

Wireless Network

Esercitazioni

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Configurazione AP CISCO Serie 1200

AP 1200: Features

- **Col firmware 12.3(2)JA l'AP supporta:**
 - SSID multipli (fino a 16), per ciascuno di essi si può impostare:
 - Se trasmettere in broadcast l'SSID (guests mode)
 - Il metodo di autenticazione
 - Il numero massimo di clienti
 - VLAN: Una VLAN per SSID
 - Metodi di autenticazione:
 - MAC
 - 802.1x
 - WPA

AP 1200: Configurazione iniziale

□ **Configurazione Seriale**

- 9600 baud
- 8 data bits
- Parity none
- stop bit 1
- flow control no

AP 1200: Configurazione iniziale

□ Comandi "standard" CISCO:

- enable
- *Password* → Cisco
- `configure [terminal]`
- `ip default-gateway 192.168.10.1`
- `interface FastEthernet 0`
- `ip address 192.168.10.40 255.255.255.0`
- exit
- Ctrl-z
- `copy running-config startup-config`
- reload

AP 1200: Configurazione iniziale

- **Per vedere la configurazione corrente:**
 - Enable
 - Password: Cisco
 - `show running-config`
- **L'interfaccia di rete da configurare obbligatoriamente nella nuova release del firmware non è FastEthernet 0 ma BVI 1**

AP 1200: Interfaccia HTTP

□ Risultato prima configurazione:

- HOME
- EXPRESS SET-UP
- EXPRESS SECURITY
- NETWORK MAP +
- ASSOCIATION +
- NETWORK +
- INTERFACES +
- SECURITY +
- SERVICES +
- WIRELESS SERVICES +
- SYSTEM SOFTWARE +
- EVENT LOG +

Hostname CISCO1200-NetworkLab

Express Set-Up

Host Name:	<input type="text" value="CISCO1200-NetworkLab"/>
MAC Address:	000d.2967.cef5
Configuration Server Protocol:	<input type="radio"/> DHCP <input checked="" type="radio"/> Static IP
IP Address:	<input type="text" value="192.168.10.40"/>
IP Subnet Mask:	<input type="text" value="255.255.255.0"/>
Default Gateway:	<input type="text" value="192.168.10.1"/>
SNMP Community:	<input type="text" value="defaultCommunity"/>
	<input checked="" type="radio"/> Read-Only <input type="radio"/> Read-Write

Radio0-802.11B

Role in Radio Network:	<input checked="" type="radio"/> Access Point Root <input type="radio"/> Repeater Non-Root
Optimize Radio Network for:	<input checked="" type="radio"/> Throughput <input type="radio"/> Range <input type="radio"/> Custom
Aironet Extensions:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable

AP 1200: Aggiornamento Firmware

□ Firmware scaricabile dal sito CISCO:

- <http://www.cisco.com/public/sw-center/sw-wireless.shtml>
- La versione attuale è: [c1200-k9w7-tar.123-2.JA.tar](#)
- Si può aggiornare via tftp o via http

AP 1200: Aggiornamento Firmware

□ Aggiornamento Firmware:

The screenshot shows the Cisco AP 1200 web interface. A modal window titled "Please wait..." is displayed in the foreground, indicating a firmware upgrade in progress. The modal text states: "The system is upgrading the software and restarting. This should take between 5 and 15 minutes depending on your network speed." Below the text, a progress bar shows "00:15 time elapsed".

The background interface shows the "TFTP Upgrade" configuration page. The page title is "TFTP Upgrade" and the device model is "CISCO1200-N". The page contains the following configuration fields:

- TFTP File Server:** 192.168.10.10 (server name or IP address)
- Upgrade System Software Tar File:** c1200-k9w7-tar.123-2.JA.tar (path/filename)

The page also lists the following software versions:

- c1200-k9w7-tar.122-11.JA
- 12.2(11)JA
- 12.2(8)JA

At the bottom of the page, there is a "Close Window" button and a "Copyr" label.

AP 1200: Password Administrator

- **Si possono avere più utenti con diversi diritti:**

The screenshot shows the configuration interface for a Cisco Aironet 1200 Series Access Point. The page title is "Cisco Aironet 1200 Series Access Point". The hostname is "CISCO1200-NetworkLab" and the uptime is "2 da". The left sidebar contains a navigation menu with items like "HOME", "PRESS SET-UP", "PRESS SECURITY", "WORK MAP", "OCIATION", "WORK", "ERFACES", "SECURITY", "Admin Access", "Encryption Manager", "SSID Manager", "Server Manager", "Local RADIUS Server", "Advanced Security", "SERVICES", "WIRELESS SERVICES", "SYSTEM SOFTWARE", and "EVENT LOG".

The main content area is titled "Security: Admin Access". It contains three sections:

- Administrator Authenticated by:** This section has four radio button options: "Default Authentication (Global Password)" (selected), "Local User List Only (Individual Passwords)", "Authentication Server Only", and "Authentication Server if not found in Local List". An "Apply" button is at the bottom right.
- Default Authentication (Global Password):** This section has two input fields for "Default Authentication Password:" and "Confirm Authentication Password:", both containing "*****". An "Apply" button is at the bottom right.
- Local User List (Individual Passwords):** This section has a "User List:" table with one entry: "Cisco". The table has columns for "Username:", "Password:", "Confirm Password:", and "Capability Settings:". The "Username:" field contains "Cisco", the "Password:" field contains "*****", and the "Confirm Password:" field is empty. The "Capability Settings:" are "Read-Only" (selected) and "Read-Write". A "Delete" button is next to the "Cisco" entry. An "Apply" button is at the bottom right.

AP 1200: Configurazione Wireless

□ **Ruolo in una rete Wireless:**

- Root o repeater

□ **Speed:**

- Basic: traffico unicast e multicast, utilizzate dalla velocità più alta alla più bassa. Almeno una deve essere settata.
- Enabled: solo traffico unicast
- Disabled: non utilizzabile

□ **Power:**

- Si può anche limitare la potenza (in trasmissione) dei client (estensioni CISCO).

AP 1200: Configurazione Wireless

▣ Configurazione parametri base:

The screenshot shows the configuration page for the Radio0-802.11B interface on a Cisco AP 1200. The page is titled "RADIO0-802.11B STATUS" and "DETAILED STATUS". The host name is "CISCO1200-NetworkLab" and the uptime is 3 minutes. The configuration is divided into several sections:

- Enable Radio:** Enable, Disable
- Current Status (Software/Hardware):** Enabled ↑, Up ↑
- Role in Radio Network:** Access Point Root (Fallback to Radio Island), Access Point Root (Fallback to Radio Shutdown), Access Point Root (Fallback to Repeater), Repeater Non-Root
- Data Rates:** 1.0Mb/sec, 2.0Mb/sec, 5.5Mb/sec, 11.0Mb/sec. Each rate has Require, Enable, and Disable options.
- Transmitter Power (mW):** 1, 5, 20, 30, 50, Max
- Limit Client Power (mW):** 1, 5, 20, 30, 50, Max
- Default Radio Channel:** Least Congested Frequency, Channel 10 2457 MHz
- Least Congested Channel Search:** (Use Only Selected Channels). A dropdown menu shows channels 1-10 with their frequencies: Channel 1 - 2412 MHz, Channel 2 - 2417 MHz, Channel 3 - 2422 MHz, Channel 4 - 2427 MHz, Channel 5 - 2432 MHz, Channel 6 - 2437 MHz, Channel 7 - 2442 MHz, Channel 8 - 2447 MHz, Channel 9 - 2452 MHz, Channel 10 - 2457 MHz.

[Power Translation Table \(mW/dB\)](#)

AP 1200: Configurazione Wireless

□ **World Mode:**

- I client possono ricevere informazioni sui setting "nazionali". Legacy per compatibilità CISCO, 802.11d nuovo standard

□ **Antenna:**

- Diversity: vengono usate ambedue le antenne e scelta quella che riceve il miglior segnale

□ **Encapsulation:**

- Per gestire i pacchetti non 802.3 questi vanno incapsulati. RFC1042 interoperabilità con altri, 802.1H ottimizzato per CISCO

AP 1200: Configurazione Wireless

□ **RTS:**

- Valori bassi in particolare se non tutti i clienti riescono a sentirsi fra loro

□ **Fragmentation:**

- Valori bassi se area disturbata o con qualità bassa della trasmissione

□ **Estensioni proprietarie CISCO:**

- Utilizzate per supportare features speciali

AP 1200: Configurazione Wireless

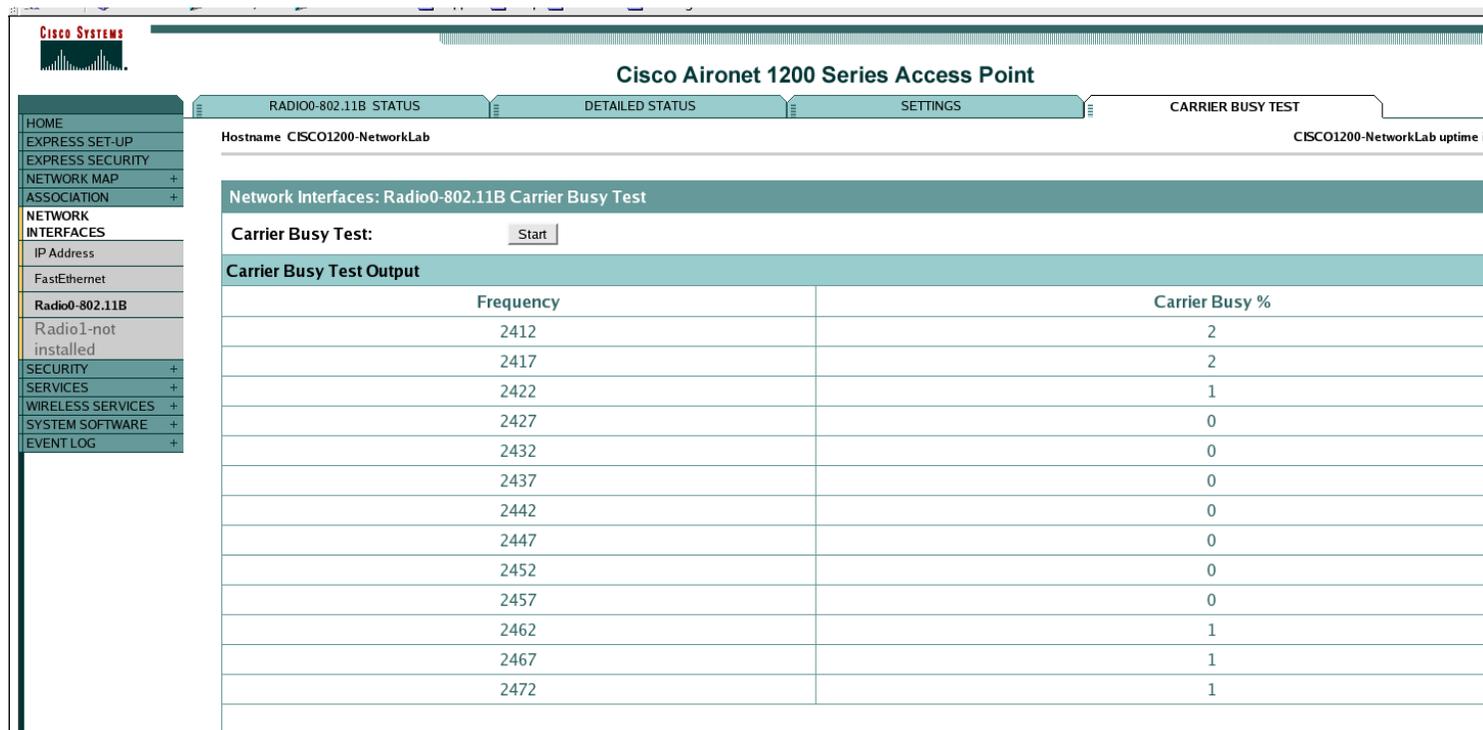
□ Configurazione parametri base:

World Mode Multi-Domain Operation:	<input type="radio"/> Disable	<input type="radio"/> Legacy	<input checked="" type="radio"/> Dot11d
Country Code:	Italy	<input checked="" type="checkbox"/> Indoor	<input checked="" type="checkbox"/> Outdoor
Radio Preamble:	<input checked="" type="radio"/> Short	<input type="radio"/> Long	
Receive Antenna:	<input checked="" type="radio"/> Diversity	<input type="radio"/> Left (Secondary)	<input type="radio"/> Right (Primary)
Transmit Antenna:	<input checked="" type="radio"/> Diversity	<input type="radio"/> Left (Secondary)	<input type="radio"/> Right (Primary)
External Antenna Configuration:	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable	
	Antenna Gain(dB):	DISABLED (-128 - 128)	
Aironet Extensions:	<input checked="" type="radio"/> Enable	<input type="radio"/> Disable	
Ethernet Encapsulation Transform:	<input checked="" type="radio"/> RFC1042	<input type="radio"/> 802.1H	
Reliable Multicast to WGB:	<input checked="" type="radio"/> Disable	<input type="radio"/> Enable	
Public Secure Packet Forwarding:	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable	
Beacon Period:	100 (20-4000 Kusec)	Data Beacon Rate (DTIM):	2 (1-100)
Max. Data Retries:	64 (1-128)	RTS Max. Retries:	64 (1-128)
Fragmentation Threshold:	2346 (256-2346)	RTS Threshold:	2312 (0-2347)
Repeater Parent AP Timeout:	0 (0-65535 sec)		
Repeater Parent AP MAC 1 (optional):	(HHHH.HHHH.HHHH)		
Repeater Parent AP MAC 2 (optional):	(HHHH.HHHH.HHHH)		
Repeater Parent AP MAC 3 (optional):	(HHHH.HHHH.HHHH)		
Repeater Parent AP MAC 4 (optional):	(HHHH.HHHH.HHHH)		

AP 1200: Configurazione Wireless

▣ Selezione Canale:

- Si può far selezionare in automatico dall'AP
- Si può fissare manualmente
- Si può fare un survey per determinare lo stato dei canali nell'area



The screenshot displays the configuration page for a Cisco Aironet 1200 Series Access Point, specifically the 'Carrier Busy Test' section for the Radio0-802.11B interface. The interface includes a navigation menu on the left and a main content area with tabs for 'RADIO0-802.11B STATUS', 'DETAILED STATUS', 'SETTINGS', and 'CARRIER BUSY TEST'. The 'Carrier Busy Test' section shows a 'Start' button and a table of test results.

Frequency	Carrier Busy %
2412	2
2417	2
2422	1
2427	0
2432	0
2437	0
2442	0
2447	0
2452	0
2457	0
2462	1
2467	1
2472	1

AP 1200: Server Radius

□ **Configurazione Base:**

- Autenticazione MAC address clients
- IP server, porte per autenticazione ed accounting
- Password condivisa fra radius server e AP

AP 1200: Server Radius

▣ Configurazione Radius Server:

Cisco Aironet 1200 Series Access Point

Hostname CISCO1200-NetworkLab CISCO1200-NetworkLab uptime is 50 minutes

SERVER MANAGER | GLOBAL PROPERTIES

Security: Server Manager

Backup RADIUS Server

Backup RADIUS Server: (Hostname or IP Address)
Shared Secret:

Apply Delete Cancel

Corporate Servers

Current Server List

RADIUS

< NEW >
192.168.10.30

Delete

Server: (Hostname or IP Address)
Shared Secret:

Authentication Port (optional): (0-65536)
Accounting Port (optional): (0-65536)

Apply Cancel

Default Server Priorities

EAP Authentication	MAC Authentication	Accounting
Priority 1: < NONE >	Priority 1: 192.168.10.30	Priority 1: 192.168.10.30
Priority 2: < NONE >	Priority 2: < NONE >	Priority 2: < NONE >
Priority 3: < NONE >	Priority 3: < NONE >	Priority 3: < NONE >

Admin Authentication (RADIUS)

Priority 1: < NONE >
Priority 2: < NONE >

Admin Authentication (TACACS+)

Priority 1: < NONE >
Priority 2: < NONE >

AP 1200: SSID e Autenticazione

□ **SSID:**

- Si definisce l'SSID. Default tsunami
- Guest SSID: è quello che viene annunciato

□ **Tipi di autenticazione:**

- Open: tutti i device si possono autenticare ma comunicano solo se corrisponde la chiave WEP
- Shared: prevede scambi di un messaggio in chiaro e crittato. Non sicuro.
- EAP: la più sicura con mutua autenticazione

□ **Autenticazione MAC:**

- Open authentication → "With MAC Authentication"

AP 1200: SSID e Autenticazione

□ SSID e Radius Server:

- EXPRESS SECURITY
- NETWORK MAP +
- ASSOCIATION +
- NETWORK INTERFACES +
- SECURITY
 - Admin Access
 - Encryption Manager
 - SSID Manager**
 - Server Manager
 - Local RADIUS Server
 - Advanced Security
- SERVICES +
- WIRELESS SERVICES +
- SYSTEM SOFTWARE +
- EVENT LOG +

Security: SSID Manager

SSID Properties

Current SSID List

< NEW >	SSID:	WILMA-LAB
WILMA-LAB	VLAN:	< NONE > Define VLANs
	Network ID:	(0-4096)

Delete

Authentication Settings

Authentication Methods Accepted:

<input checked="" type="checkbox"/> Open Authentication:	with MAC Authentication
<input type="checkbox"/> Shared Authentication:	< NO ADDITION >
<input type="checkbox"/> Network EAP:	< NO ADDITION >

Server Priorities:

EAP Authentication Servers	MAC Authentication Servers
<input checked="" type="radio"/> Use Defaults Define Defaults	<input checked="" type="radio"/> Use Defaults Define Defaults
<input type="radio"/> Customize	<input type="radio"/> Customize
Priority 1: < NONE >	Priority 1: < NONE >
Priority 2: < NONE >	Priority 2: < NONE >
Priority 3: < NONE >	Priority 3: < NONE >

AP 1200: SSID e Autenticazione

□ MAC Address Authentication:

The screenshot shows the configuration page for a Cisco Aironet 1200 Series Access Point. The page title is "Cisco Aironet 1200 Series Access Point" and the hostname is "CISCO1200-NetworkLab". The page is divided into several sections:

- Navigation Menu:** Includes HOME, EXPRESS SET-UP, EXPRESS SECURITY, NETWORK MAP, ASSOCIATION, NETWORK INTERFACES, SECURITY (Admin Access, Encryption Manager, SSID Manager, Server Manager, Local RADIUS Server, Advanced Security), SERVICES, WIRELESS SERVICES, SYSTEM SOFTWARE, and EVENT LOG.
- MAC ADDRESS AUTHENTICATION:** The active tab, showing the configuration for MAC Address Authentication. It includes a "Security: Advanced Security- MAC Address Authentication" section with the following options:
 - Local List Only
 - Authentication Server Only
 - Authentication Server if not found in Local List (selected)
- Local MAC Address List:** A section for managing the local list of MAC addresses. It includes a "Local List:" field with a list box and a "Delete" button. Below it is a "New MAC Address:" field with a text input and a placeholder "(HHHH.HHHH.HHHH)".

At the bottom of the page, there is a "Close Window" button.

AP 1200: SSID e Autenticazione

MAC Address Authentication:

The screenshot displays the Cisco Aironet 1200 Series Access Point configuration interface. The page title is "Cisco Aironet 1200 Series Access Point". The hostname is "CISCO1200-NetworkLab" and the uptime is "3 hours, 25 minutes".

The "Event Log" section shows a table of events. The "Start Display at Index" is 1 and the "Max Number of Events to Display" is 20. The events are as follows:

Index	Time	Severity	Description
1	Mar 1 03:25:19.858	Information	Interface Dot11Radio0, Station WILMA-LAPTOP2 0002.8a9f.1ead Reassociated KEY_MGMT[NONE]
2	Mar 1 03:25:14.174	Debugging	Station 0002.8a9f.1ead Authentication failed
3	Mar 1 03:25:07.831	Debugging	Station 0002.8a9f.1ead Authentication failed
4	Mar 1 03:25:01.448	Debugging	Station 0002.8a9f.1ead Authentication failed
5	Mar 1 03:24:55.125	Debugging	Station 0002.8a9f.1ead Authentication failed
6	Mar 1 03:24:49.843	Debugging	Station 0002.8a9f.1ead Authentication failed
7	Mar 1 03:24:43.529	Debugging	Station 0002.8a9f.1ead Authentication failed
8	Mar 1 03:24:37.186	Debugging	Station 0002.8a9f.1ead Authentication failed
9	Mar 1 03:24:30.863	Debugging	Station 0002.8a9f.1ead Authentication failed
10	Mar 1 03:24:24.480	Debugging	Station 0002.8a9f.1ead Authentication failed
11	Mar 1 03:24:18.097	Debugging	Station 0002.8a9f.1ea
12	Mar 1 03:24:12.805	Debugging	Station 0002.8a9f.1ea
13	Mar 1 03:24:06.501	Debugging	Station 0002.8a9f.1ea
14	Mar 1 03:24:00.178	Debugging	Station 0002.8a9f.1ea
15	Mar 1 03:23:54.836	Debugging	Station 0002.8a9f.1ea
16	Mar 1 03:23:48.493	Debugging	Station 0002.8a9f.1ea
17	Mar 1 03:23:42.130	Debugging	Station 0002.8a9f.1ea

The terminal window shows the following output:

```
root@radiuswn:~# /etc/rc.d/init.d/radiusd restart
Stopping RADIUS server: [ OK ]
Starting RADIUS server: [ OK ]
[root@radiuswn root]# tail -f /var/log/radius/radius.log
Tue Jan 25 14:01:28 2005 : Auth: Login incorrect: [00028a9f1ead/00028a9f1ead] (f
rom client APCisco1 port 325 cli 0002.8a9f.1ead)
Tue Jan 25 14:01:30 2005 : Auth: Login incorrect: [00028a9f1ead/00028a9f1ead] (f
rom client APCisco1 port 326 cli 0002.8a9f.1ead)
Tue Jan 25 14:01:35 2005 : Auth: Login incorrect: [00028a9f1ead/00028a9f1ead] (f
rom client APCisco1 port 327 cli 0002.8a9f.1ead)
Tue Jan 25 14:01:37 2005 : Auth: Login incorrect: [00028a9f1ead/00028a9f1ead] (f
rom client APCisco1 port 328 cli 0002.8a9f.1ead)
Tue Jan 25 14:01:41 2005 : Info: Using deprecated naslist file. Support for thi
s will go away soon.
Tue Jan 25 14:01:41 2005 : Info: Using deprecated clients file. Support for thi
s will go away soon.
Tue Jan 25 14:01:41 2005 : Info: Using deprecated realms file. Support for thi
s will go away soon.
Tue Jan 25 14:01:41 2005 : Info: Listening on IP address *, ports 1812/udp and 1
813/udp, with proxy on 1814/udp.
Tue Jan 25 14:01:41 2005 : Info: Ready to process requests.
Tue Jan 25 14:01:42 2005 : Auth: Login OK: [00028a9f1ead] (from client APCisco1
port 328 cli 0002.8a9f.1ead)
```

AP 1200: Multi SSID e VLAN

□ **Più SSID assegnati a differenti VLAN:**

- Si possono definire più SSID
- Al più uno solo è annunciato
- Ciascun SSID può essere assegnato ad una differente VLAN
- Policy di autenticazione e di crittazione differenti per ciascun SSID
- È possibile configurare il radius server in modo tale che sia il sistema ad assegnare l'SSID/VLAN all'utente

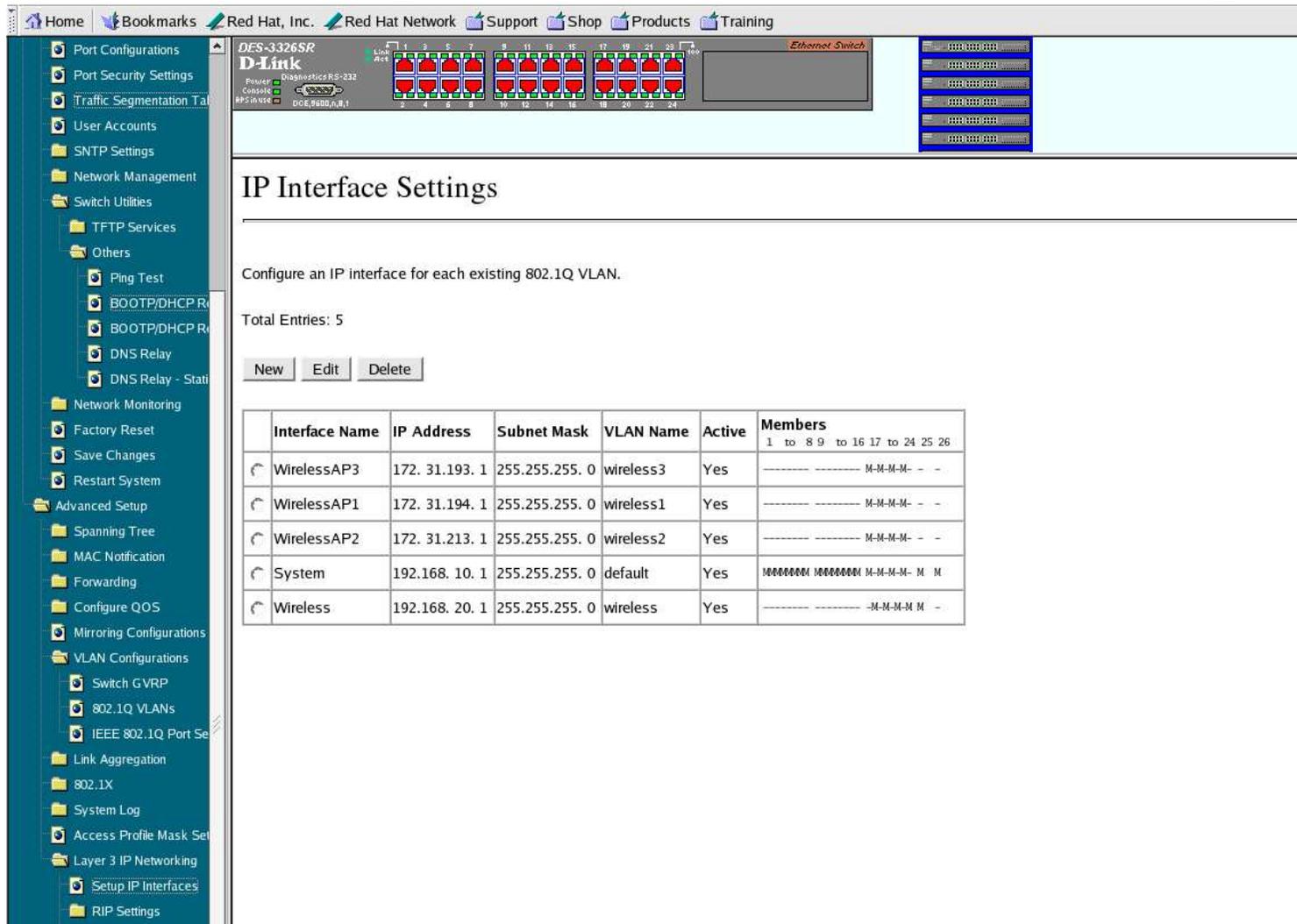
AP 1200: Multi SSID e VLAN

□ **Configurazione Switch Layer 3:**

- Supporto per VLAN abilitato
- Supporto per dhcp relay abilitato
- Tutte le VLAN supportate dall'AP devono essere definite
- Porta a cui è connesso l'AP taggata per tutte le VLAN supportate dall'AP, untagged la VLAN di default

AP 1200: SSID e Autenticazione

Switch Layer 3: Interface Settings



The screenshot shows the configuration interface for a D-Link DES-3326SR switch. The left sidebar contains a navigation tree with categories like Port Configurations, Network Management, and Layer 3 IP Networking. The main content area is titled "IP Interface Settings" and includes instructions to configure IP interfaces for existing 802.1Q VLANs. A table lists the current configurations for various interfaces.

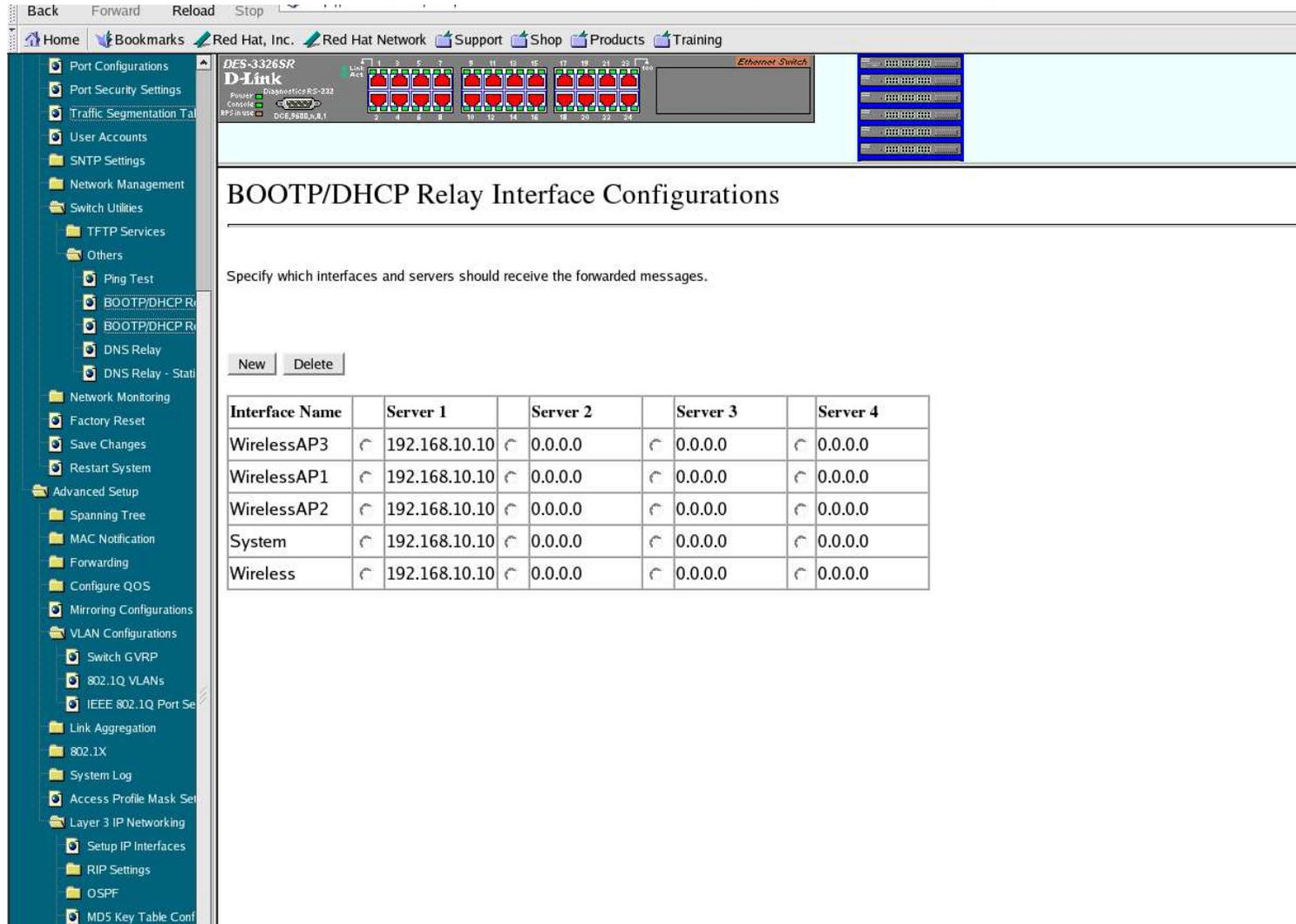
Configure an IP interface for each existing 802.1Q VLAN.

Total Entries: 5

Interface Name	IP Address	Subnet Mask	VLAN Name	Active	Members
WirelessAP3	172.31.193.1	255.255.255.0	wireless3	Yes	----- M-M-M- - -
WirelessAP1	172.31.194.1	255.255.255.0	wireless1	Yes	----- M-M-M- - -
WirelessAP2	172.31.213.1	255.255.255.0	wireless2	Yes	----- M-M-M- - -
System	192.168.10.1	255.255.255.0	default	Yes	M-M-M- M M
Wireless	192.168.20.1	255.255.255.0	wireless	Yes	----- -M-M-M M -

AP 1200: SSID e Autenticazione

Switch Layer 3: Dhcp Relay



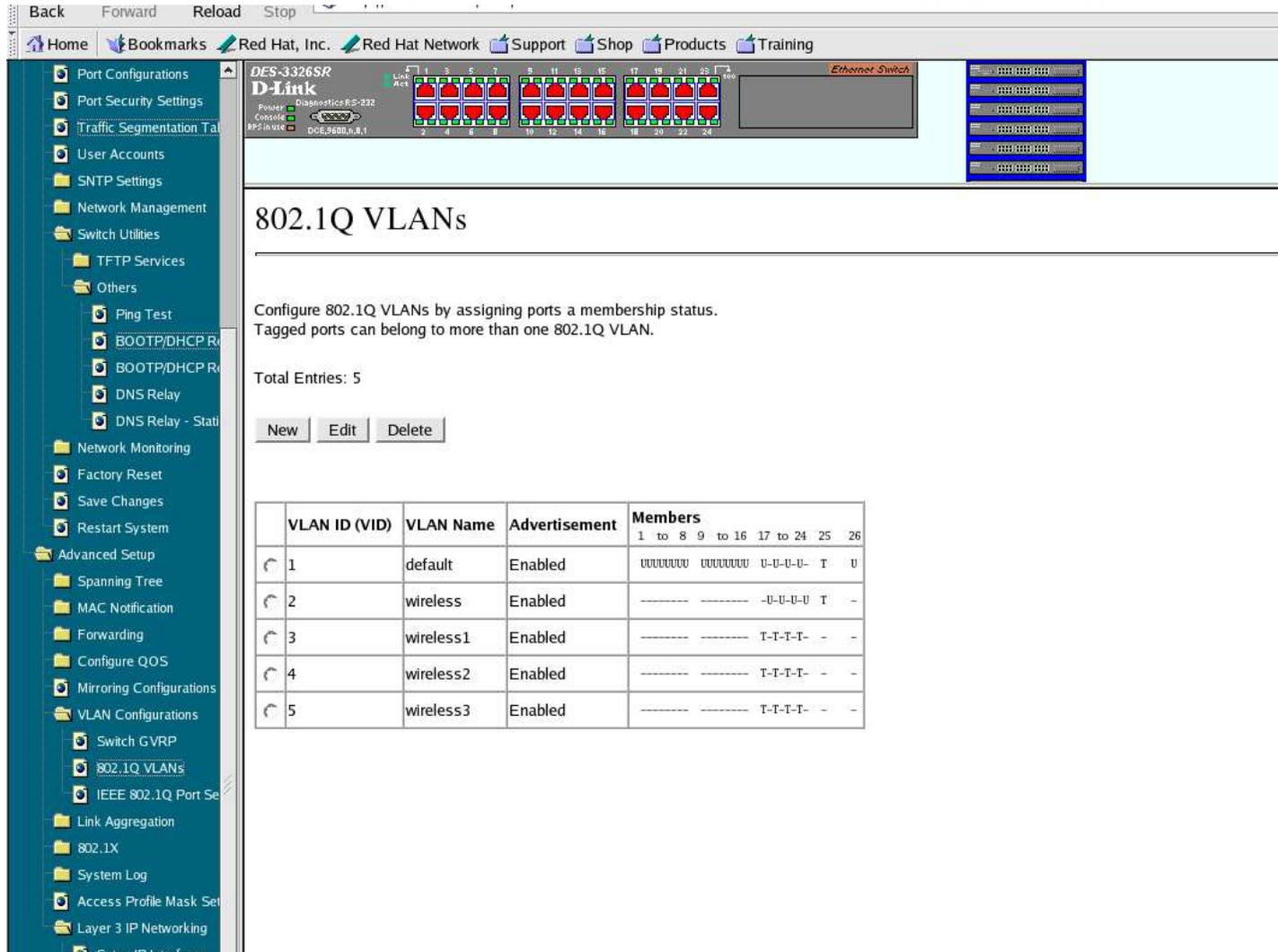
The screenshot shows a web-based configuration interface for a D-Link DES-3326SR switch. The left sidebar contains a navigation menu with categories like Port Configurations, Network Management, and Layer 3 IP Networking. The main content area is titled "BOOTP/DHCP Relay Interface Configurations" and includes a table for specifying relay configurations.

Specify which interfaces and servers should receive the forwarded messages.

Interface Name	Server 1	Server 2	Server 3	Server 4
WirelessAP3	192.168.10.10	0.0.0.0	0.0.0.0	0.0.0.0
WirelessAP1	192.168.10.10	0.0.0.0	0.0.0.0	0.0.0.0
WirelessAP2	192.168.10.10	0.0.0.0	0.0.0.0	0.0.0.0
System	192.168.10.10	0.0.0.0	0.0.0.0	0.0.0.0
Wireless	192.168.10.10	0.0.0.0	0.0.0.0	0.0.0.0

AP 1200: SSID e Autenticazione

Switch Layer 3: Port Tagging



The screenshot shows the web interface of a D-Link DES-3326SR switch. The left sidebar contains a navigation menu with categories like 'Port Configurations', 'Traffic Segmentation', 'User Accounts', 'Network Management', and 'VLAN Configurations'. The main content area is titled '802.1Q VLANs' and includes instructions: 'Configure 802.1Q VLANs by assigning ports a membership status. Tagged ports can belong to more than one 802.1Q VLAN.' Below this, there are 'New', 'Edit', and 'Delete' buttons, and a table listing the configured VLANs.

VLAN ID (VID)	VLAN Name	Advertisement	Members
1	default	Enabled	1 to 8 9 to 16 17 to 24 25 26
2	wireless	Enabled	----- -U-U-U-U T -
3	wireless1	Enabled	----- T-T-T-T- - -
4	wireless2	Enabled	----- T-T-T-T- - -
5	wireless3	Enabled	----- T-T-T-T- - -

AP 1200: Multi SSID e VLAN

□ Definizione VLAN:

- Deve rispecchiare la configurazione dello switch: utilizzare gli stessi ID

The screenshot displays the configuration interface for a Cisco Aironet 1200 Series Access Point. The page title is "Cisco Aironet 1200 Series Access Point". The hostname is "CISCO1200-NetworkLab" and the uptime is "2 days, 1 hour, 35 minute".

The configuration is divided into several sections:

- Services: VLAN**
- Global VLAN Properties**
- Current Native VLAN:** Management VLAN 1
- Assigned VLANs**
- Current VLAN List**: A list box containing "< NEW >", "VLAN 3", "VLAN 4", and "VLAN 5". A "Delete" button is next to the list.
- Create VLAN**:
 - VLAN ID:** 3 (1-4095)
 - VLAN Name (optional):** wireless3
 - Native VLAN
 - Enable Public Secure Packet Forwarding
 - SSID:** WILMA-LAB (with a "Define SSID" link)

At the bottom right, there are "Apply" and "Cancel" buttons.

VLAN Information

View Information for: VLAN 4

AP 1200: Multi SSID e VLAN

□ **Definizione degli SSID:**

- Definire SSID
- Associare la VLAN
 - VLAN è il numero della VLAN definita
 - Network ID: legato alla gestione di reti avanzate
- Definire il metodo di autenticazione
- Definire se fare l'accounting

AP 1200: SSID e Autenticazione

□ Definizione SSID

INTERNET
SECURITY

- Admin Access
- Encryption Manager
- SSID Manager**
- Server Manager
- Local RADIUS Server
- Advanced Security

SERVICES +
WIRELESS SERVICES +
SYSTEM SOFTWARE +
EVENT LOG +

Current SSID List

< NEW >
CREATE-NET-TEST
WILMA-LAB
WILMA-LAB-TEST

Delete

SSID: CREATE-NET-TEST

VLAN: 4 [Define VLANs](#)

Network ID: 4 (0-4096)

Authentication Settings

Authentication Methods Accepted:

Open Authentication: with MAC Authentication

Shared Authentication: < NO ADDITION->

Network EAP: < NO ADDITION >

Server Priorities:

EAP Authentication Servers

Use Defaults [Define Defaults](#)

Customize

Priority 1: < NONE >

Priority 2: < NONE >

Priority 3: < NONE >

MAC Authentication Servers

Use Defaults [Define Defaults](#)

Customize

Priority 1: < NONE >

Priority 2: < NONE >

Priority 3: < NONE >

Authenticated Key Management

Key Management: < NONE > CCKM WPA

WPA Pre-shared Key: ASCII Hexadecimal

Accounting Settings

Enable Accounting

Accounting Server Priorities:

AP 1200: SSID e Autenticazione

□ Definizione Crittografia

The screenshot shows the configuration page for a Cisco Aironet 1200 Series Access Point, specifically the 'Security: Encryption Manager' section. The page title is 'Cisco Aironet 1200 Series Access Point' and the hostname is 'CISCO1200-NetworkLab'. The uptime is '2 days, 49 minutes'. The left sidebar shows the navigation menu with 'Encryption Manager' selected. The main content area is divided into several sections:

- Set Encryption Mode and Keys for VLAN:** A dropdown menu is set to '3'. A link 'Define VLANs' is visible.
- Encryption Modes:** Radio buttons are present for 'None', 'WEP Encryption', and 'Cipher'. 'WEP Encryption' is selected. A 'Mandatory' dropdown is next to it. Below, 'Cisco Compliant TKIP Features' includes checkboxes for 'Enable Message Integrity Check (MIC)' and 'Enable Per Packet Keying (PPK)', both of which are unchecked.
- Encryption Keys:** A table with four columns: 'Encryption Key', 'Transmit Key', 'Encryption Key (Hexadecimal)', and 'Key Size'.

Encryption Key	Transmit Key	Encryption Key (Hexadecimal)	Key Size
Encryption Key 1:	<input checked="" type="radio"/>	<input type="text" value="*****"/>	128 bit
Encryption Key 2:	<input type="radio"/>	<input type="text"/>	128 bit
Encryption Key 3:	<input type="radio"/>	<input type="text"/>	128 bit
Encryption Key 4:	<input type="radio"/>	<input type="text"/>	128 bit
- Global Properties:** Radio buttons for 'Broadcast Key Rotation Interval' are set to 'Disable Rotation'. 'Enable Rotation with Interval: [DISABLED] (10-10000000 sec)' is also present. Under 'WPA Group Key Update', checkboxes for 'Enable Group Key Update On Membership Termination' and 'Enable Group Key Update On Member's Capability Change' are both unchecked.

At the bottom right, there are buttons for 'Apply' and 'Cancel'.

AP 1200: SSID e Autenticazione

□ Configurazione finale SSID/VLAN

The screenshot displays the configuration page for a Cisco Aironet 1200 Series Access Point. The page title is "Cisco Aironet 1200 Series Access Point". The hostname is "CISCO1200-NetworkLab" and the uptime is "2 days, 51 minute".

The left sidebar contains the following menu items: HOME, EXPRESS SET-UP, EXPRESS SECURITY, NETWORK MAP (+), ASSOCIATION (+), NETWORK INTERFACES (+), SECURITY, Admin Access, Encryption Manager, SSID Manager, Server Manager, Local RADIUS Server, Advanced Security, SERVICES (+), WIRELESS SERVICES (+), SYSTEM SOFTWARE (+), and EVENT LOG (+).

The main content area shows the "Security Summary" section, which includes the following tables:

Administrators

Username	Read-Only	Read-Write
Cisco	✓	

Radio0-802.11B SSIDs

SSID	VLAN	Open	Shared	Network EAP
CREATE-NET-TEST	4	with MAC		
WILMA-LAB	3	with MAC		
WILMA-LAB-TEST	5	with MAC		

Encryption Settings

VLAN	Encryption Mode	WEP		Cipher				Key Rotation
		MIC	PPK	TKIP	WEP40bit	WEP128bit	CKIP	
3	WEP-Mandatory							
4	None							
5	None							

Server-Based Security

Server Name/IP Address	Type	EAP	MAC	Proxy Mobile IP	Admin	Accounting
192.168.10.30	RADIUS		✓			✓

AP 1200: Multi SSID e VLAN

- **Autenticazione e configurazione Clients in base all'SSID:**
 - Assegnati a VLAN differenti
 - Devono avere la crittografia corrispondente
 - Ricevono IP differenti

AP 1200: SSID e Autenticazione

□ Clients assegnati a diversi SSID

The screenshot shows the configuration page for a Cisco Aironet 1200 Series Access Point. The page title is "Cisco Aironet 1200 Series Access Point". The hostname is "CISCO1200-NetworkLab" and the uptime is "2 days, 1 hour, 8 minutes".

The "Association" section shows the following information:

- Clients: 3
- Repeaters: 0

The "View" section has checkboxes for "Client" and "Repeater", both of which are checked. An "Apply" button is present.

The "Radio0-802.11B" section shows three SSIDs with their associated clients:

SSID CREATE-NET-TEST :						
Device Type	Name	IP Address	MAC Address	State	Parent	VLAN
unknown	-	172.31.213.250	0090.4b64.9150	MAC-Associated	self	4

SSID WILMA-LAB :						
Device Type	Name	IP Address	MAC Address	State	Parent	VLAN
unknown	-	172.31.194.251	000b.cd8d.303b	MAC-Associated	self	3

SSID WILMA-LAB-TEST :						
Device Type	Name	IP Address	MAC Address	State	Parent	VLAN
unknown	-	172.31.193.254	0009.5b54.78ea	MAC-Associated	self	5

At the bottom right of the page, there is a "Refresh" button. At the bottom left, there is a "Close Window" button. The footer text reads "Copyright (c) 1997-2004 by Cisco Systems, Inc."

AP 1200: SSID e Autenticazione

▣ Statistiche Client

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CISCO SYSTEMS

Cisco Aironet 1200 Series Access Point

STATISTICS PING/LINK TEST

Hostname: CISCO1200-NetworkLab CISCO1200-NetworkLab uptime is 2 days, 1 hour, 8 minutes

Association: Station View- Client

Station Information and Status			
MAC Address	000b.cd&d.303b	Name	NONE
IP Address	172.31.194.251	Class	unknown
Device	unknown	Software Version	NONE
CCX Version	NONE		
State	MAC-Associated	Parent	self
SSID	WILMA-LAB	VLAN	3
Hops To Infrastructure	1	Communication Over Interface	Radio0-802.11B
Clients Associated	0	Repeaters Associated	0
Key Mgmt type	NONE	Encryption	WEP
Current Rate (Mb/sec)	11.0	Capability	
Supported Rates(Mb/sec)	1.0, 2.0, 5.5, 11.0	Association Id	87
Signal Strength (dBm)	-40	Connected For (sec)	580
Signal Quality (%)	77	Activity TimeOut (sec)	44
Power-save	Off	Last Activity (sec)	16
Receive/Transmit Statistics			
Total Packets Input	79	Total Packets Output	29
Total Bytes Input	11046	Total Bytes Output	2386
Duplicates Received	0	Maximum Data Retries	0
Decrypt Errors	0	Maximum RTS Retries	0
MIC Failed	0		
MIC Missing	0		

Deauthenticate Clear Refresh

AP 1200: Configurazione via CLI

□ Tutte le configurazioni via HTTP sono possibili via CLI:

■ show running-config

```
interface Dot11Radio0
  no ip address
  no ip route-cache
  !
  encryption vlan 3 key 1 size 128bit 7 501B2057424875554B78965D207B
  transmit-key
  encryption vlan 3 mode wep mandatory
  !
  ssid CREATE-NET-TEST
    vlan 4
    authentication open mac-address mac_methods
    accounting acct_methods
    mobility network-id 4
    information-element ssid advertisement
  !
  ssid WILMA-LAB
    vlan 3
    authentication open mac-address mac_methods
    accounting acct_methods
    mobility network-id 3
    information-element ssid advertisement
  !
  ssid WILMA-LAB-TEST
    vlan 5
    authentication open mac-address mac_methods
    accounting acct_methods
    guest-mode
    mobility network-id 5
```

AP 1200: Multi SSID e VLAN

□ **Altre configurazioni importanti:**

- Syslog
- SNMP
- QoS