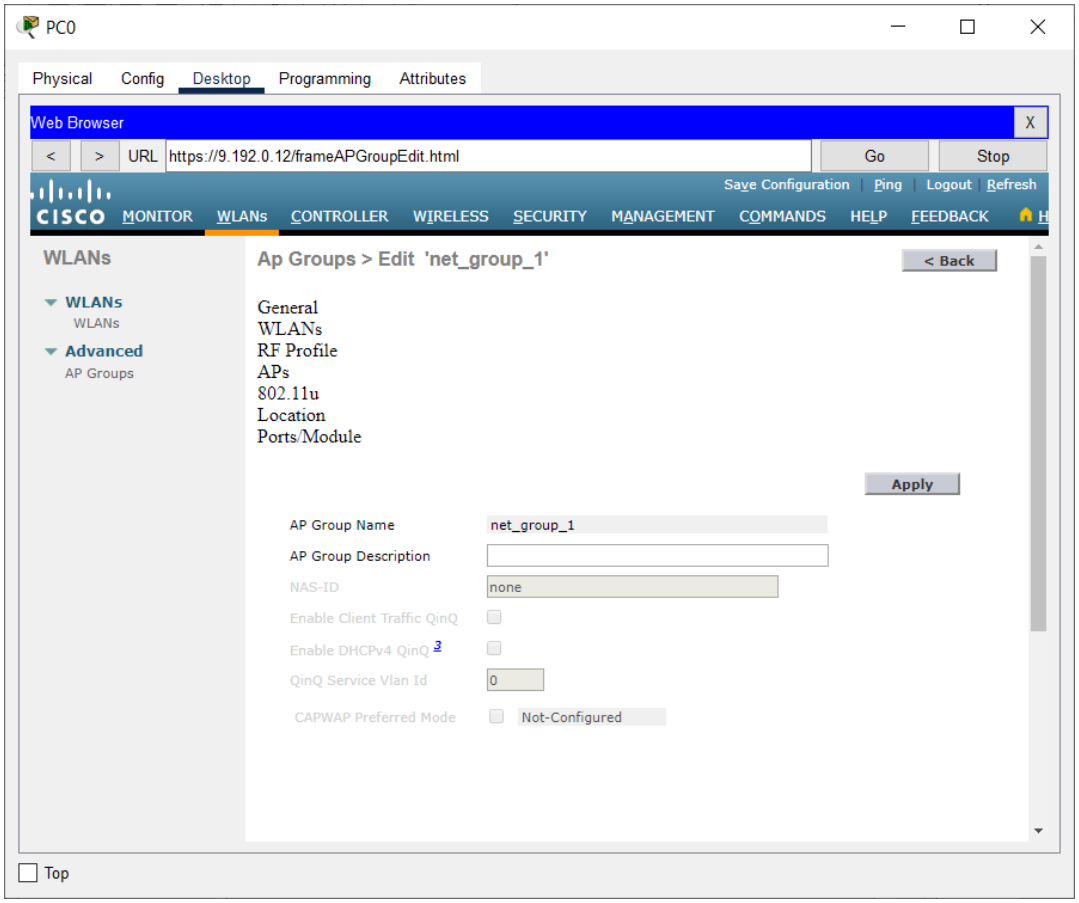

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameWlanEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
WLANs
WLANs > Edit 'net_1'
< BACK
Apply
General
Security
QoS
Policy-Mapping
Advanced
FlexConnect
FlexConnect Local Switching
FlexConnect Local Auth
Learn Client IP Address
Vlan based Central Switching
Central DHCP Processing
Override DNS
NAT-PAT
Central Assoc
11k
Assisted Roaming Prediction Optimization
Neighbor List
Neighbor List Dual Band
Enabled
11v BSS Transition Support
Universal AP Admin
BSS Transition
Disassociation Imminent
Disassociation Timer(0 to 3000 TBTT)
200
Optimized Roaming Disassociation Timer(0 to 40 TBTT)
40
Tunneling
Tunnel Profile
None
mDNS
mDNS Snooping
WLANs
WLANs
Advanced
AP Groups
Top

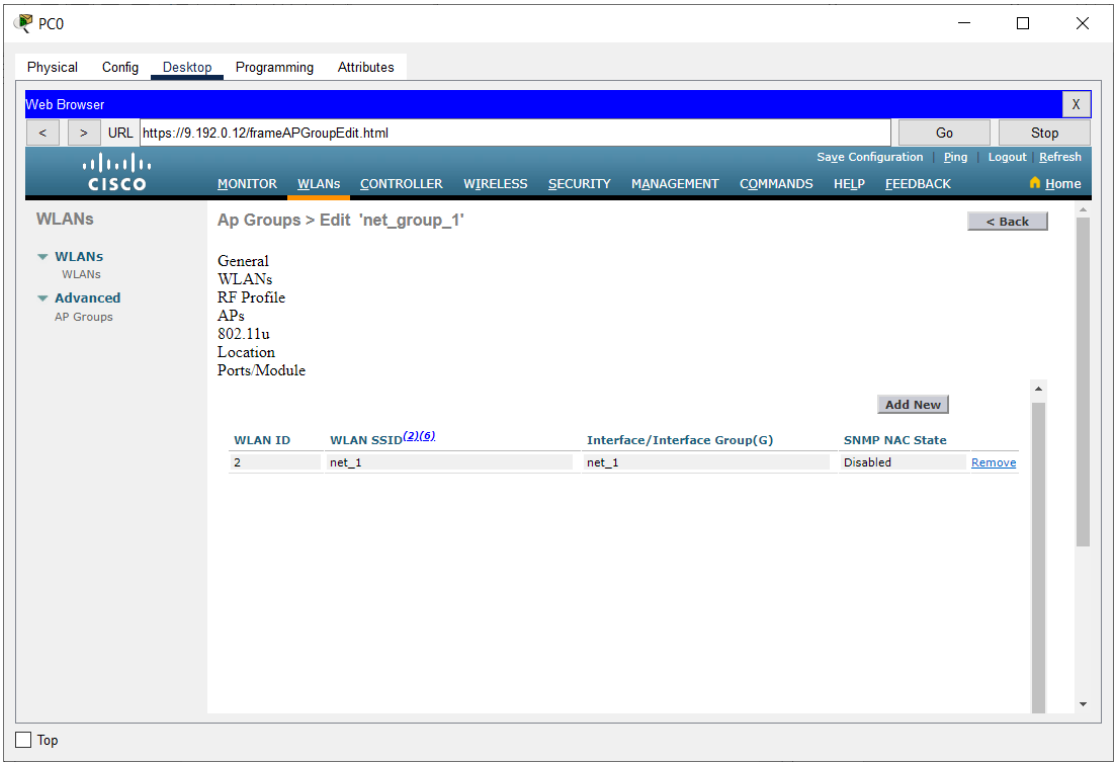

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameWlanEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
WLANs
WLANs > Edit 'net_2'
< BACK
Apply
General
Security
QoS
Policy-Mapping
Advanced
Profile Name
net_2
Type
WLAN
SSID
net_2
Status
Enabled
Security Policies
[WPA2][Auth(802.1X)]
(Modifications done under security tab will appear after applying the changes.)
Radio Policy
All
Interface/Interface Group(G)
net_2
Multicast Vlan Feature
Enabled
Broadcast SSID
Enabled
NAS-ID
WLANs
WLANs
Advanced
AP Groups
Top

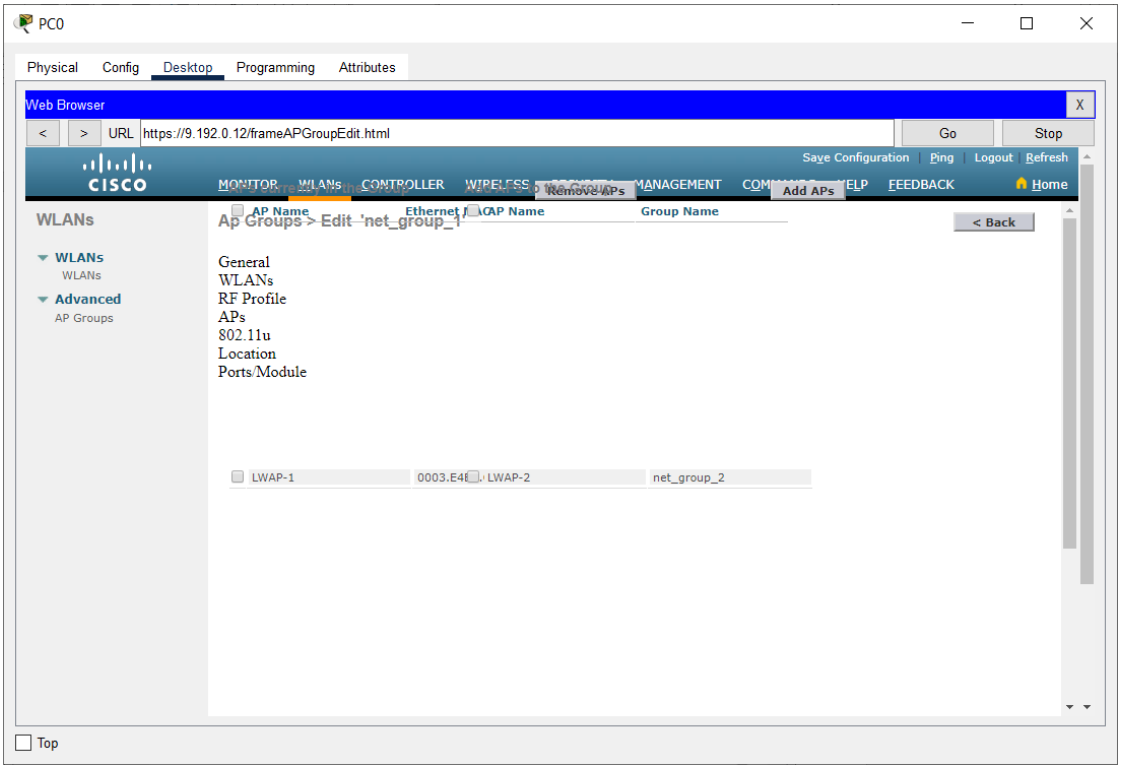

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameWlanEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
CISCO
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
WLANs
WLANs > Edit 'net_2'
< BACK
Apply
WLANs
WLANs
Advanced
AP Groups
General
Security
QoS
Policy-Mapping
Advanced
Layer 2
Layer 3
AAA Servers
Layer 2 Security
WPA+WPA2
MAC Filtering
Fast Transition
Fast Transition
Protected Management Frame
PMF
Disabled
WPA+WPA2 Parameters
WPA Policy
WPA2 Policy
WPA2 Encryption
AES
TKIP
Authentication Key Management
802.1X
Enable
CCKM
Enable
PSK
Enable
FT 802.1X
Enable
Top

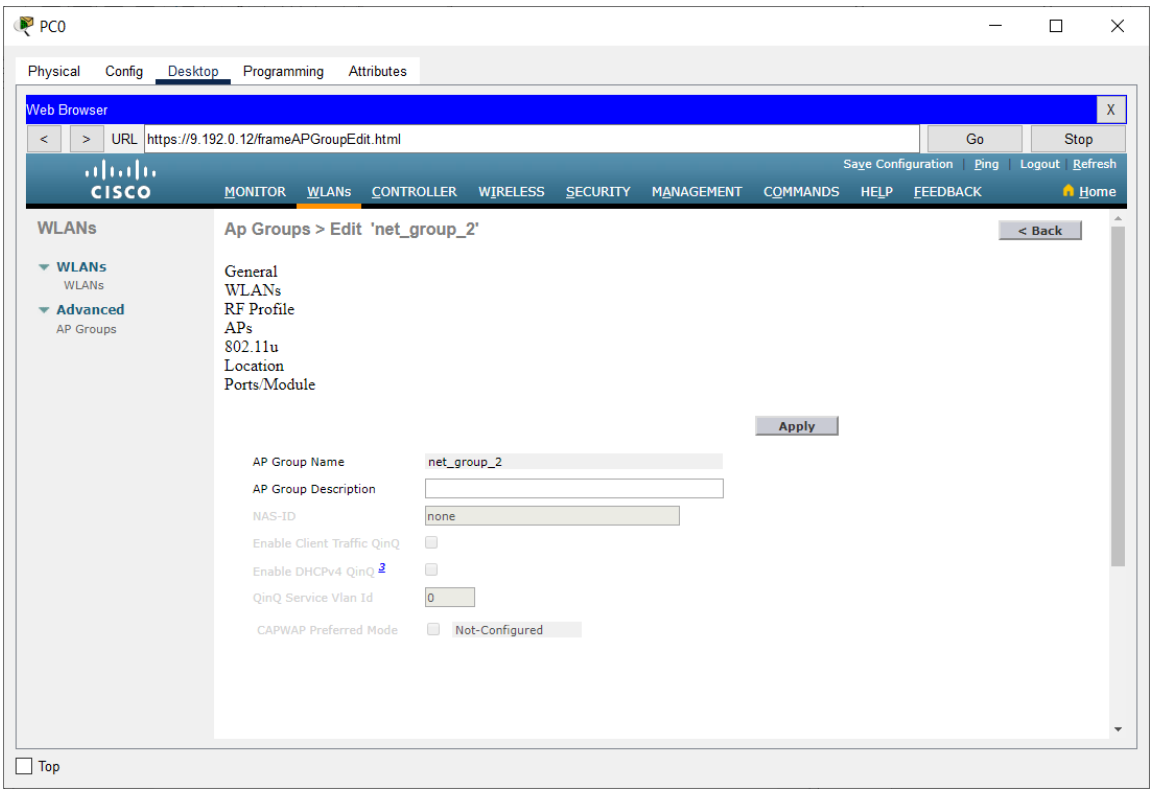

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameWlanEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
CISCO
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
WLANs
WLANs > Edit 'net_2'
< BACK
Apply
WLANs
WLANs
Advanced
AP Groups
General
Security
QoS
Policy-Mapping
Advanced
Layer 2
Layer 3
AAA Servers
Select AAA servers below to override use of default servers on this WLAN
Radius Servers
Radius Server Overwrite interface
Enabled
Authentication Servers
Accounting Servers
EAP Parameters
Enabled
Enabled
Enable
Server 1
IP:9.192.0.13, Port:1645
None
Server 2
None
None
Server 3
None
None
Server 4
None
None
Server 5
None
None
Server 6
None
None
Radius Server Accounting
Interim Update
LDAP Servers
Top

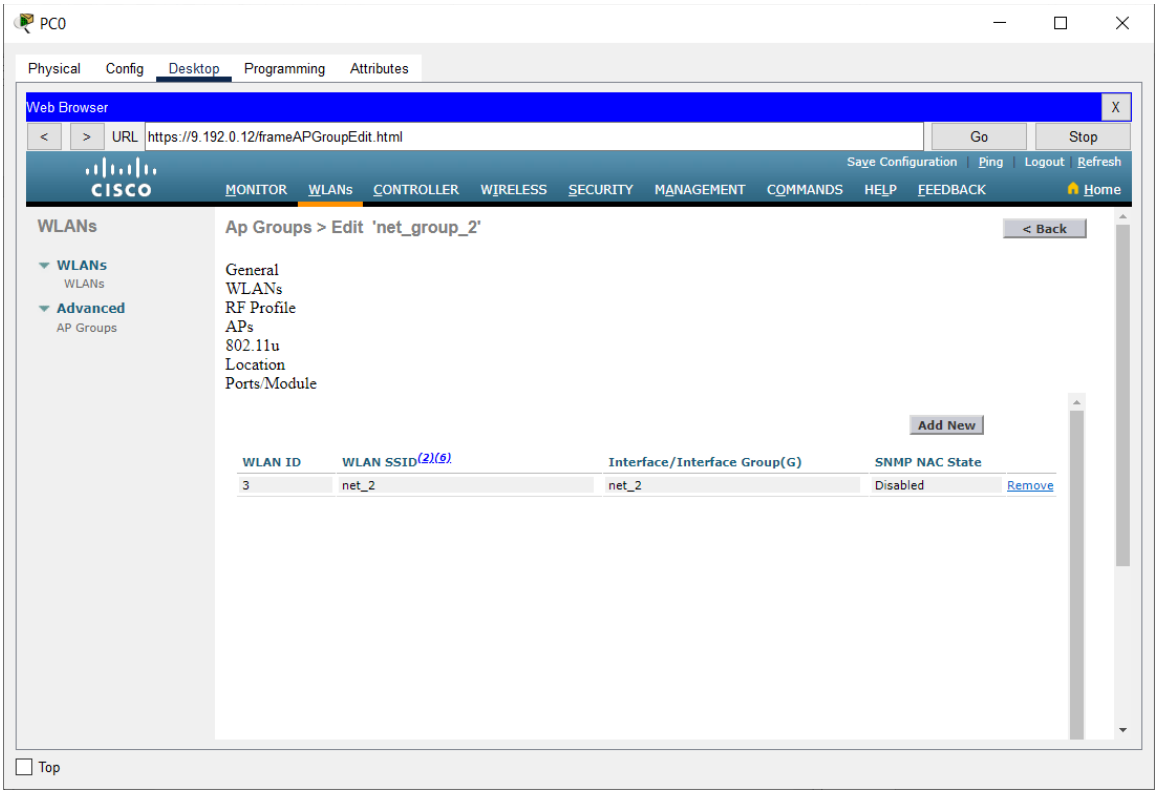

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameWlanEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
CISCO
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
WLANs
WLANs
WLANs
Advanced
AP Groups
WLANs > Edit 'net_2'
< BACK
Apply
General
Security
QoS
Policy-Mapping
Advanced
FlexConnect
FlexConnect Local Switching 2
Enabled
FlexConnect Local Auth 12
Enabled
Learn Client IP Address 5
Enabled
Vlan based Central Switching 13
Enabled
Central DHCP Processing
Enabled
Override DNS
Enabled
NAT-PAT
Enabled
Central Assoc
Enabled
11k
Assisted Roaming Prediction Optimization
Enabled
Neighbor List
Enabled
Neighbor List Dual Band
Enabled
Universal AP Admin
11v BSS Transition Support
BSS Transition
Disassociation Imminent
Disassociation Timer(0 to 3000 TBTT)
200
Optimized Roaming Disassociation Timer(0 to 40 TBTT)
40
Tunneling
Tunnel Profile
None
mDNS
mDNS Snooping
Enabled
Top

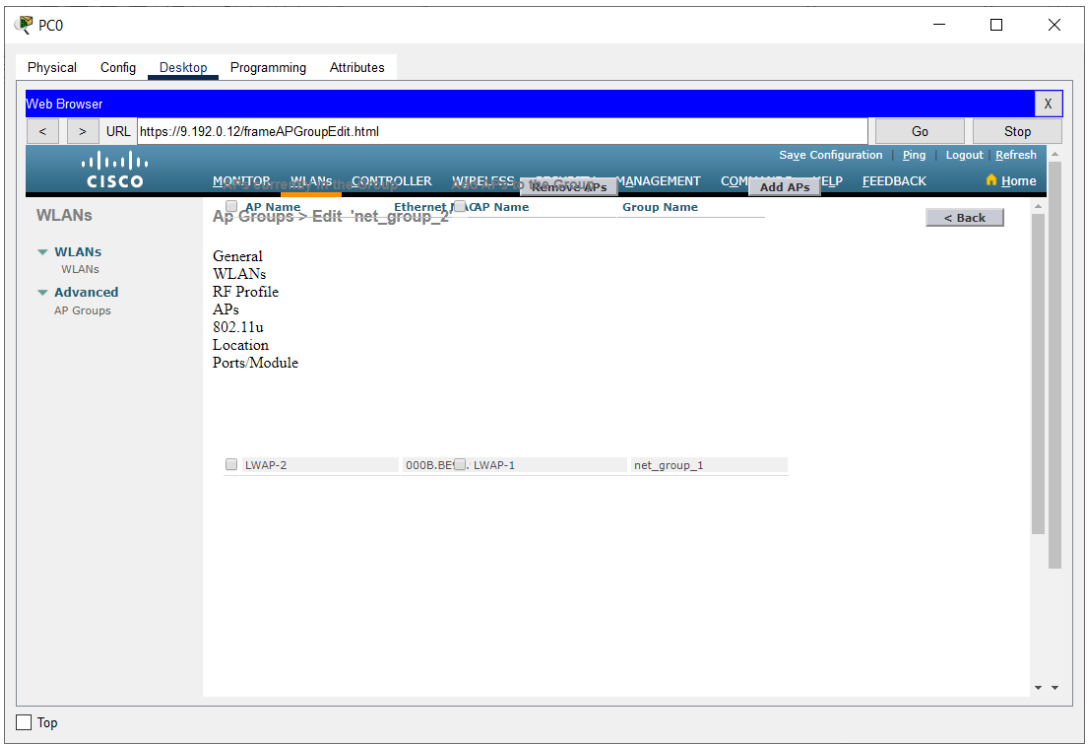

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameAPGroupEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
CISCO
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
WLANs
WLANs
WLANs
Advanced
AP Groups
Ap Groups > Edit 'net_group_1'
< Back
General
WLANs
RF Profile
APs
802.11u
Location
Ports/Module
Apply
AP Group Name
net_group_1
AP Group Description
NAS-ID
none
Enable Client Traffic QinQ
Enable DHCPv4 QinQ 3
QinQ Service Vlan Id
0
CAPWAP Preferred Mode
Not-Configured
Top

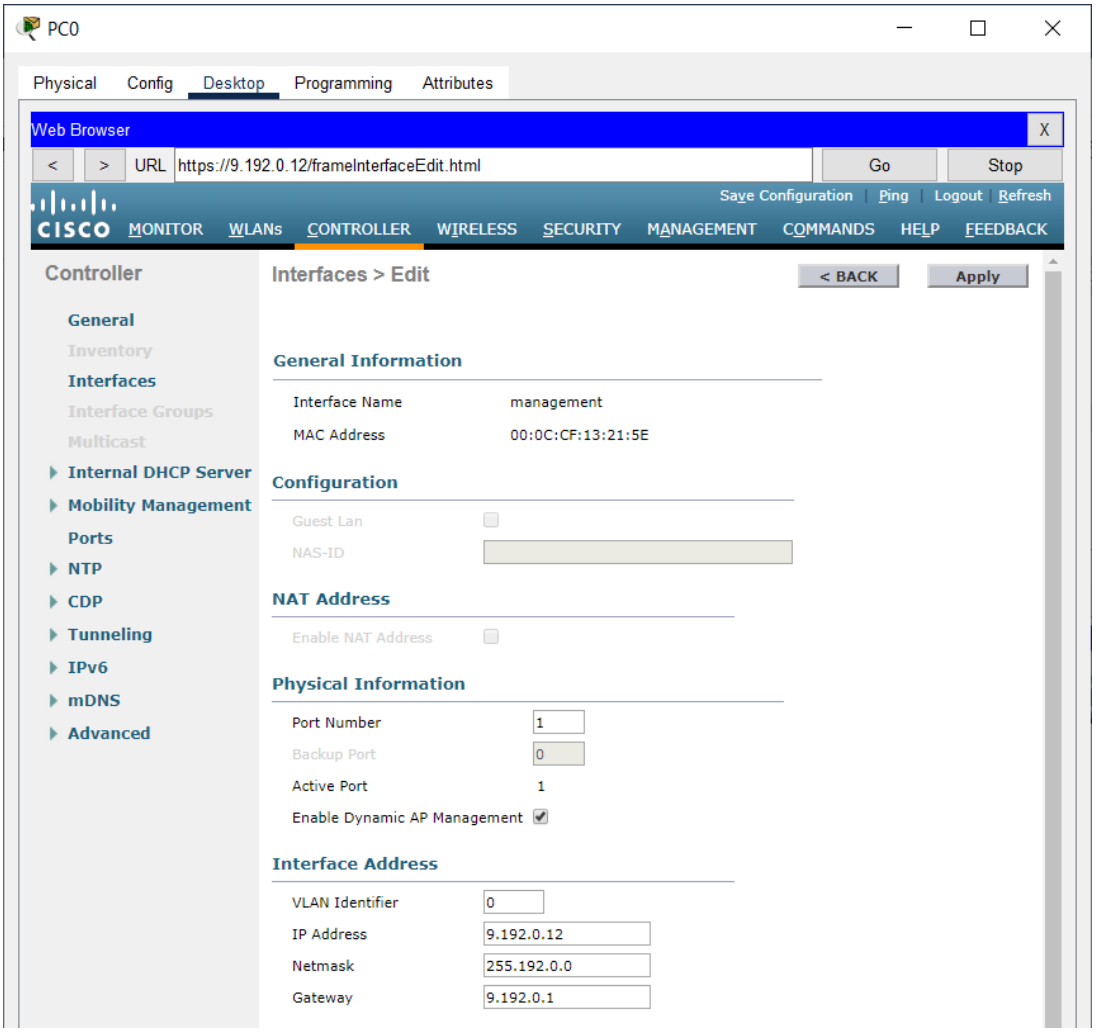

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameAPGroupEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
MONITOR WLANs CONTROLLER WIRELESS SECURITY MANAGEMENT COMMANDS HELP FEEDBACK
Home
WLANs
WLANs
WLANs
Advanced
AP Groups
Ap Groups > Edit 'net_group_1'
< Back
General
WLANs
RF Profile
APs
802.11u
Location
Ports/Module
Add New
WLAN ID
WLAN SSID(2)(6)
Interface/Interface Group(G)
SNMP NAC State
2
net_1
net_1
Disabled
Remove
Top

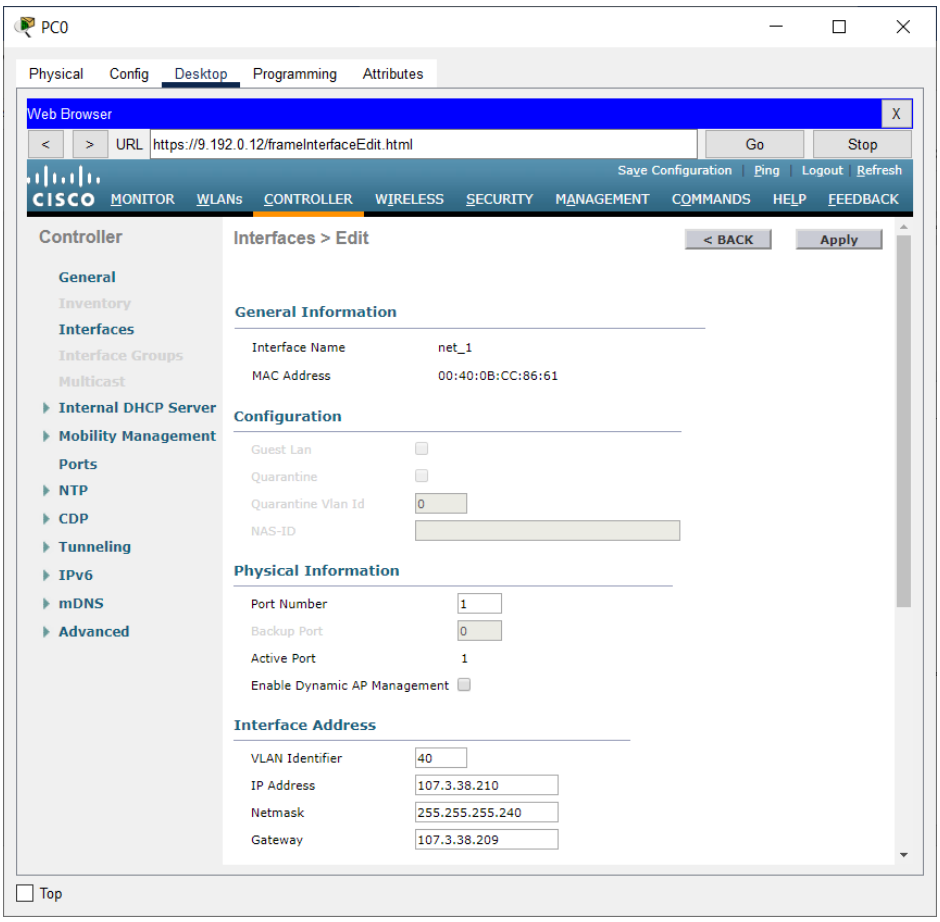

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameAPGroupEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
MONITOR WLANs CONTROLLER MANAGEMENT HELP FEEDBACK
Home
Remove APs
Add APs
AP Name
Ethernet
CAP Name
Group Name
WLANs
Ap Groups > Edit 'net_group_1'
< Back
WLANs
WLANs
Advanced
AP Groups
General
WLANs
RF Profile
APs
802.11u
Location
Ports/Module
LWAP-1
LWAP-2
net_group_2
Top

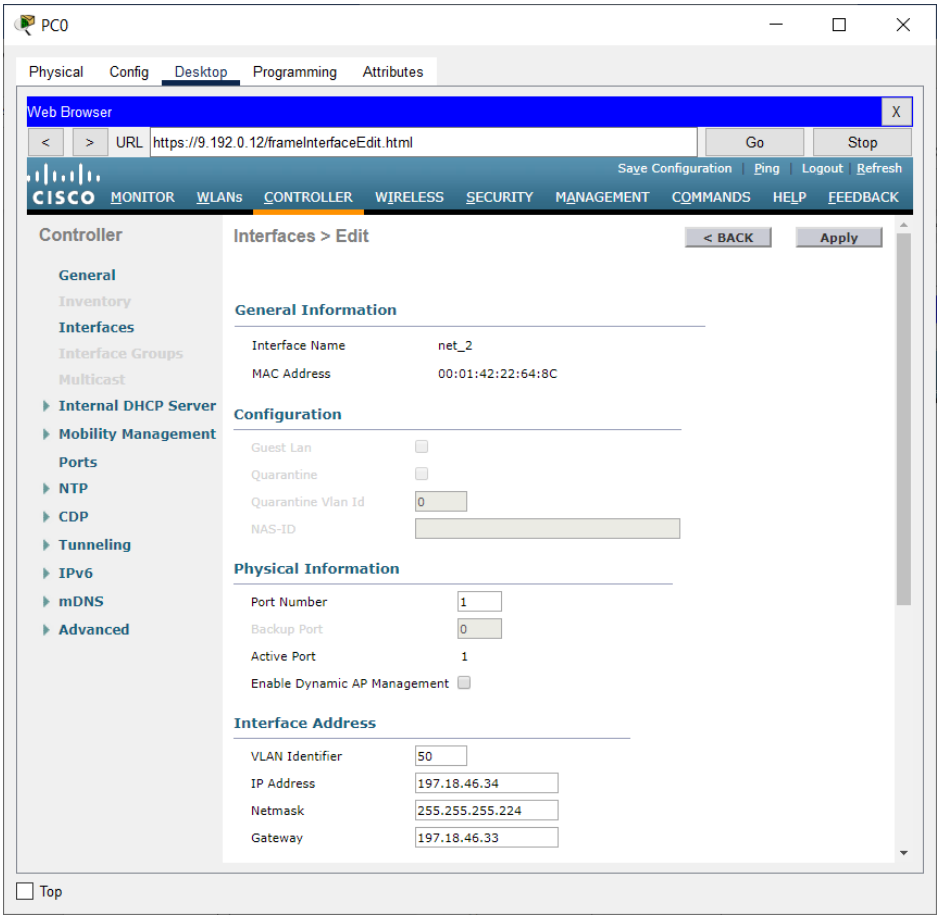

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameAPGroupEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
MONITOR WLANs CONTROLLER WIRELESS SECURITY MANAGEMENT COMMANDS HELP FEEDBACK
Home
WLANs
WLANs
WLANs
Advanced
AP Groups
Ap Groups > Edit 'net_group_2'
< Back
General
WLANs
RF Profile
APs
802.11u
Location
Ports/Module
Apply
AP Group Name
net_group_2
AP Group Description
NAS-ID
none
Enable Client Traffic QinQ
Enable DHCPv4 QinQ
QinQ Service Vlan Id
0
CAPWAP Preferred Mode
Not-Configured
Top

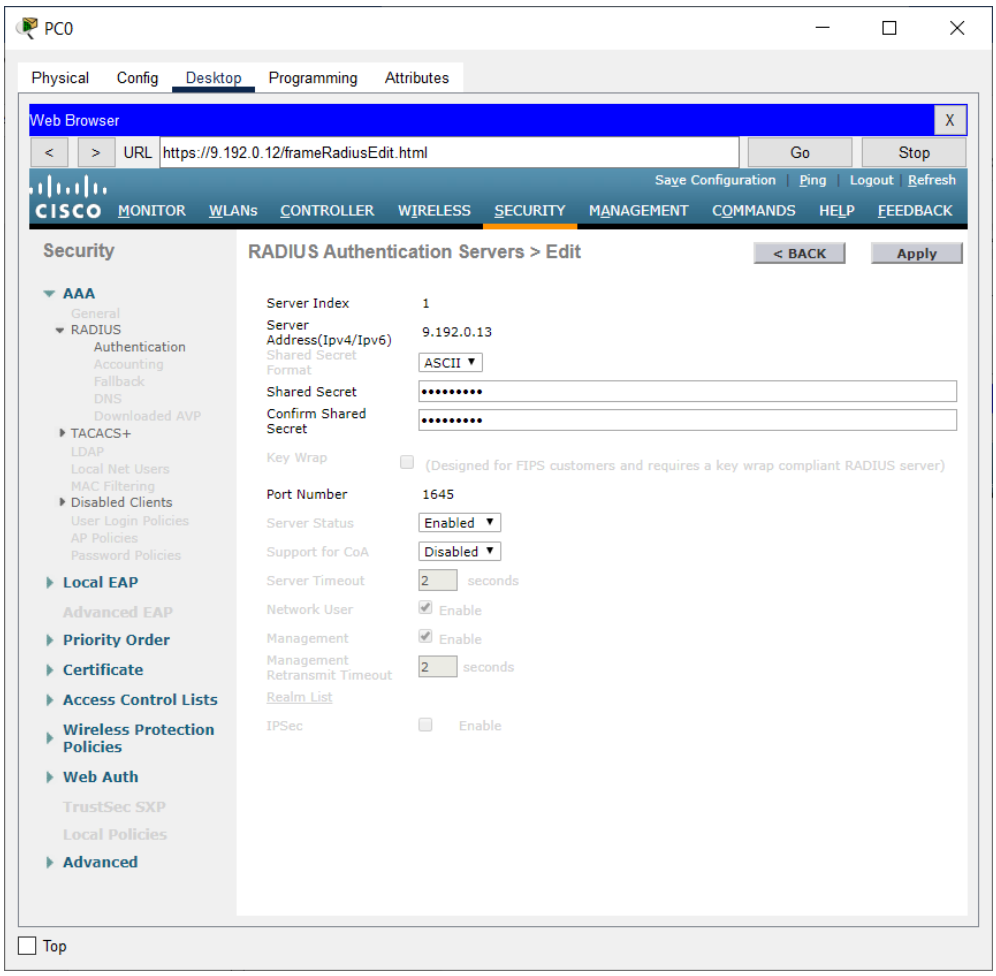
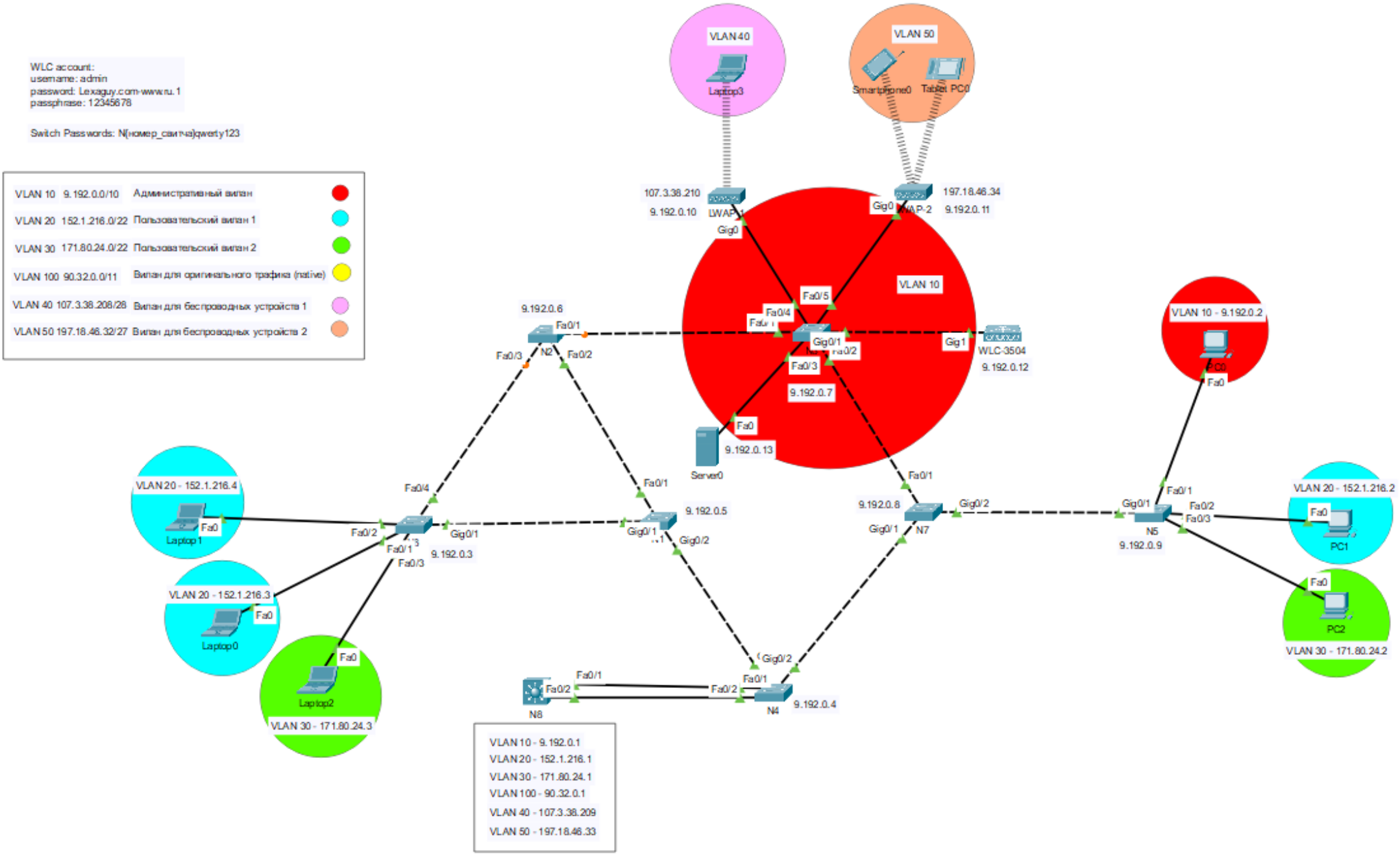

PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameAPGroupEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
MONITOR WLANs CONTROLLER WIRELESS SECURITY MANAGEMENT COMMANDS HELP FEEDBACK
Home
WLANs
WLANs
WLANs
Advanced
AP Groups
Ap Groups > Edit 'net_group_2'
< Back
General
WLANs
RF Profile
APs
802.11u
Location
Ports/Module
Add New
WLAN ID
WLAN SSID
Interface/Interface Group(G)
SNMP NAC State
3
net_2
net_2
Disabled
Remove
Top


PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameAPGroupEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
MONITOR
WLANs
CONTROLLER
WIRELESS
MANAGEMENT
Add APs
FEEDBACK
Home
WLANs
WLANs
WLANs
Advanced
AP Groups
AP Name
Ethernet MAC
AP Name
Group Name
Ap Groups > Edit 'net_group_2'
< Back
General
WLANs
RF Profile
APs
802.11u
Location
Ports/Module
LWAP-2
LWAP-1
net_group_1
Top


PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameInterfaceEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
Controller
General
Inventory
Interfaces
Interface Groups
Multicast
Internal DHCP Server
Mobility Management
Ports
NTP
CDP
Tunneling
IPv6
mDNS
Advanced
Interfaces > Edit
< BACK
Apply
General Information
Interface Name
management
MAC Address
00:0C:CF:13:21:5E
Configuration
Guest Lan
NAS-ID
NAT Address
Enable NAT Address
Physical Information
Port Number
1
Backup Port
0
Active Port
1
Enable Dynamic AP Management
Interface Address
VLAN Identifier
0
IP Address
9.192.0.12
Netmask
255.192.0.0
Gateway
9.192.0.1


PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameInterfaceEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
CISCO
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
Controller
General
Inventory
Interfaces
Interface Groups
Multicast
Internal DHCP Server
Mobility Management
Ports
NTP
CDP
Tunneling
IPv6
mDNS
Advanced
Interfaces > Edit
< BACK
Apply
General Information
Interface Name
net_1
MAC Address
00:40:0B:CC:86:61
Configuration
Guest Lan
Quarantine
Quarantine Vlan Id
0
NAS-ID
Physical Information
Port Number
1
Backup Port
0
Active Port
1
Enable Dynamic AP Management
Interface Address
VLAN Identifier
40
IP Address
107.3.38.210
Netmask
255.255.255.240
Gateway
107.3.38.209
Top


PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
URL
https://9.192.0.12/frameInterfaceEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
CISCO
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
Controller
General
Inventory
Interfaces
Interface Groups
Multicast
Internal DHCP Server
Mobility Management
Ports
NTP
CDP
Tunneling
IPv6
mDNS
Advanced
Interfaces > Edit
< BACK
Apply
General Information
Interface Name
net_2
MAC Address
00:01:42:22:64:8C
Configuration
Guest Lan
Quarantine
Quarantine Vlan Id
0
NAS-ID
Physical Information
Port Number
1
Backup Port
0
Active Port
1
Enable Dynamic AP Management
Interface Address
VLAN Identifier
50
IP Address
197.18.46.34
Netmask
255.255.255.224
Gateway
197.18.46.33
Top


PC0
Physical
Config
Desktop
Programming
Attributes
Web Browser
X
<
>
URL
https://9.192.0.12/frameRadiusEdit.html
Go
Stop
Save Configuration | Ping | Logout | Refresh
CISCO
MONITOR
WLANs
CONTROLLER
WIRELESS
SECURITY
MANAGEMENT
COMMANDS
HELP
FEEDBACK
Security
AAA
General
RADIUS
Authentication
Accounting
Fallback
DNS
Downloaded AVP
TACACS+
LDAP
Local Net Users
MAC Filtering
Disabled Clients
User Login Policies
AP Policies
Password Policies
Local EAP
Advanced EAP
Priority Order
Certificate
Access Control Lists
Wireless Protection Policies
Web Auth
TrustSec SXP
Local Policies
Advanced
RADIUS Authentication Servers > Edit
< BACK
Apply
Server Index
1
Server Address(Ipv4/Ipv6)
9.192.0.13
Shared Secret Format
ASCII
Shared Secret
Confirm Shared Secret
Key Wrap
(Designed for FIPS customers and requires a key wrap compliant RADIUS server)
Port Number
1645
Server Status
Enabled
Support for CoA
Disabled
Server Timeout
2
seconds
Network User
Enable
Management
Enable
Management Retransmit Timeout
2
seconds
Realm List
IPSec
Enable
Top

РАБОЧИЕ МАТЕРИАЛЫ