



ENTERPRISE & MOBILITY

Deploying Brocade Mobility Products with the Brocade FastIron CX Series

Step-by-step guide from unpacking Brocade Mobility controllers and access points to configuring devices and setting up wireless connectivity.

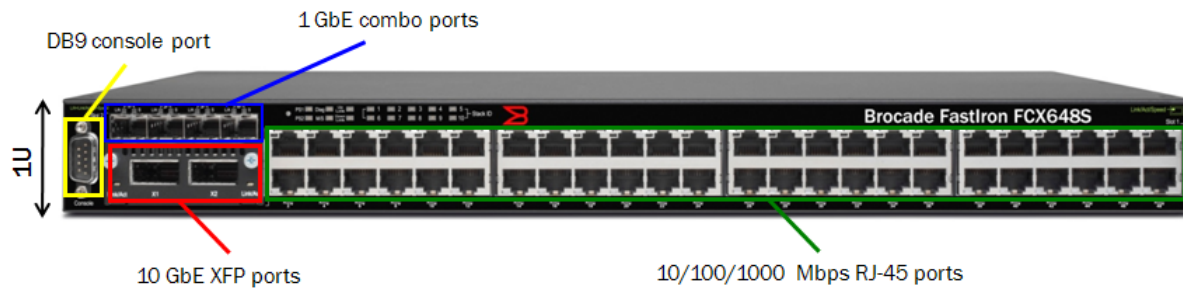
BROCADE

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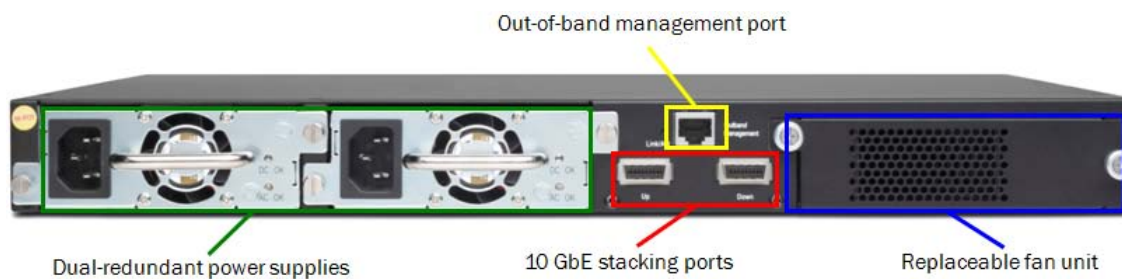
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BROCADE PRODUCTS OVERVIEW

Brocade FastIron CX Series: FCX624S-HPOE



- Compact 1U form factor
- 24 or 48 10/100/1000 Mbps RJ-45 ports, with or without PoE/PoE+
- Four GbE SFP combo ports
- Two optional 10 GbE XFP ports
- DB9 console port for management
- LEDs for port status, stack member ID, and more



- 16 dedicated GbE stacking ports
- Optional second hot-swappable, redundant power supply
- Replaceable fan unit providing side-to-rear airflow
- 10/100/1000 out-of-band management port

RFS6000 Controller

- Mid to large enterprises
- 48 Access Points (APs) per switch
- 256 Adaptive Access Points (AAPs) per switch
- 576 APs per cluster
- 3,072 AAPs per cluster
- Expansion slots for 3G/4G wireless backhaul and voice
- 2,000 – 20,000 users

RFS7000 Controller

- Large enterprises and data centers
- 256 Access Points (APs) per switch
- 1,024 AAPs per switch
- 3,072 APs per cluster
- 12,280,072 AAPs per cluster
- 8,000 – 96,000 users

For both controllers, clustering provides:

- Seamless Layer 2/3 mobility between RF switches
- Smart license sharing
- Dynamic AP load balancing
- AP steering
- High Availability (HA) during RF switch/network failure (manual or automatic reversion)
- Increased aggregate throughput/scaling

Centralized configuration is performed via a cluster Command-Line Interface (CLI) and Web interface

State information exchange is provided for:

- AP and MU distribution
- Identify unauthorized APs
- Smart RF
- Integrated DHCP

Brocade Mobility AP300

- Thin indoor access point
- Single 802.11b/g or dual-band 802.11a/b/g radios
- External antenna support
- Deployed with a centralized wireless controller
- WIPS sensor mode



Brocade Mobility AP7131

- Full-feature indoor access point
- Dual-band 802.11a/b/g/n radios
- Standalone or distributed with a centralized wireless controller
- Wireless mesh support
- WIPS sensor mode



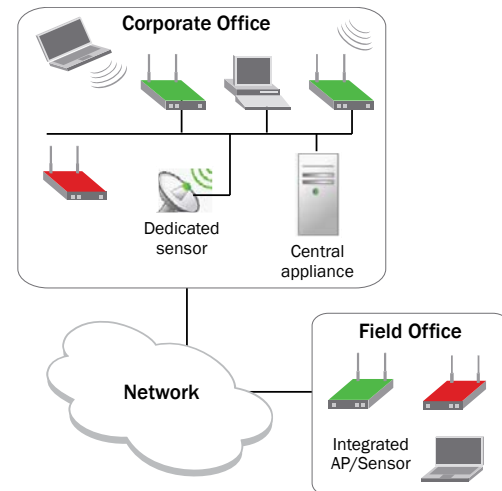
Brocade Mobility AP5181

- Full-feature, hardened access point
- Designed for harsh environments
- Dual-band 802.11a/b/g radios
- External antenna support
- Standalone or distributed with a centralized wireless controller
- Wireless mesh support
- WIPS sensor mode



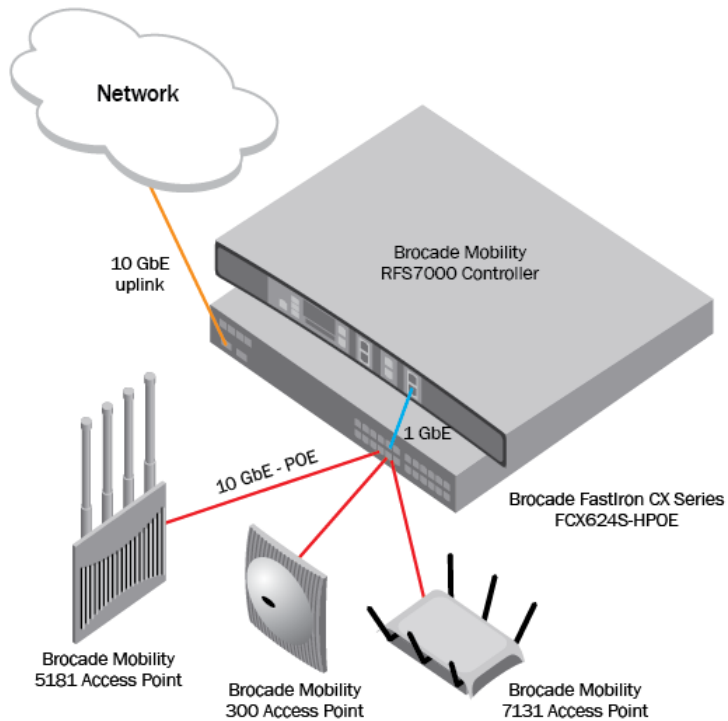
Motorola AirDefense

- Centralized, hardened appliance
- Protection for WLAN infrastructure and devices
- Secure Layer 3 connections between sensors and appliance
- Minimal WAN bandwidth needed by sensors: less than 3 Kbps
- Two types of sensors
 - Dedicated sensors are separate devices; use one for every 3 to 5 APs
 - Integrated sensors are built into Brocade Mobility access points
- All sensors provide 24x7 protection for gap-free security



NOTE: In the illustration, red is used to flag a rogue AP.

DESIGN EXAMPLE



SERVER REQUIREMENTS

Hardware:

- Windows Server 2003, 2008, or XP
- Intel Dual CPU Core2 duo 2.4GHz or equivalent
- 4 GB memory
- 40 GB disk space

System Services:

- DHCP Server
- Domain Name Server (DNS)
- Microsoft Explorer
- Mozilla Firefox
- Console Port
- Ethernet connectivity

WHAT'S IN THE BOX

Brocade FCX 624S-HPOE

- Brocade FastIron CX device
- 115V AC power cable (for AC sourced devices)
- Rack-mount brackets
- Warranty card
- A straight-through EIA or TIA DB-9 serial cable (F/F).

Brocade RFS7000

- Mobility RFS7000 Controller with rack brackets installed
- Console cable
- *Deploying Brocade Mobility Products with the Brocade FastIron CX Series* (this document)
- China RoHS compliance document

Brocade AP300 (internal antenna)

- Brocade Mobility 300 antenna
- 2 x screws
- 2 x wall anchors
- *Quick Installation Guide* (hardware only, no configuration)

Brocade AP7131

- Mobility 7131 model access point (accessories depend on SKU ordered)
- *Deploying Brocade Mobility Products with the Brocade FastIron CX Series* (this document)
- Wall mount screw and anchor kit
- Accessories Bag (4 x rubber feet, LED light pipe, badge with label for above-the-ceiling installation)
- China RoHS compliance addendum

Brocade AP5181

- Mobility 5181 802.11 a+bg dual-radio access point
- *Deploying Brocade Mobility Products with the Brocade FastIron CX Series* (this document)
- Set of cable connectors
- 3 x antenna connector dust covers
- 2 x connector cover AP67 jacks, plus chain_LTW-M9/14-SB
- Waste Electrical and Equipment (WEEE) addendum

CONFIGURING WINDOWS SERVICES

Step 1: Set up DNS

1. Go to the Windows **Configure Your Server** wizard.
2. Enable **DNS Server**.
3. Create the **domain**.
4. Add **RFS7000** to the forward lookup table.

Step 2: Set up DHCP

1. Go to the Windows **Configure Your Server** wizard.
2. Enable **DHCP Server**.
3. Create reservations for **RFS7000** and **APs**.

Step 3: Configure IE for RFS7000 and AP Web servers

1. Open an IE browser window.
2. Go to **Tools > Internet Options > Advanced**.
3. Deselect **Use HTTP 1.1**.

CONFIGURING THE BROCADE FCX 624S-HPOE SWITCH

Step 1: Provide power to the switch

Step 2: Connect to the console port interface

1. Connect a PC or terminal to the serial port of the system using a straight-through cable. The serial port has a male DB-9 connector. **NOTE:** You need to run a terminal emulation program on the PC.
2. Launch the terminal emulation program and set the following session parameters:
 - Baud: 9600 bps
 - Data bits: 8
 - Parity: None
 - Stop bits: 1
 - Flow control: None

NOTE: The EIA or TIA 232 serial communication port serves as a connection point for management by a PC or SNMP workstation. Brocade devices come with a standard male DB-9 connector

Step 3: Basic switch configuration

1. Enter Privileged Mode:

```
FCX _SW>  
FCX _SW#
```

2. Enter configuration mode:

```
FCX _SW#conf t  
FCX _SW(config)#
```

3. Configure the basics.

a. Hostname:

```
CX_SW(config)#hostname RSL_RACK_1_SW
```

b. Banner:

```
RSL_RACK_1_SW(config)#banner Wireless Lab
```

4. Set the management VLAN IP address for Telnet.

a. Set VLAN 1:

```
RSL_RACK_1_SW(config)#vlan 1  
RSL_RACK_1_SW(config-vlan-1)#
```

b. Enable management VLAN:

```
RSL_RACK_1_SW(config-vlan-1)#management-vlan
```

c. Enable telnet on management VLAN1:

```
RSL_RACK_1_SW(config)#telnet server enable vlan 1
```

d. Set the Telnet password:

```
RSL_RACK_1_SW(config)#enable telnet password password
```

5. Set the default gateway:

```
RSL_RACK_1_SW(config)#vlan 1  
RSL_RACK_1_SW(config-vlan-1)#default-gateway 10.1.1.1 1
```

Step 4: Configure VLANs

1. Create a wireless VLAN:

```
RSL_RACK_1_SW(config)#vlan 20  
RSL_RACK_1_SW(config-vlan-20)#
```

2. Tag wireless VLAN ports:

```
RSL_RACK_1_SW(config-vlan-20)#tagged ethernet 1/1/20
```

Step 5: Configure Interfaces for POE

1. Enter the interface connected to the AP:

```
RSL_RACK_1_SW(config)#int eth 1/1/20
RSL_RACK_1_SW(config-if-e1000-1/1/20)#
```

2. Provide a port name description for what is connected:

```
RSL_RACK_1_SW(config-if-e1000-1/1/20)#port-name Connected to BR-AP7131
```

3. Enable the port POE:

```
RSL_RACK_1_SW(config-if-e1000-1/1/20)#inline power
```

CONFIGURING THE BROCADE RFS7000 CONTROLLER

Step 1: Provide power to the controller

Step 2: Set up the controller console port

To add the Brocade Mobility RFS7000 Controller to the network and prepare it for initial configuration:

1. Using the console cable provided, connect the Mobility RFS7000 Controller serial port to an RS-232 (DB-9) serial port on a separate computer (the "configuration computer").
2. On the configuration computer, configure a terminal emulation application (such as HyperTerminal):
 - 19200bps transfer rate
 - 8 data bits
 - No parity
 - 1 stop bit
 - No flow control
 - No hardware compression

Step 3: Set the IP address for the controller

1. Connect to the RFS7000 console port.

2. Initial login:

```
- login: cli
- User Access Verification
- Username: admin
- Password: admin123
- Brocade WLAN Controller
- BR-RFS7000>
```

3. Enter Privileged Mode

```
BR-RFS7000>enable
BR-RFS7000#
```

4. Enter Configuration Mode:

```
BR-RFS7000#conf t
Enter configuration commands, one per line. End with CNTL/Z.
BR-RFS7000(config)#
```

5. Change the host name:

```
BR-RFS7000(config)#hostname RSL_BR-RFS7000
RSL_BR-RFS7000(config)#
```

6. Add the management IP address to VLAN 1:

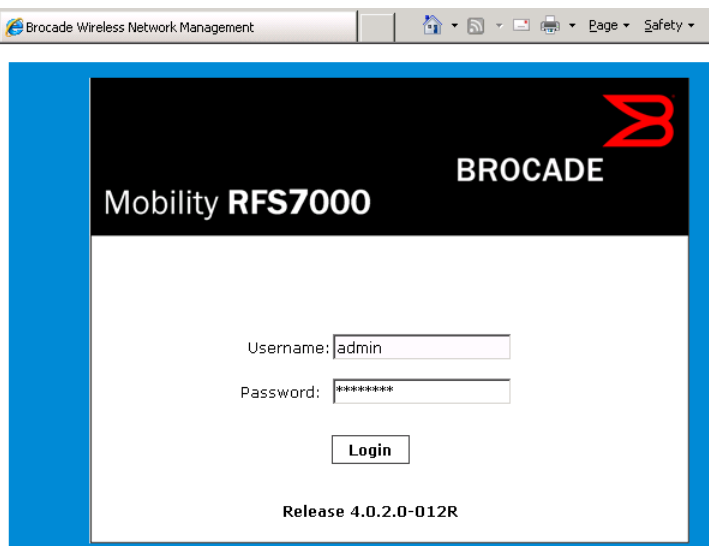
```
RSL_BR-RFS7000(config)#int vlan 1
RSL_BR-RFS7000(config-if)#management
```

- For DHCP (default): RSL_BR-RFS7000(config-if)#ip address dhcp
- For Static IP: ip address 10.1.1.2/24

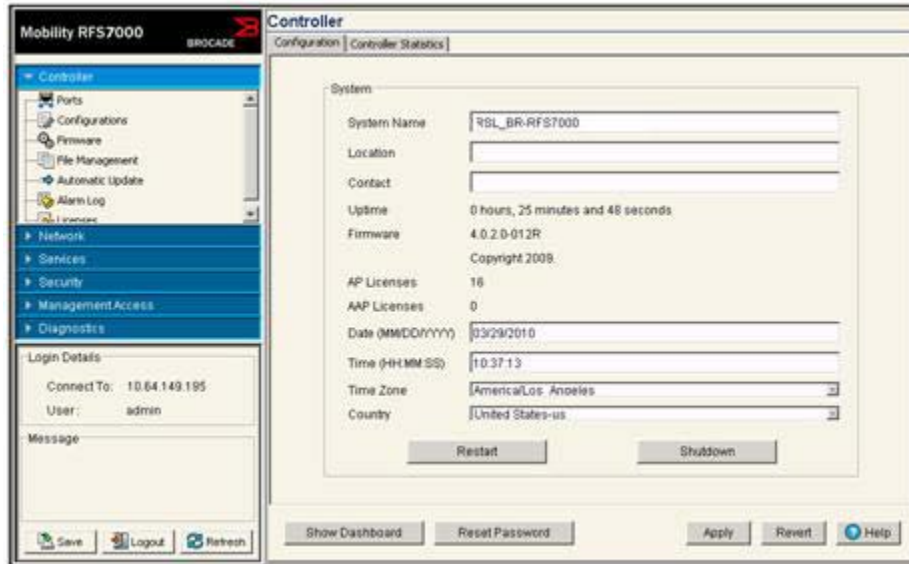
Step 4: Basic controller configuration

1. Connect to the RFS7000 with HTTP.

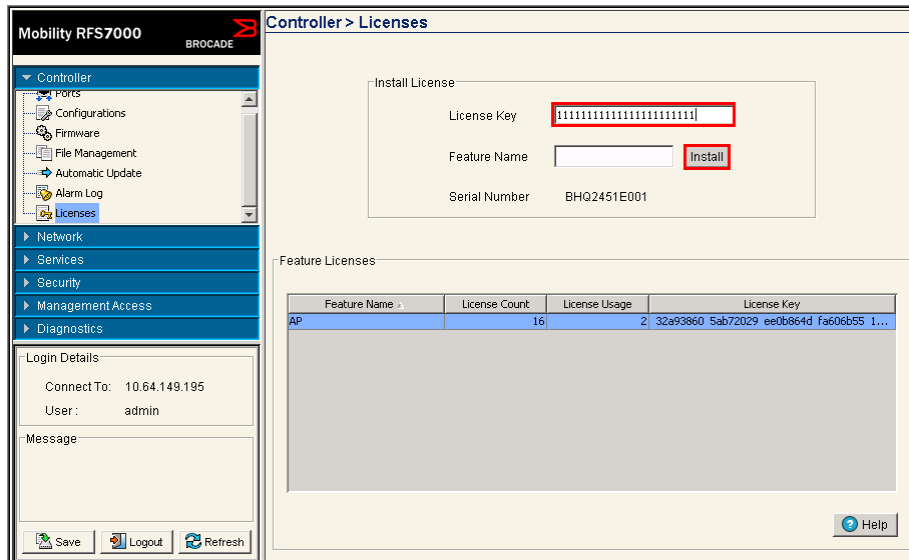
- Open IE Explorer (HTTP 1.1 disabled) with the IP address learned from DHCP or set it statically (<http://10.1.1.2/>).
- Enter a user name (admin) and password (admin123).



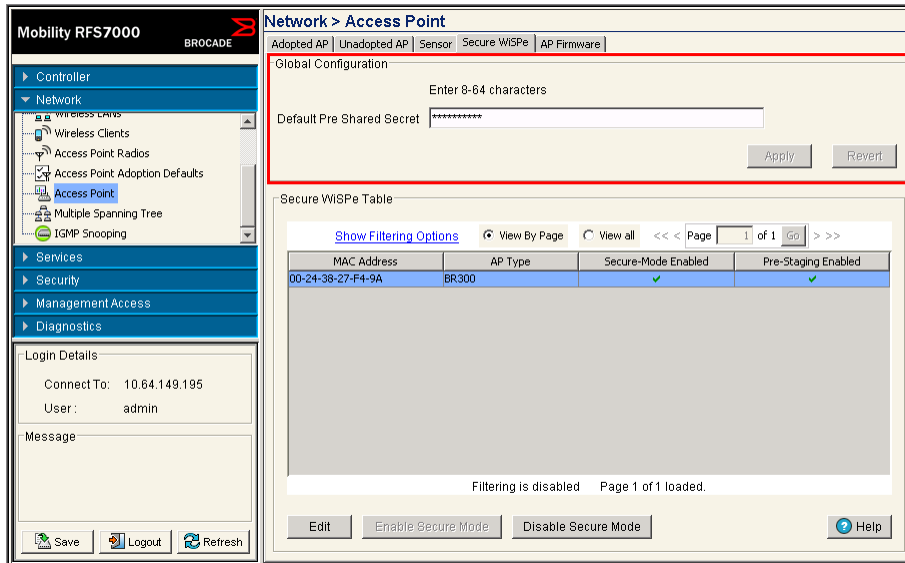
2. Set the controller information (location/contact/time).



3. Obtain an AP license key for AP adoption. You will need both the RFS7000 serial # and transaction key:
 - a. Log in to the Brocade License Portal.
 - b. Select **License Management > License Generation with Transaction Key**.
 - c. Enter the required information, Serial Number as Unique ID, and Transaction Key. Click **Add** and click the End User Agreement radio button.
 - d. Click **Generate**.
4. Add the license to the RFS7000.



5. Set the PSK for advanced AP adoption:
 - e. Go to the **Network > Access Point > Secure WiSPe** tab.
 - f. Enter a default pre-shared secret.



This completes the basic configuration for AP adoption.

CONFIGURING ACCESS POINTS

Brocade AP300

Step 1: Find the AP300 MAC address

Step 2: Provide power to the AP300

Step 3: Adopt AP300 in RFS7000

1. The Brocade AP300 will be automatically detected by the RFS7000. Go to **Network > Access Point** and click the **Unadopted AP** tab.
2. Referencing the correct MAC address, select the AP300 to adopt and click **Adopt**. Once the AP has been adopted it can be found in the Adopted Tab.

Network > Access Point

Adopted AP | Unadopted AP | Sensor | Secure WISPe | AP Firmware

Show Filtering Options << Page 1 of 1 Go >>

MAC Address	Model	AP Type	Serial	HW Version	IP Address	Bootload	Protocol Version	Fw Version	Radio Index
00-24-38-28-0F-20	BR7131	BR7131	B3D2451E005	A	10.64...	3.2.2...	WISP...	3.2.2...	100
00-24-38-27-F4-9A	BR300-INT-US	BR300	00243827F49A	A0	N.A	01.00...	WISP...	01.00...	1,3

Filtering is disabled Page 1 of 1 loaded.

Number of adopted APs: 2

Export Convert to sensor Location LED Help

Brocade AP7131/AP5181

Step 1: Provide power to the access point

Step 2: Connect to the console using these console terminal settings

- 19200 bps transfer rate
- 8 data bits
- No parity
- 1 stop bit
- No flow control
- No hardware compression

Step 3: Set the IP address

1. Connect to the AP console port.
2. Initial login procedure:
 - login: admin
 - Password: admin123
 - admin>
3. Enter the network submenu:


```
admin>network
admin(network)>
```

4. Enter the LAN submenu:

```
admin(network)>lan
admin(network.lan)>
```

5. Enable LAN1:

```
admin(network.lan)>set lan 1 enable
admin(network.lan)>
```

6. Set the access point as a DHCP client:

```
admin(network.lan)>set ip-mode 1 client
```

If you are using a DHCP client, go to Step 4.

7. Set a static IP address:

a. Set interface IP mode to static & assign IP address

```
admin(network.lan)>set ip-mode 1 static
admin(network.lan)>set ipadr 1 10.1.1.3
```

b. Set Default Gateway IP address

```
admin(network.lan)>set dgw 1 10.1.1.254
```

c. Set Domain Name

```
admin(network.lan)>set domain 1 SEHD.com
```

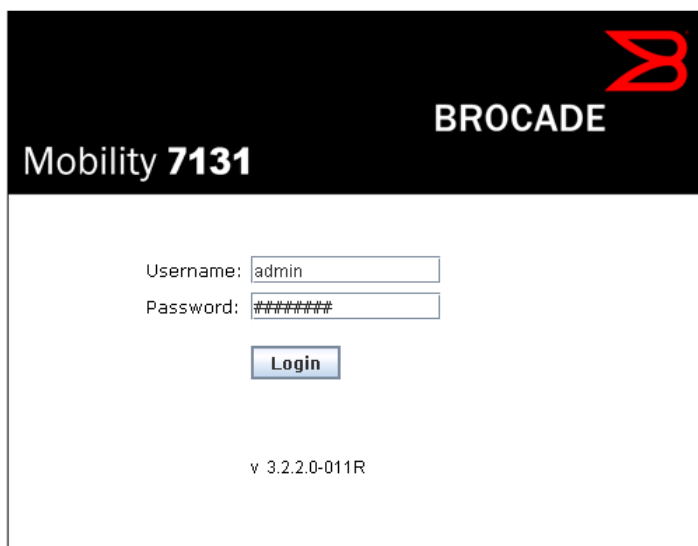
d. Set Domain Name Server

```
admin(network.lan)>set dns 1 1 10.1.1.100
```

Step 4: Configuring controller pairing (DHCP not used)

1. Connect to the RFS7000 with HTTP:

- a. Open IE Explorer (with HTTP 1.1 disabled) with the IP address learned from DHCP or set statically (http://10.1.1.3/).
- b. Enter the user name (admin) and password (admin123).



Username:

Password:

v 3.2.2.0-011R

2. Click **Adaptive AP Setup**:

- a. Using DNS, enter the FQDN of the controller.
- b. Enter the controller IP addresses.
- c. Click the **Auto Discovery Enable** checkbox.

NOTE: When the Auto Discovery Enable checkbox is selected, the access point begins the controller discovery (adoption) process using DHCP first, then a user-provided domain name, and finally using a static IP addresses. This setting is disabled by default. When disabled, the AP functions as a standalone access point without trying to discover (adopt) a controller. Consequently, the access point will not be able to obtain an AAP configuration.

- d. Enter the PSK for the controller.

The screenshot shows the 'Adaptive AP Setup' configuration page in the Brocade Mobility 7131 web interface. The page is divided into two main sections: a left-hand navigation tree and a main configuration area. The navigation tree includes categories like Network Configuration, System Configuration, and various access point settings. The main configuration area is titled 'Adaptive AP Setup' and contains several fields and checkboxes. A red box highlights the 'Controller FQDN' field, which contains 'PS7000.SEHD.com', and the 'Auto Discovery Enable' checkbox, which is checked. Another red box highlights the 'Controller IP Addresses' section, which is a table with 12 rows. The first row contains the IP address '10.64.149.195', and the remaining rows are empty. Other fields include 'Control Port' (24576), 'Keep-alive Period' (5), and 'Current Controller' (10.64.149.195). The 'AP Adoption State' is shown as 'Portal #1 Configured'. At the bottom of the page, there are buttons for 'Apply', 'Undo Changes', 'Help', and 'Logout'.

Step 5: Adopt AP7131 in the RFS7000

1. Go to **Network > Access Point** and click the **Unadopted AP** tab.
2. Referencing the correct MAC address, select the correct AP to adopt and click **Adopt**. Once the AP has been adopted, it can be found in the Adopted tab.

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