Configuring Advanced Radio Settings on the WAP371

Objective

Radio settings are used to configure the wireless radio antenna and its properties on the wireless access point (WAP) device so that communications can be fast, congestion free, and tailored to the desired network setup. This configuration is helpful in a situation where the WAP is surrounded by other WAPs, and settings like channel mode and frequency need to be changed to achieve smooth communication. If multiple WAPs in close proximity are broadcasting at the same frequency or channel, the transmitted data can become corrupted or canceled out, which greatly decreases performance.

The objective of this document is to explain how to configure Advanced Radio Settings on the WAP371 Access Point.

Note: For information on how to configure Basic Radio Settings on the WAP371, refer to the article *Basic Radio Settings on the WAP371*.

Applicable Devices

- WAP371

Software Version

- v1.1.2.3

Configuring Advanced Radio Settings

Step 1. Log in to the web configuration utility and choose **Wireless > Radio**. The *Radio* page opens:

Radio

Global Settings

TSPEC Violation Interval: 300 Sec (Range: 0 - 900, 0 = Disable, Default: 300)

Radio Setting Per Interface

Select the radio interface first, and then enter the configuration parameters.

Radio:
- (●) Radio 1 (5 GHz)
- ( ) Radio 2 (2.4 GHz)

Basic Settings

Radio: [x] Enable

MAC Address: 18:26:55:59:00:00

Mode: 802.11a/n/ac

Channel Bandwidth: 80 MHz

Primary Channel: Lower

Channel: 36

Advanced Settings

DFS Support: On

Short Guard Interval Supported: Yes

Protection: Auto

Beacon Interval: 100 Milliseconds (Range: 20 - 2000, Default: 100)

DTIM Period: 2 (Range: 1-255, Default: 2)

Fragmentation Threshold: 2346 Even Numbers (Range: 256 - 2346, Default: 2346)

RTS Threshold: 2347 (Range: 0-2347, Default: 2347)

Maximum Associated Clients: 200 (Range: 0-200, Default: 200)

Transmit Power: Full - 100%

Frame-burst Support: Off [Boosts Downstream Throughput]

Fixed Multicast Rate: Auto Mbps

Legacy Rate Sets:

Rate (Mbps)	54	48	36	24	18	12	9	6
Supported	✓	✓	✓	✓	✓	✓	✓	✓
Basic	☐	☐	☐	✓	☐	✓	☐	✓

[ ] Broadcast/Multicast Rate Limiting

Rate Limit 50 Packets Per Second (Range: 1 - 50, Default: 50)

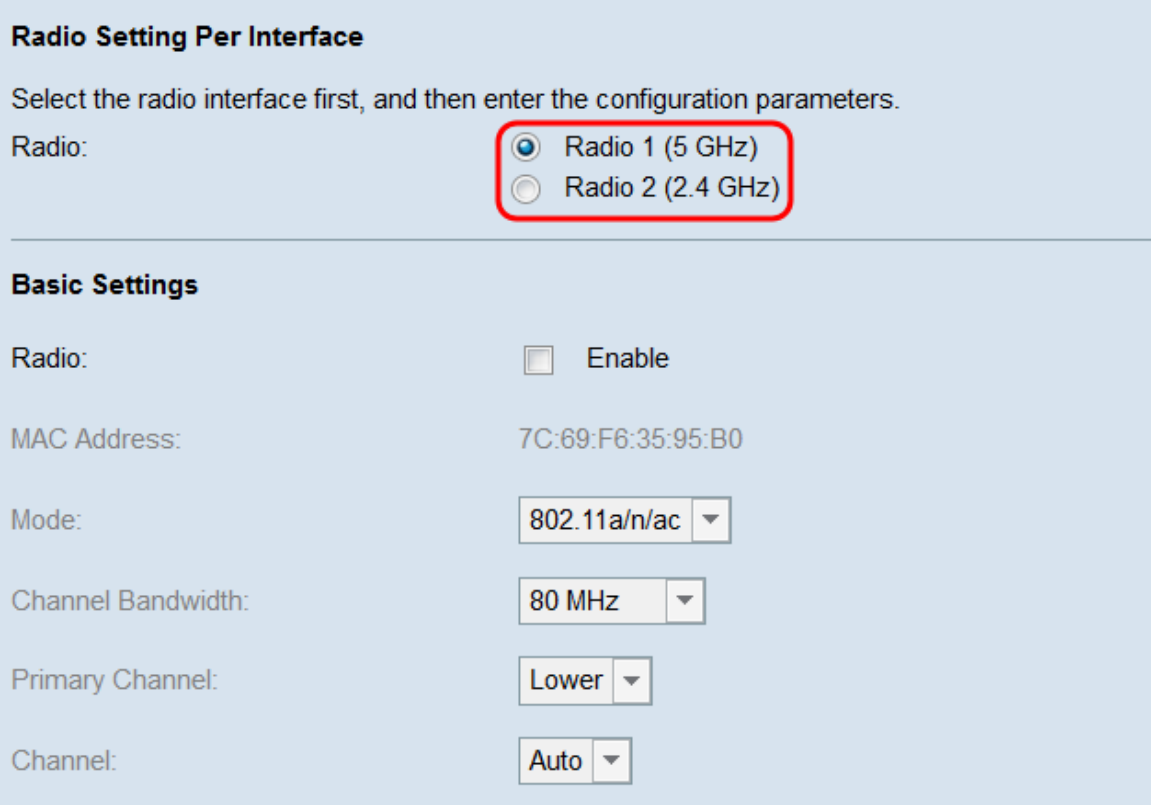
Rate Limit Burst 75 Packets Per Second (Range: 1 - 75, Default: 75)

TSPEC Mode: Off

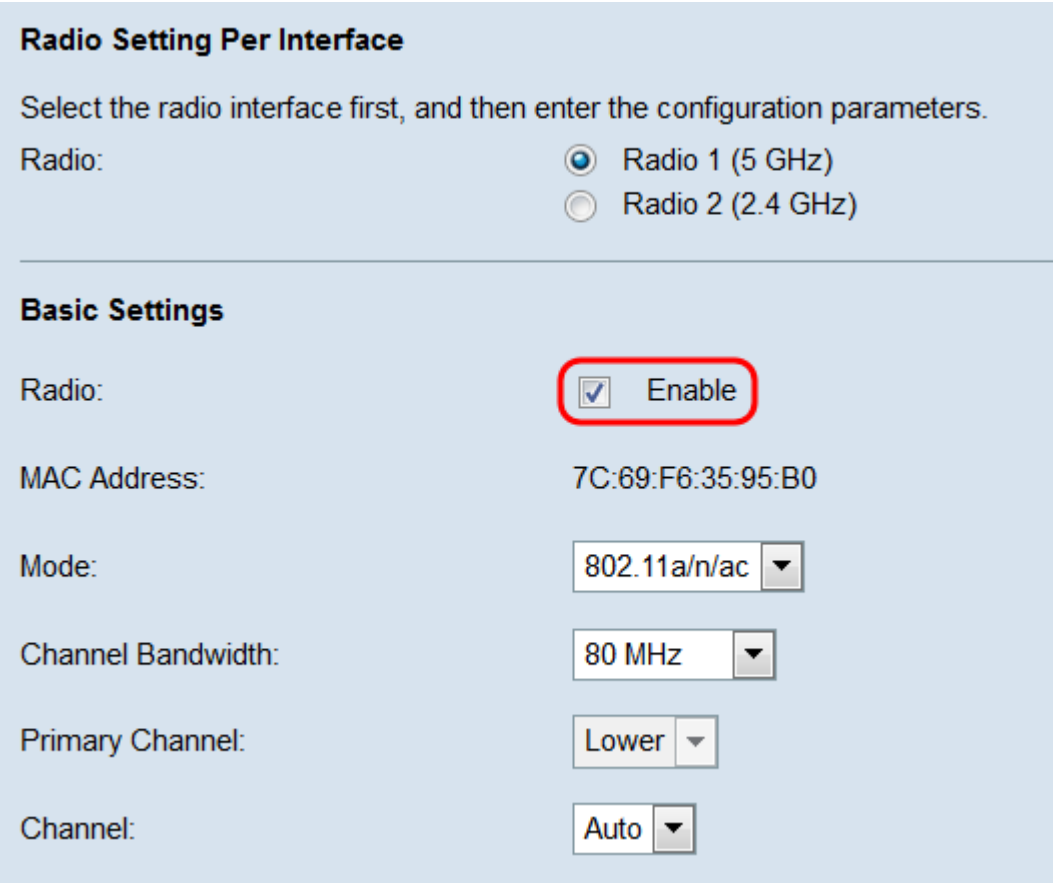
TSPEC Voice ACM Mode: Off

TSPEC Voice ACM Limit: 20 Percent (Range: 0 - 70, Default: 20)

Step 2. In order to configure advanced radio settings, select the radio interface you want to configure in the *Radio Setting Per Interface* area. Radio 1 (5 GHz) is faster but has less range, while Radio 2 (2.4 GHz) is more compatible with older devices and has a wider range.



Step 3. Make sure that the selected radio interface is turned on. To turn on a radio, check the **Enable** check box in the *Radio* field, under the *Basic Settings* area.

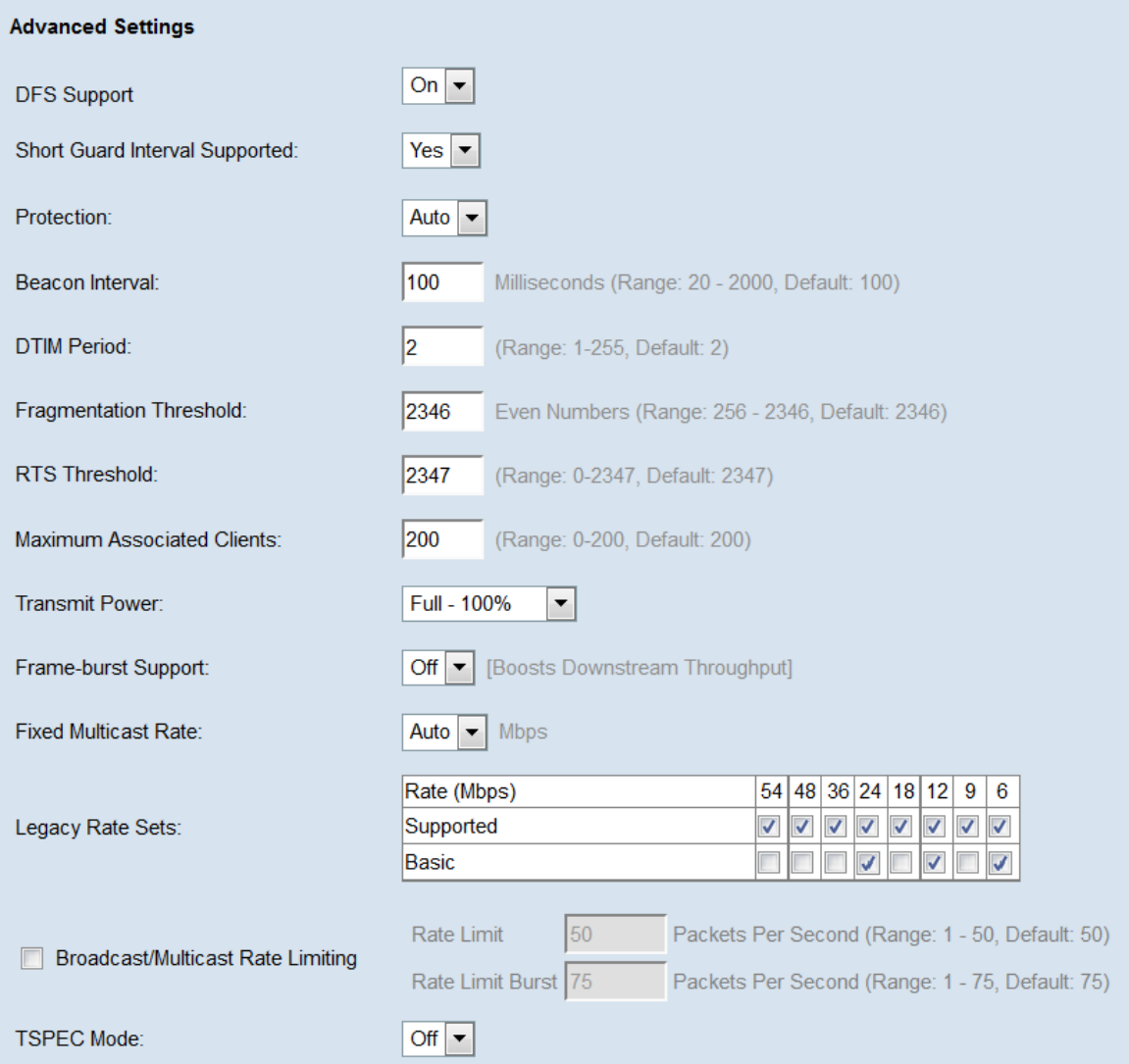


Note: To learn more about configuring basic radio settings, refer to the article *Basic Radio*

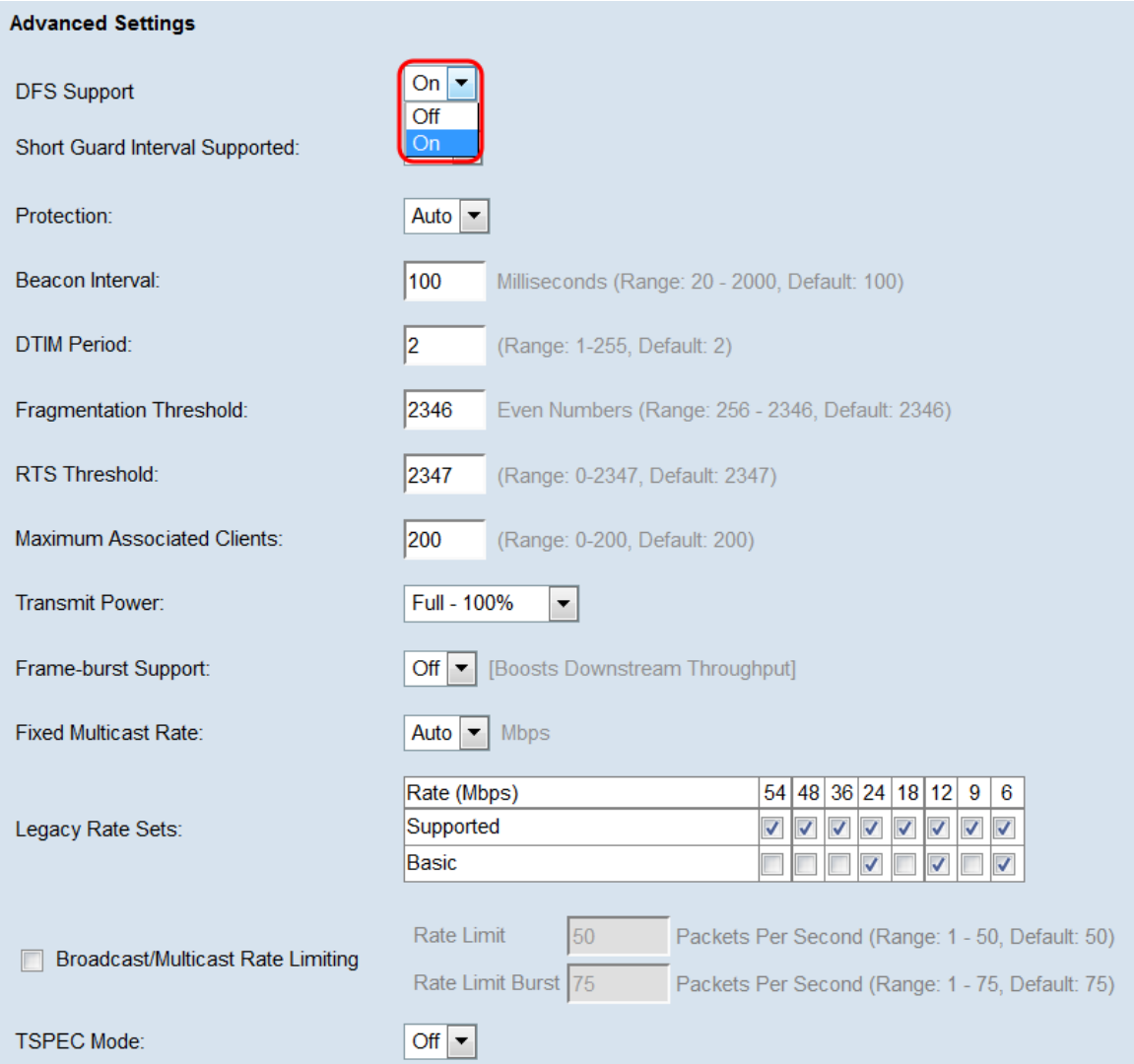
Settings on the WAP371.

Note: If you are enabling Radio 1 (5 GHz) with 80 MHz bandwidth, a notice will appear warning that this configuration may draw more power than can be delivered by IEEE 802.3af PoE standards. If the WAP is being powered PoE, switch to a power adapter or an IEEE 802.3at PSE (Power Source Equipment). Click **OK** to continue.

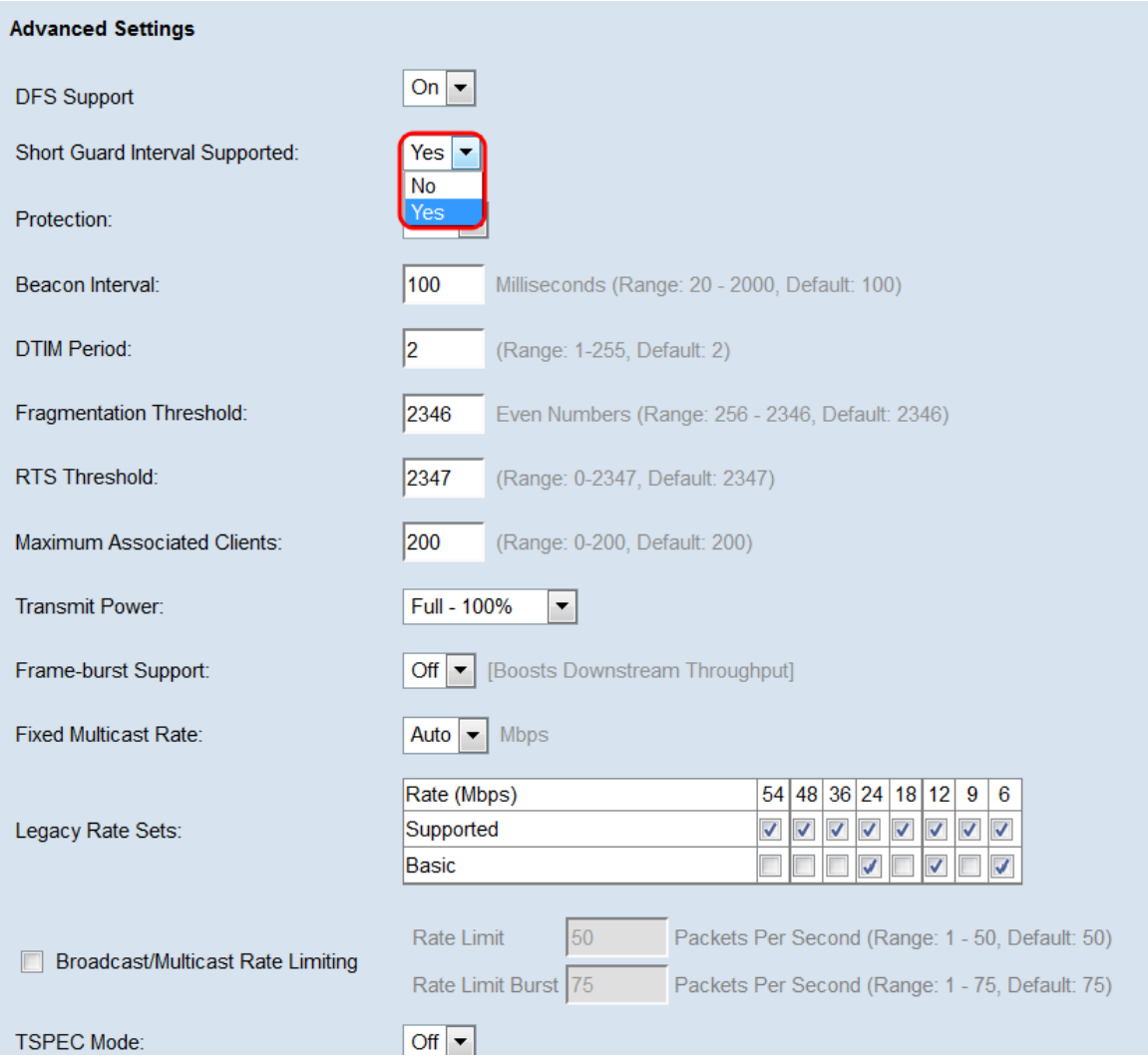
Step 4. Navigate to the *Advanced Settings* area to configure settings for the selected radio.



Step 5. The *DFS Support* field is only available if you are configuring Radio 1 (5 GHz). DFS (Dynamic Frequency Selection) automatically selects channel frequencies with the lowest interference. Use the drop-down list to either enable (**On**) or disable (**Off**) this feature. The default is **On**.



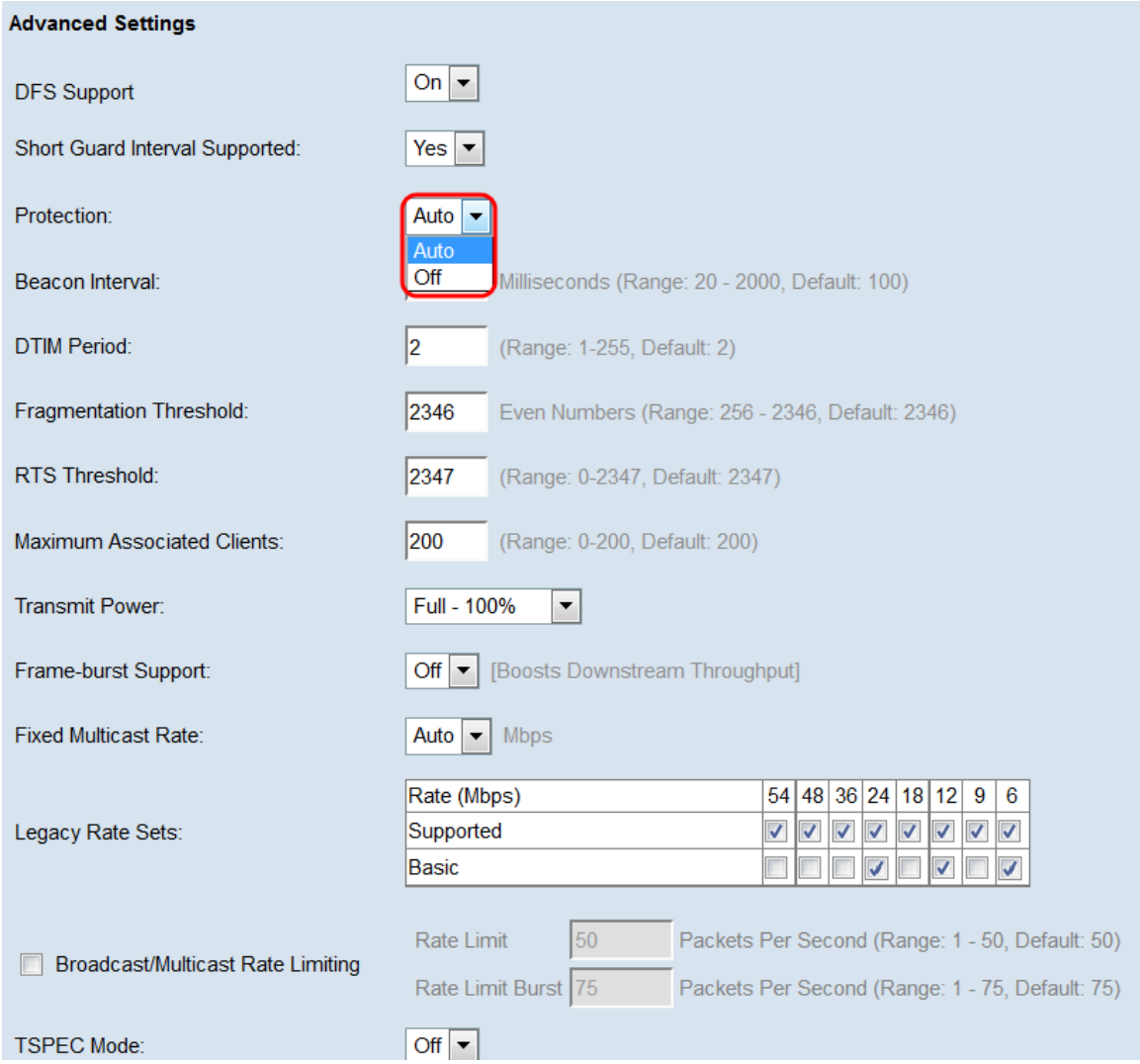
Step 6. If you selected a mode that contains 802.11n in the *Mode* field of the *Basic Settings* area, the *Short Guard Interval Supported* drop-down list will be available. The guard interval is the amount of time that the WAP waits between transmissions, which prevents interference. The guard interval can be shortened to increase throughput by up to 10 percent. If this field is available, select an option from the drop-down list, otherwise skip to the next step.



The available options are defined as follows:

- Yes — Reduces transmission time to every 400 nanoseconds when communicating with clients that also support the short guard interval. This is the default option.
- No — Keeps transmission time to every 800 nanoseconds.

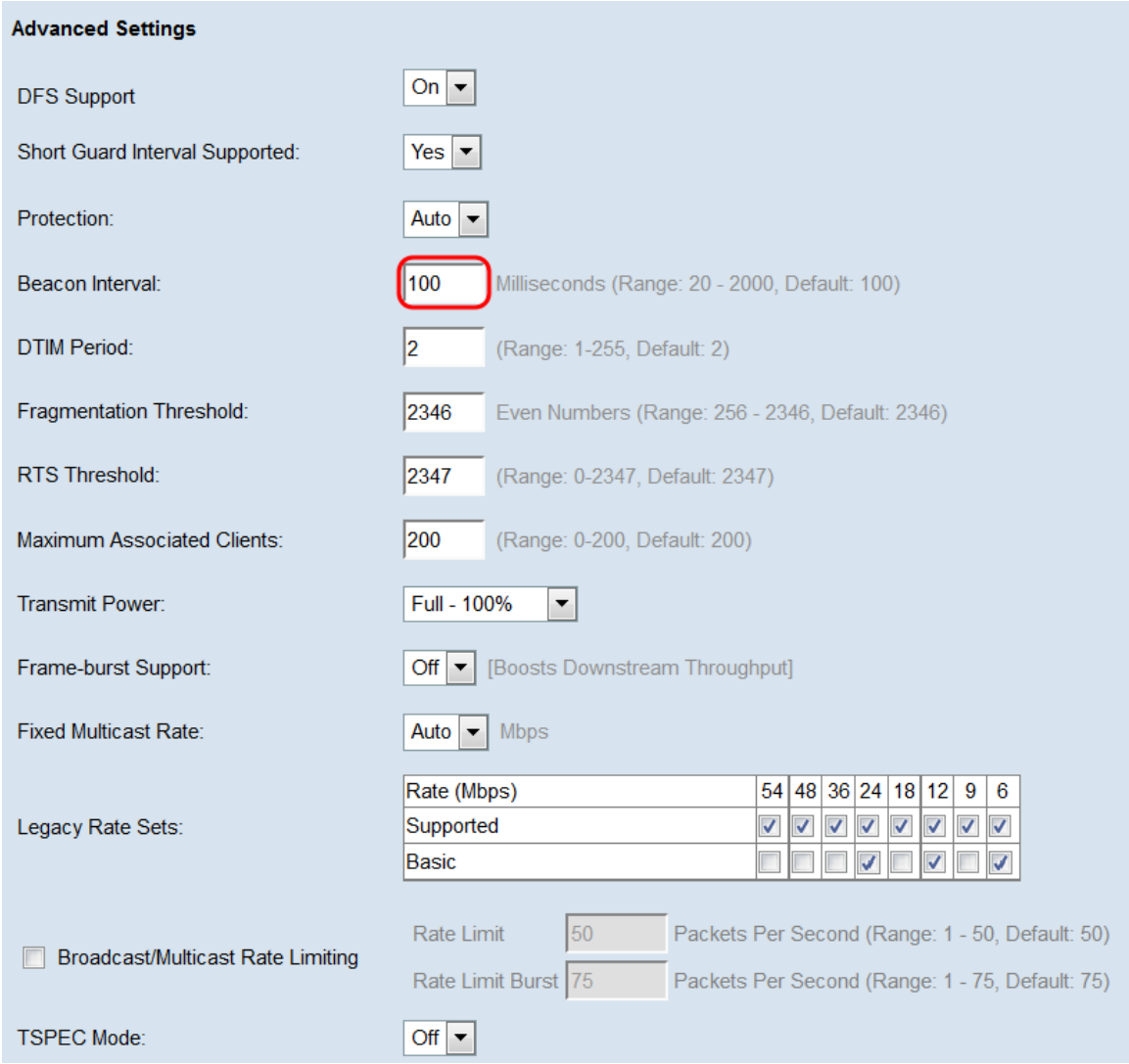
Step 7. Choose an option from the *Protection* drop-down list. The protection feature contains rules to guarantee that 802.11 transmissions do not cause interference with legacy stations or applications.



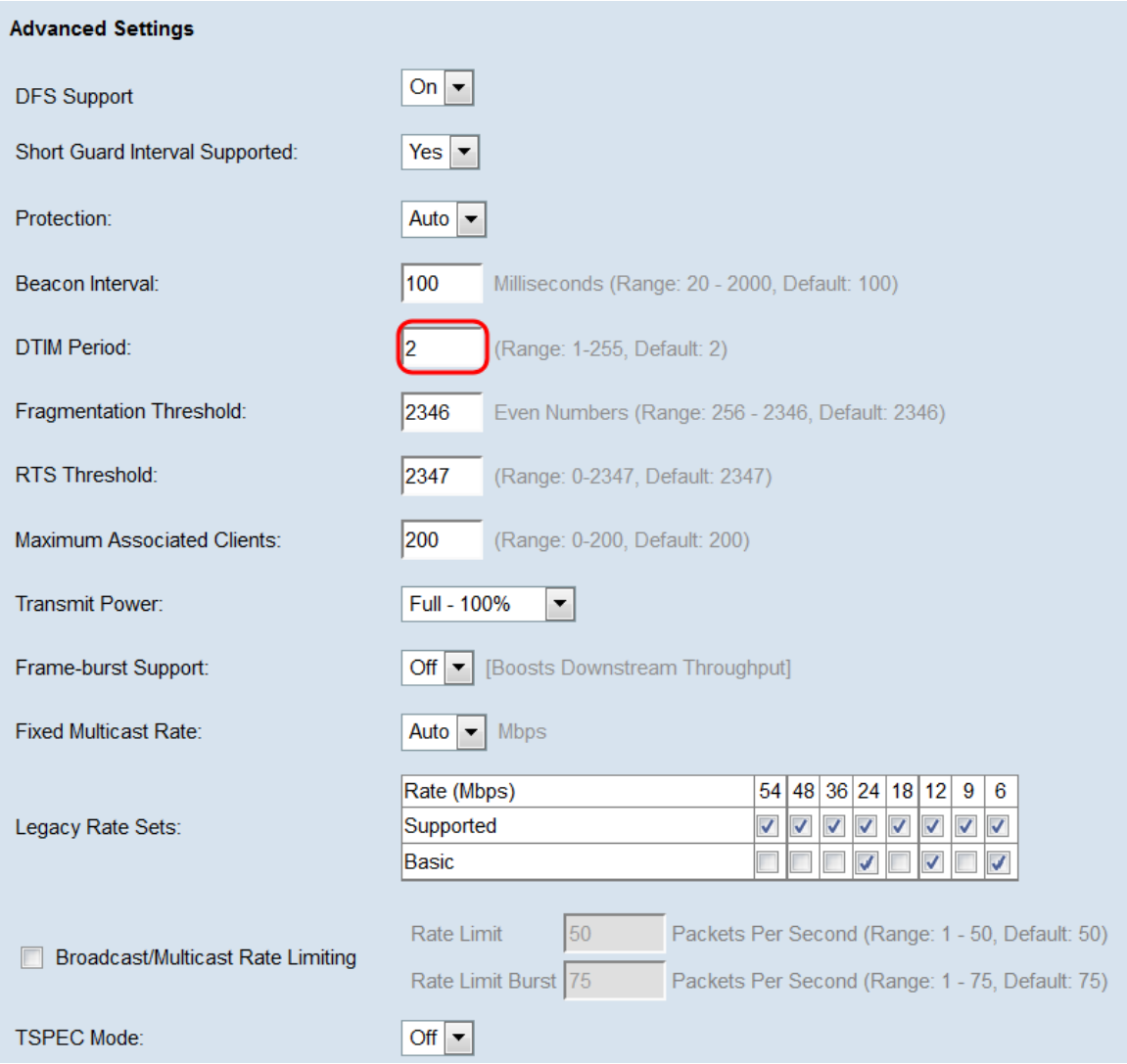
The available options are defined as follows:

- Auto — Enables protection when legacy devices are within the range of the WAP device. This is the default option.
- Off — Disables the protection feature.

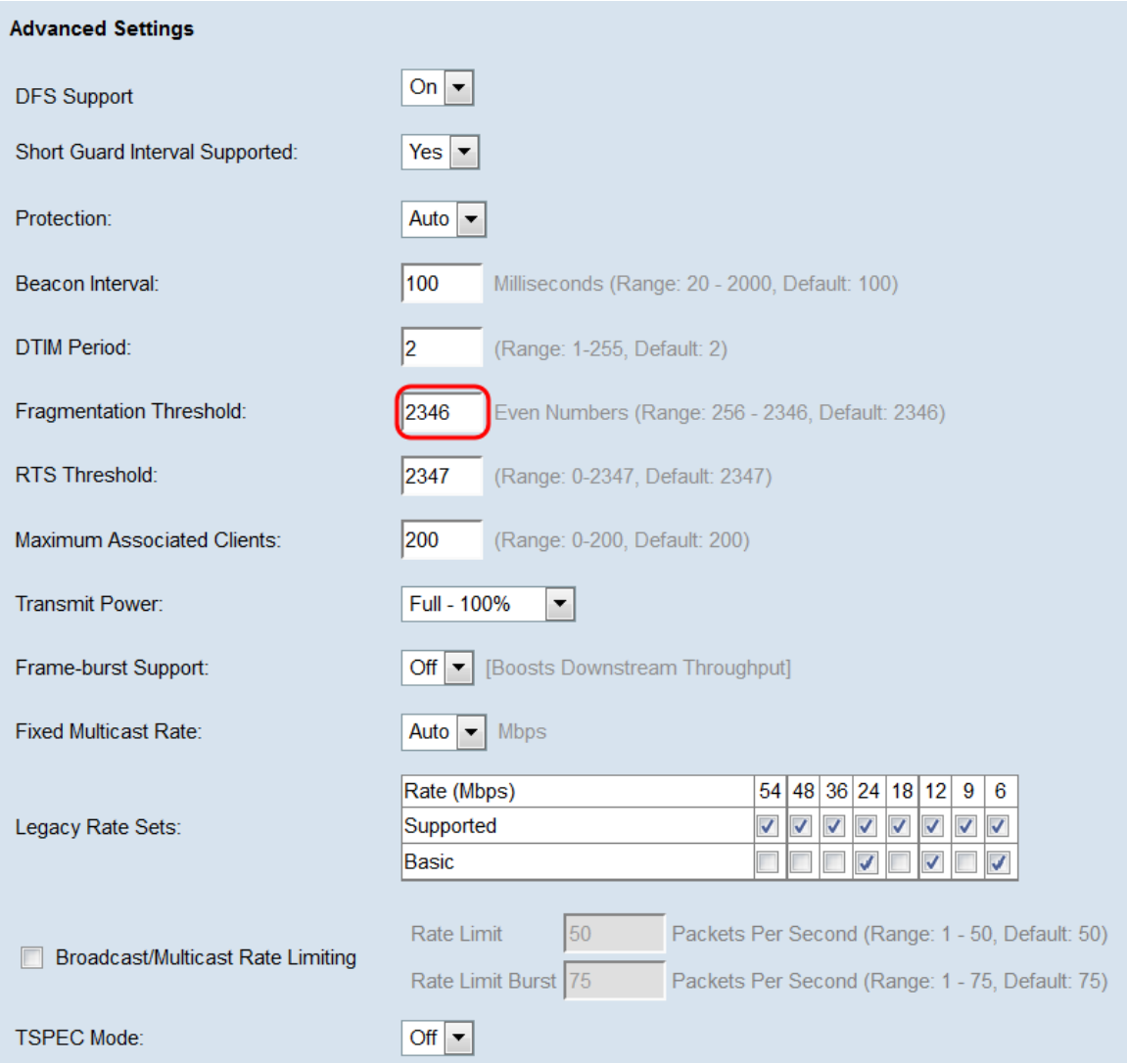
Step 8. In the *Beacon Interval* field, enter the interval of milliseconds between beacon frame transmissions. Beacon frames announce the existence of the wireless network. The value must be between 20 to 2000 milliseconds. The default behavior is to send a beacon frame once every 100 milliseconds. It is recommended to not change this value, as a misconfigured beacon interval can cause clients to be unable to connect.



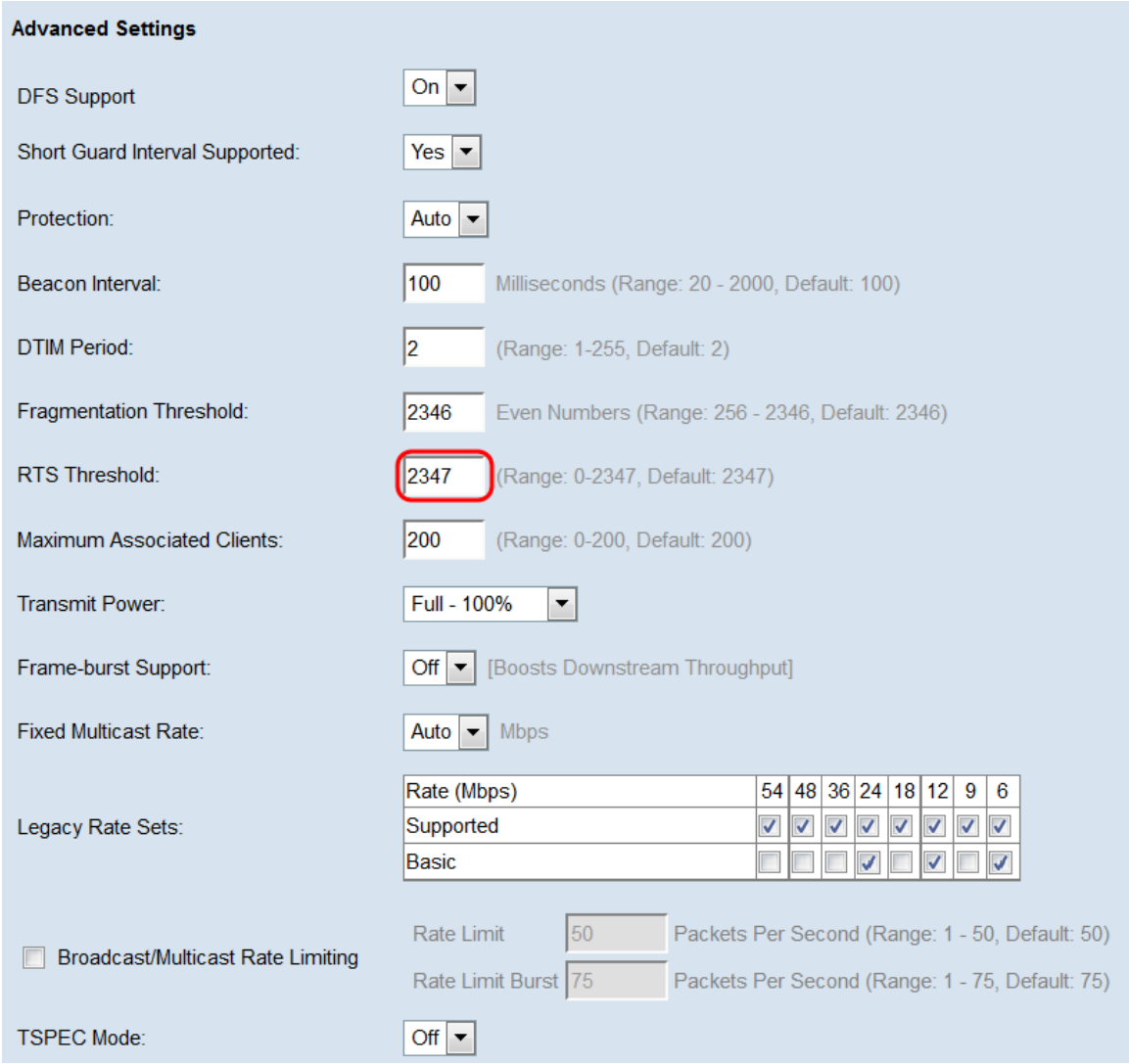
Step 9. In the *DTIM Period* field, enter an integer from 1 to 255 beacons to specify the Delivery Traffic Information Map (DTIM) period. The DTIM period indicates how often, in terms of beacon frames, the clients served by your WAP device should check for buffered data still awaiting pickup. The default value is 2, which specifies that clients will check for buffered data on your WAP device on every 2nd beacon frame.



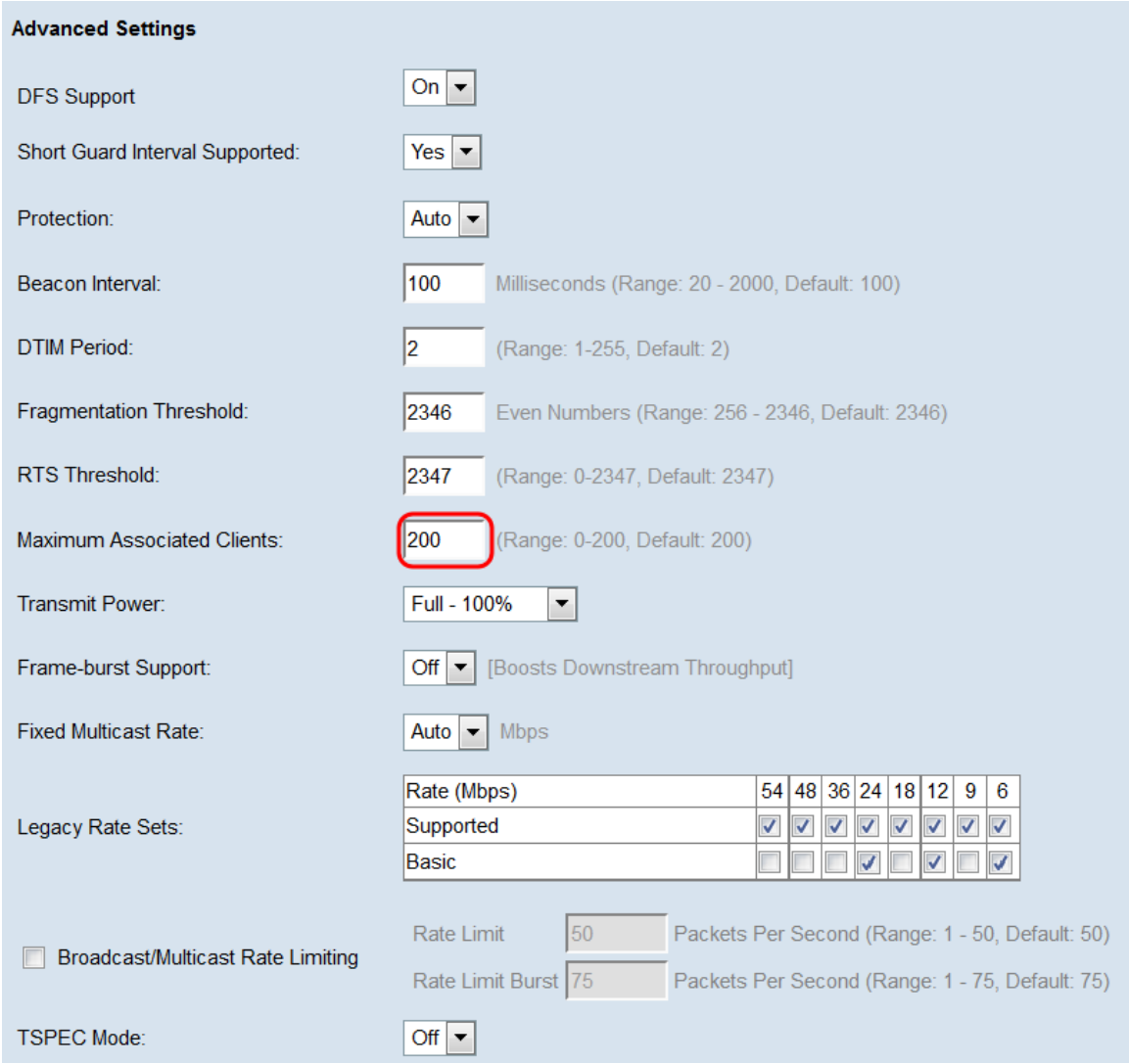
Step 10. In the *Fragmentation Threshold* field, enter an even number between 256 and 2346 bytes to specify the size limit for packets transmitted over the network. If a packet exceeds the fragmentation threshold, the fragmentation function is activated and the packet is sent as multiple 802.11 frames. By default, fragmentation is off at a threshold of 2346 bytes. Fragmentation is not recommended unless you experience radio interference.



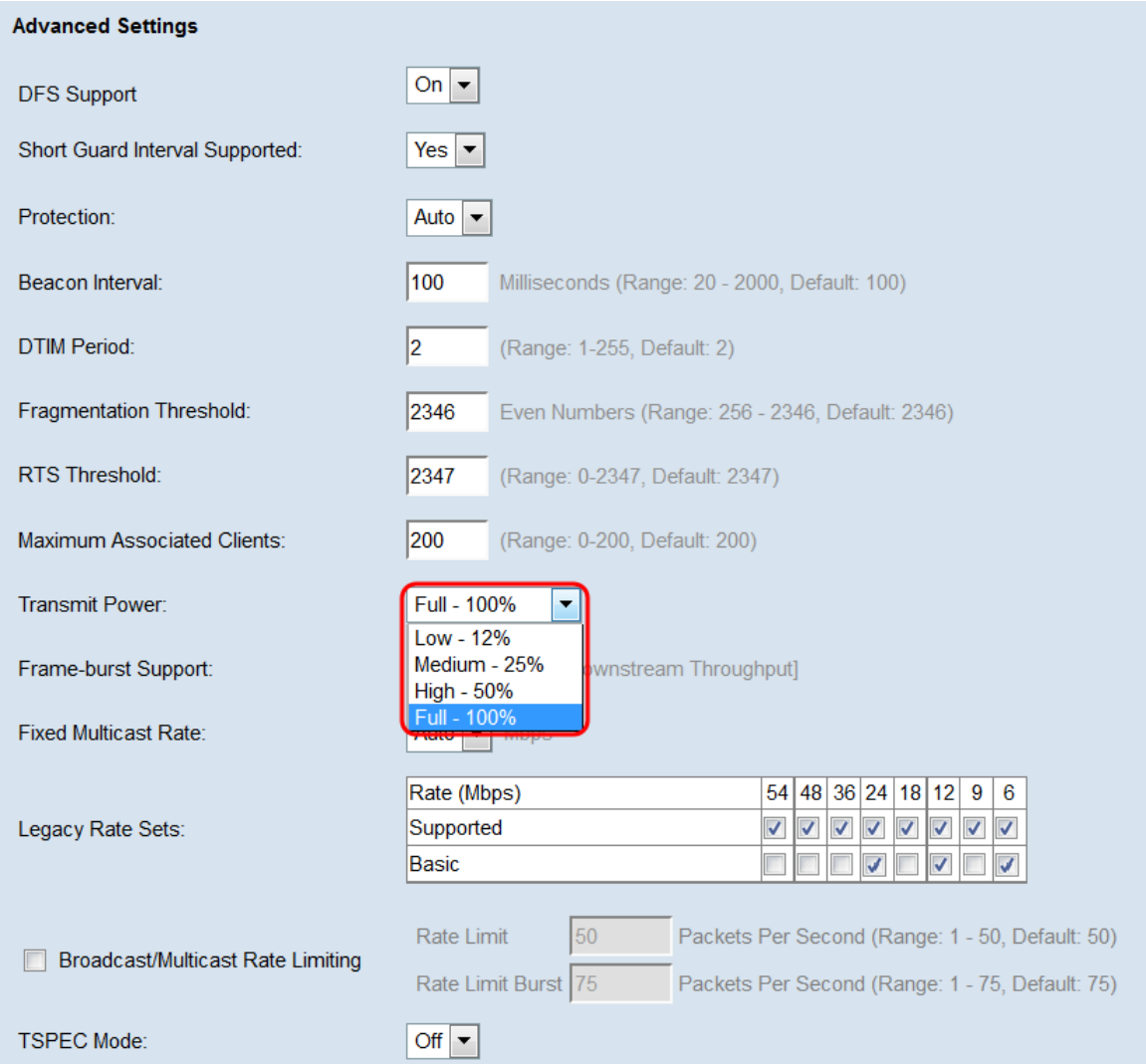
Step 11. In the *RTS Threshold* field, enter an integer between 0 and 2347 to specify the Request to Send (RTS) Threshold value. The default is 2346. A lower threshold value sends packets more frequently which results in higher bandwidth consumption and quicker recovery from collisions or interference on the network. A higher threshold value sends packets less frequently which results in lower bandwidth consumption and a longer recovery time from collisions or interference on the network.



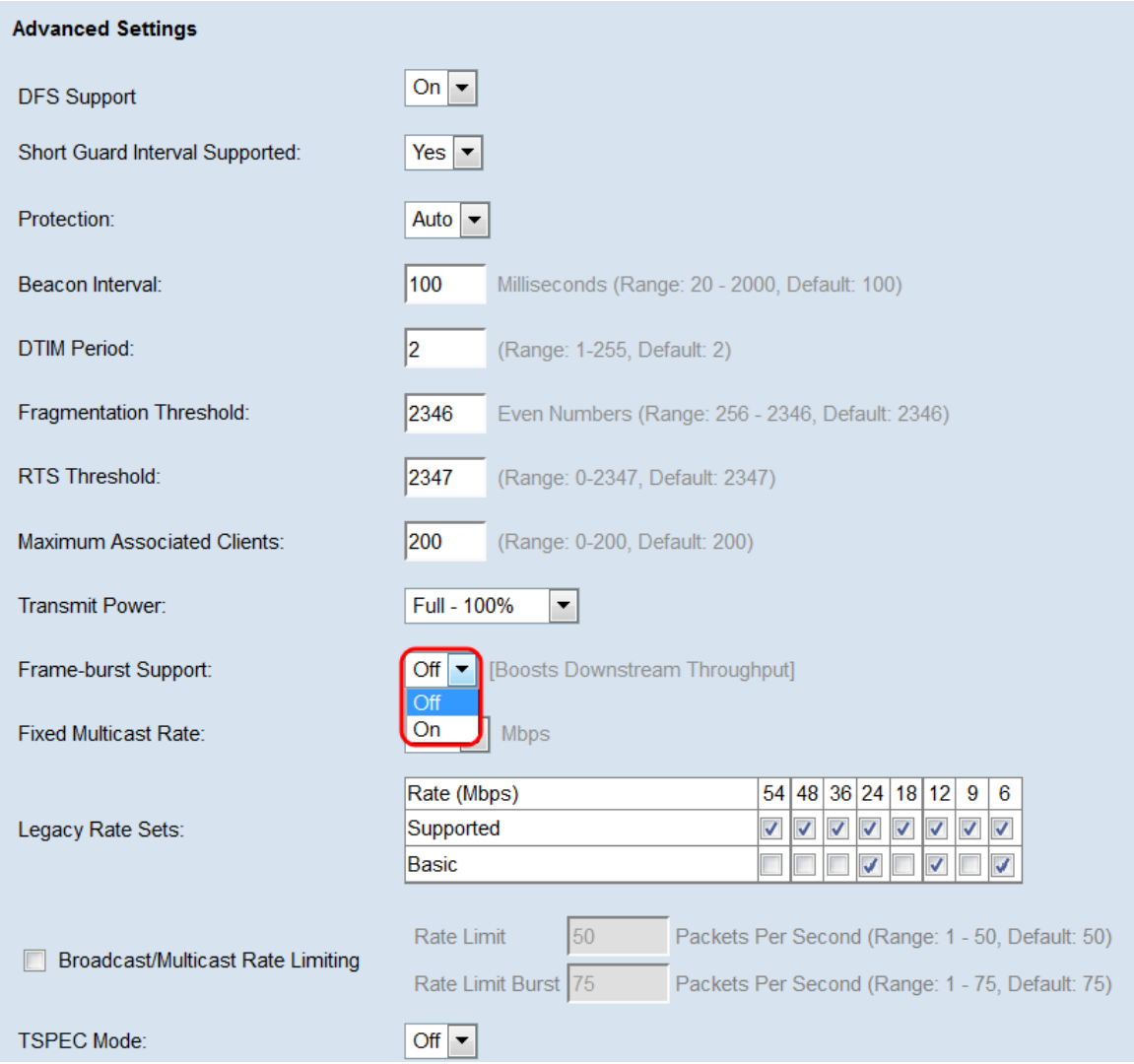
Step 12. In the *Maximum Associated Clients* field, enter the maximum number of clients that can connect to the WAP at any one time. The range is 0-200, and is set to 200 by default.



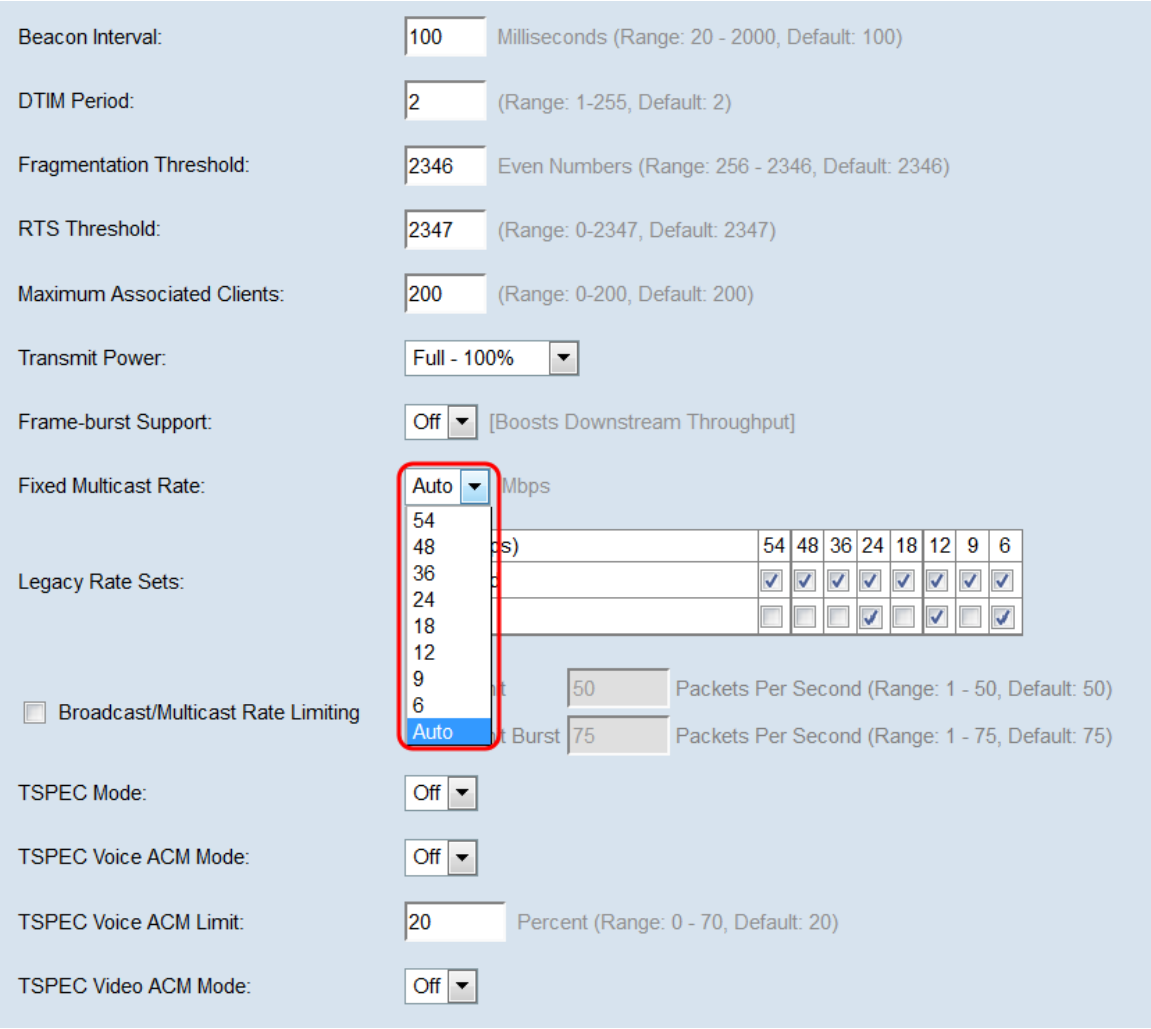
Step 13. In the *Transmit Power* drop-down list, select the percentage of transmit power the WAP uses when broadcasting. A high percentage is more cost-efficient, since it gives the WAP the widest range and thus requires fewer access points to cover the same area. A low percentage requires devices be close to each other, but reduces the overlap and interference among other APs. The default is 100%.



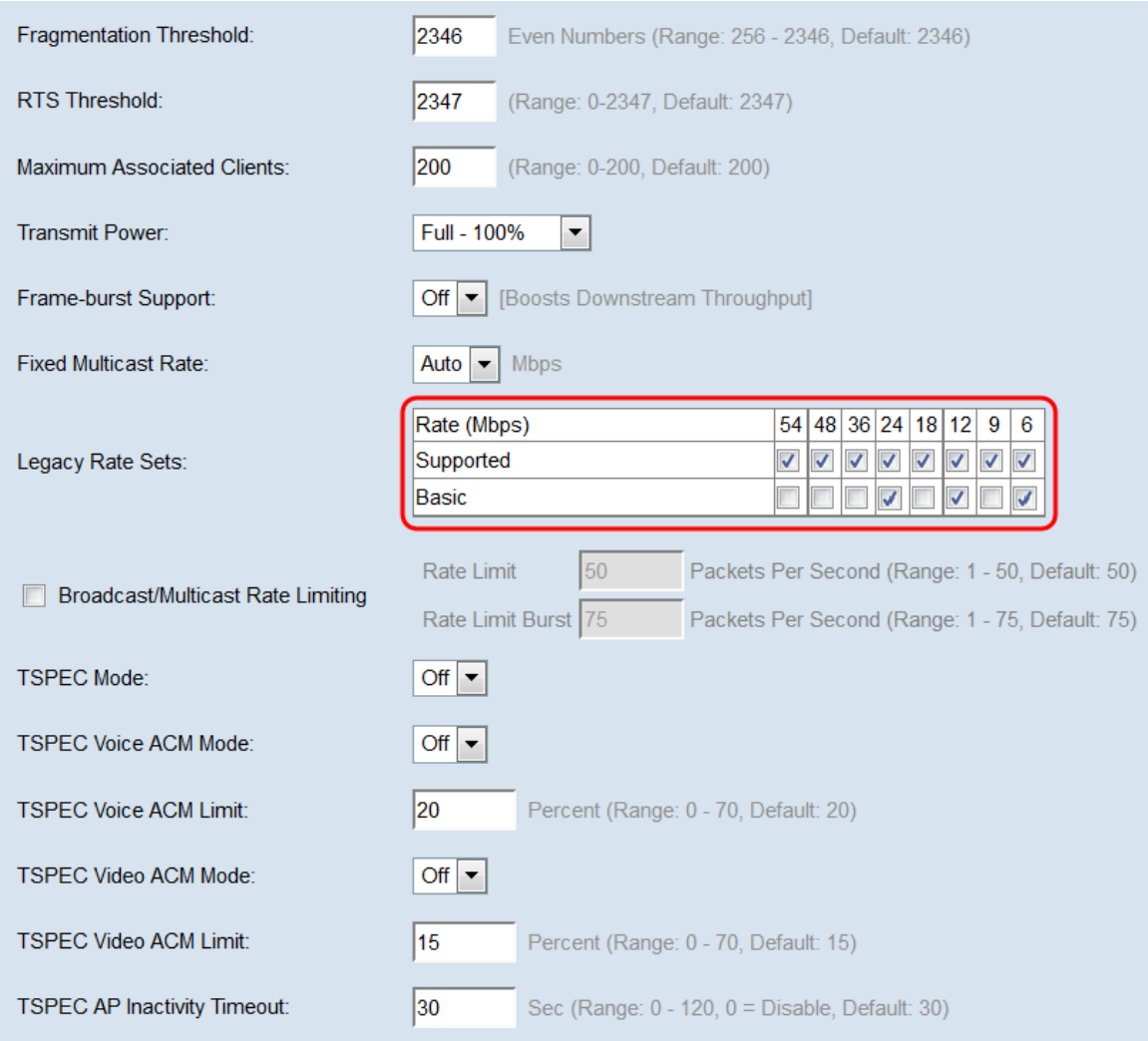
Step 14. In the *Frame-Burst Support* drop-down list, choose either **Off** or **On** to disable or enable this feature. Enabling this feature may increase downstream throughput, as it lets the radio quickly send a series of frames in succession for a brief period of time.



Step 15. In the *Fixed Multicast Rate* drop-down list, select the transmission rate in Mbps for broadcast and multicast packets. The range of possible values is determined by the radio mode in basic settings. Selecting **Auto** lets the WAP automatically choose the best rate based on the connected clients.

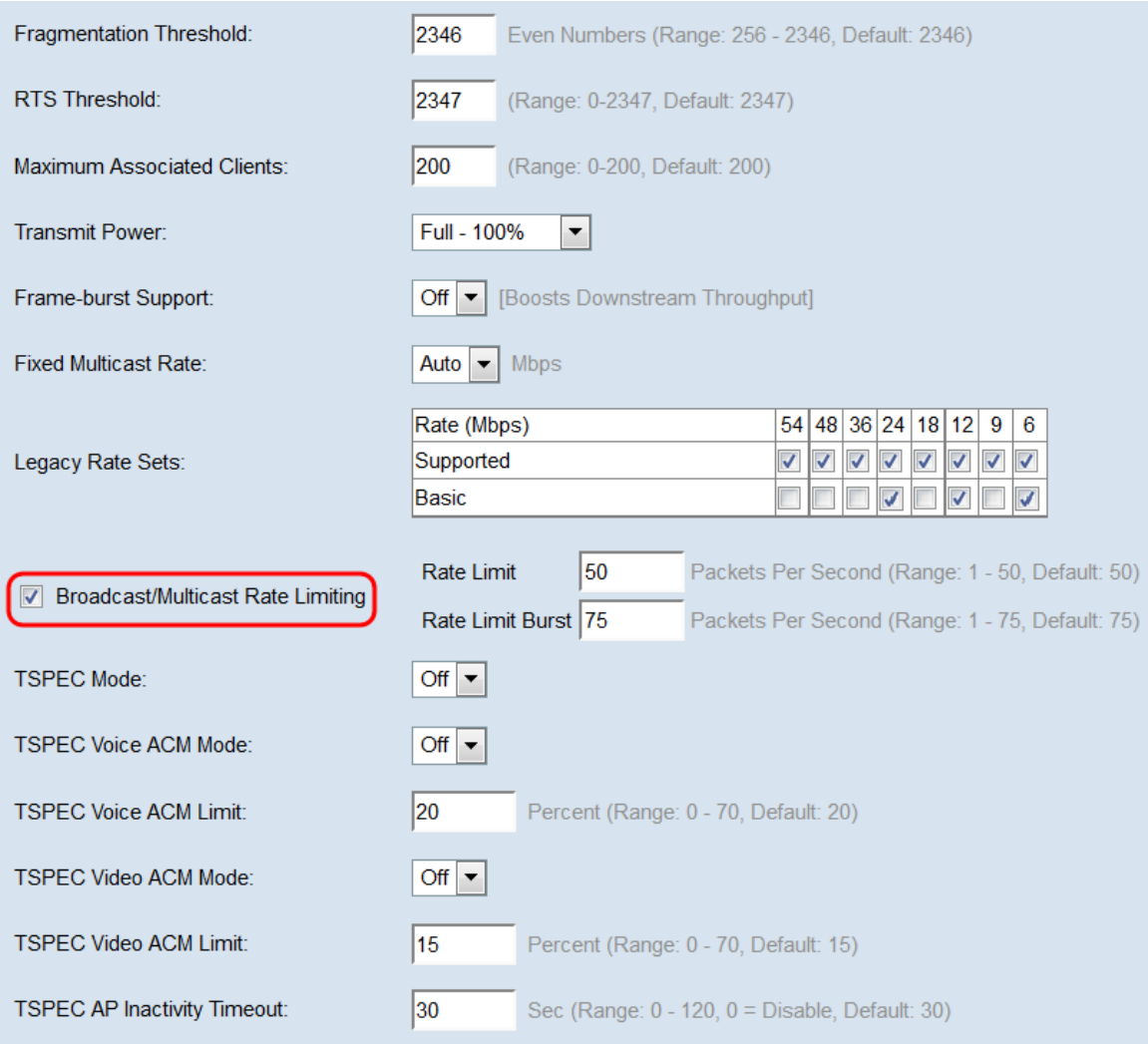


Step 16. In the *Legacy Rate Sets* table, check the check boxes underneath the available rates to determine the Supported and Basic Rate sets. The Supported Rate Sets indicate rates that the WAP supports, while the Basic Rate Sets are the rates that the WAP advertises to the network to set up communication with other devices. It is more efficient to have a WAP device broadcast a subset of its supported rates. The rates are in Mbps.

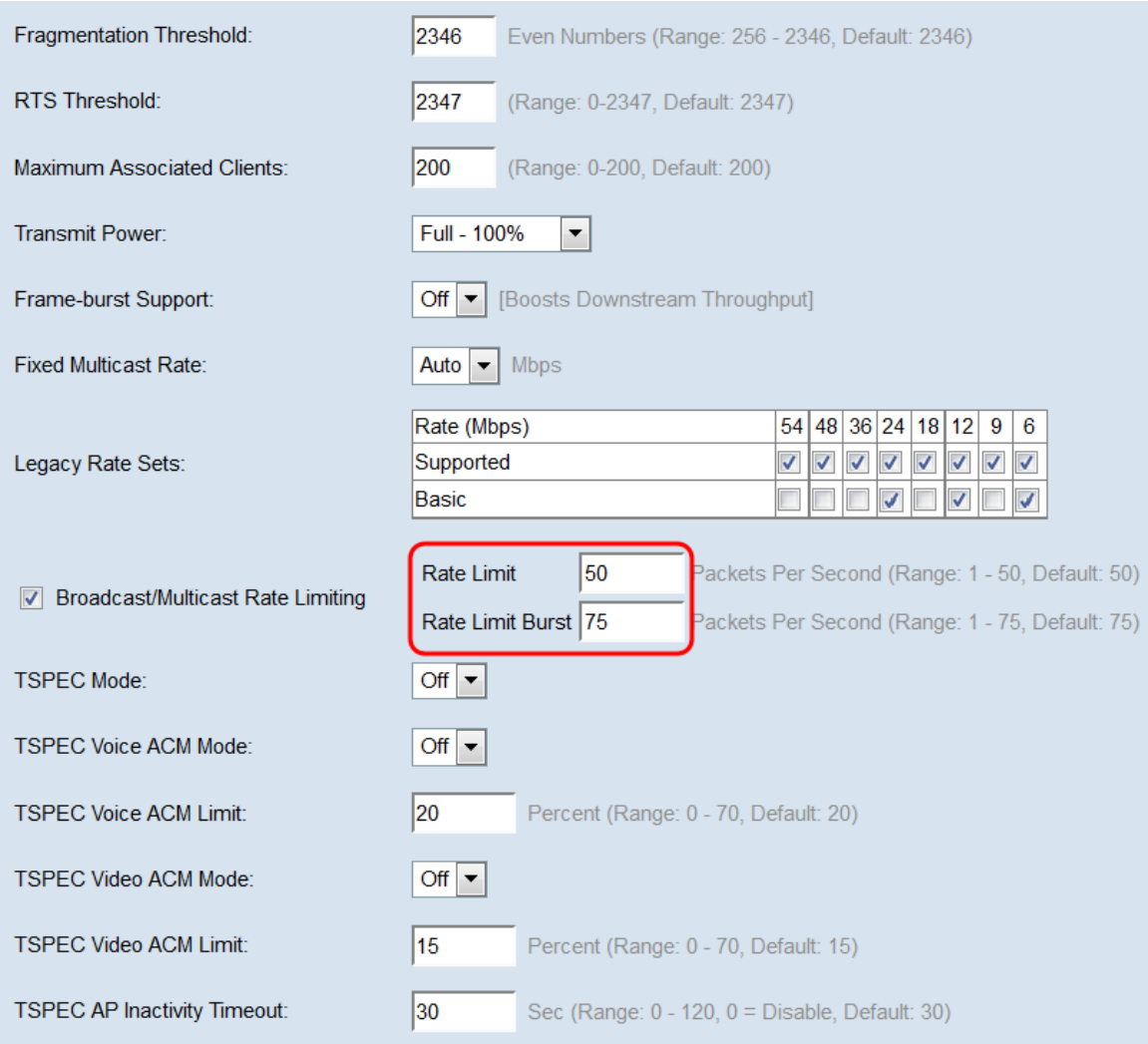


Note: In order to select a rate as Basic, it must also be selected as Supported.

Step 17. (Optional) Check the *Broadcast/Multicast Rate Limiting* checkbox if you want to limit the number of packets transmitted across the network. By default, this feature is disabled. If you do not want to enable this feature, skip to Step 19.



Step 18. If you enabled *Broadcast/Multicast Rate Limiting*, the *Rate Limit* and *Rate Limit Burst* fields will become available. Enter in the appropriate values for each field.

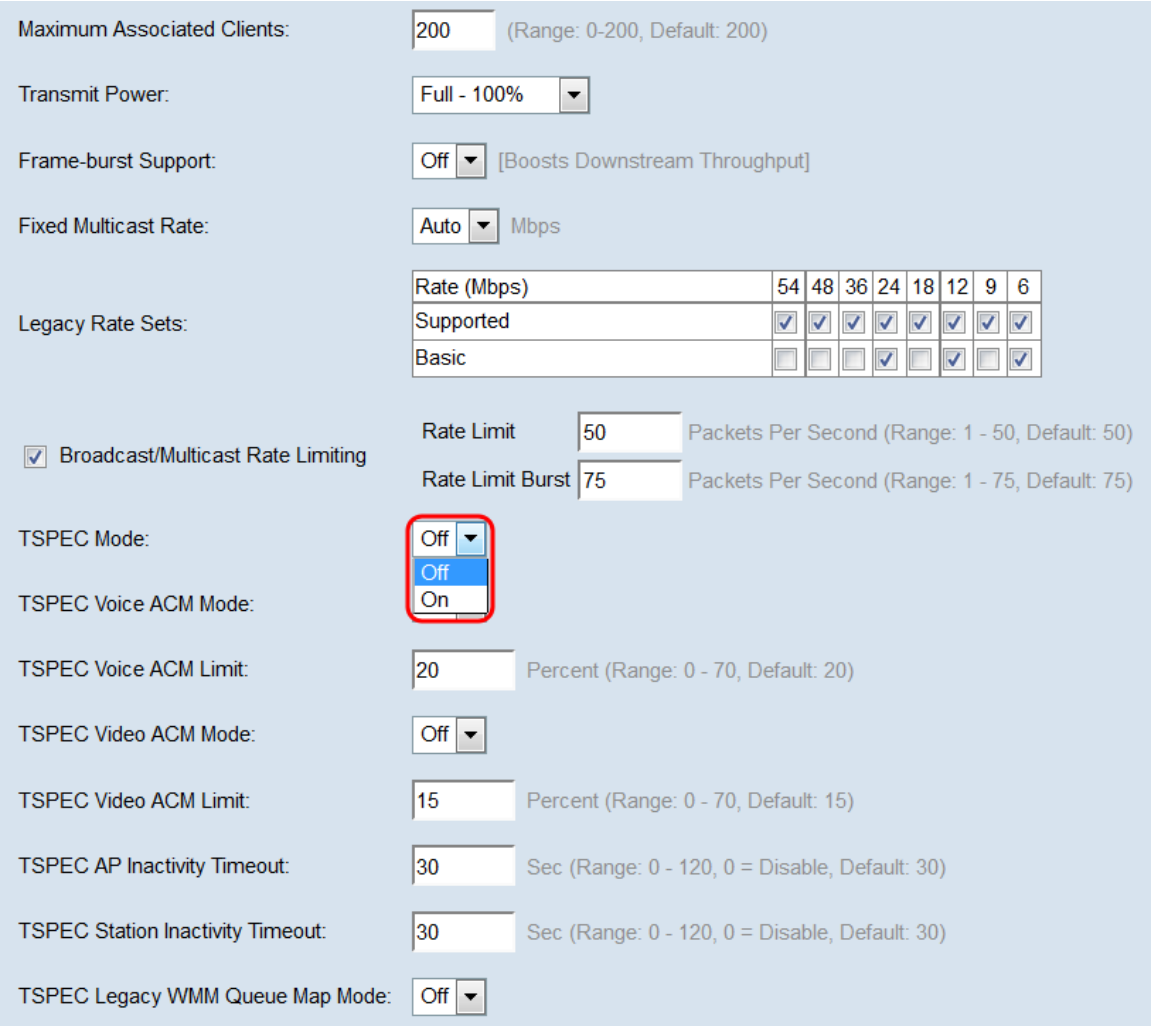


The fields are defined as:

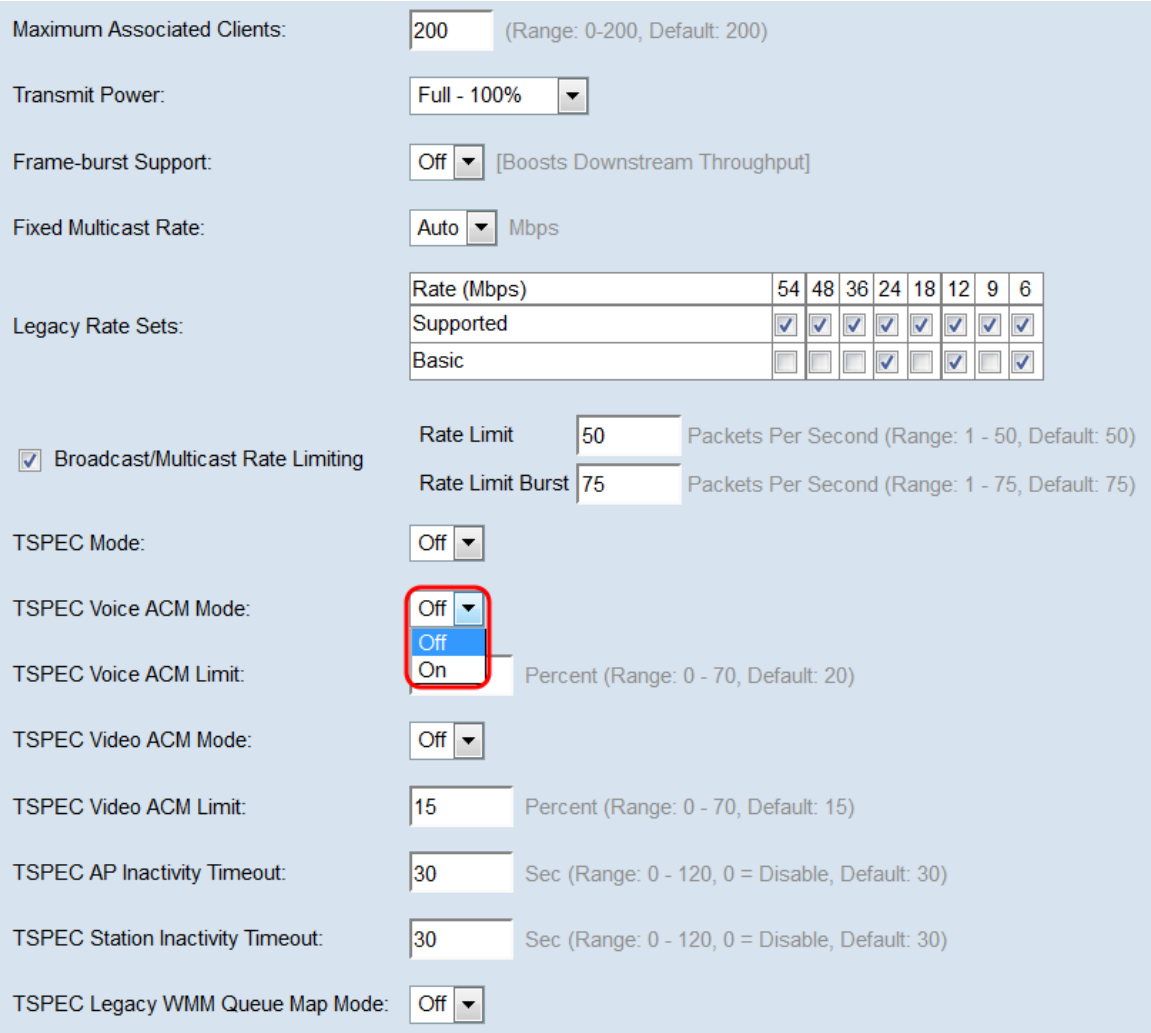
- Rate Limit — The rate limit for multicast and broadcast traffic. This rate is expressed in packets per second. The range is 1 – 50, and the default is 50.

- Rate Limit Burst — Indicates the amount of traffic that is allowed to pass as a temporary burst even if it exceeds the above maximum rate. The range is 1 – 75, and the default is 75.

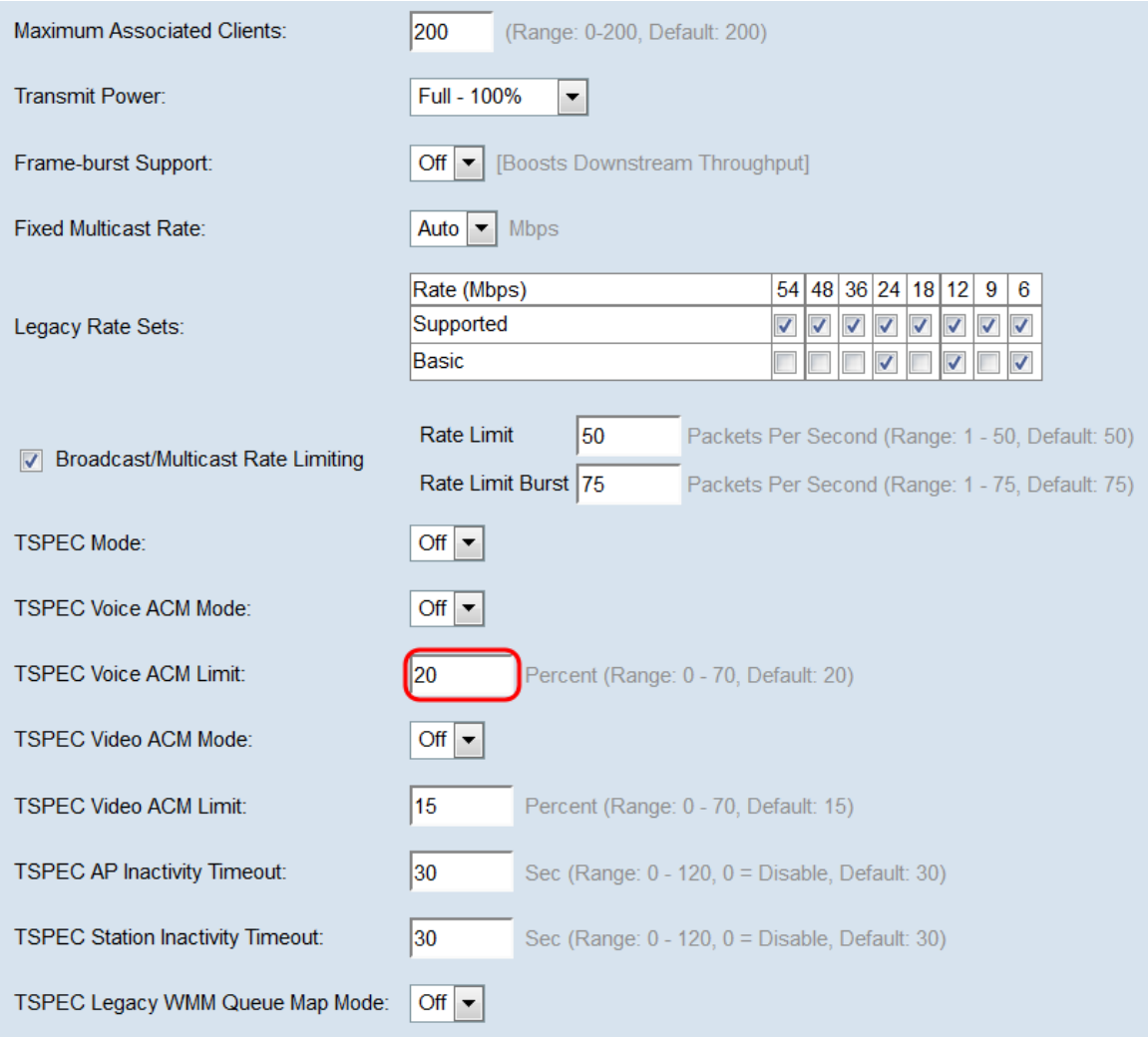
Step 19. In the *TSPEC Mode* drop-down list, choose the traffic specification (TSPEC) mode for the WAP. TSPEC is sent from a QoS (Quality of Service) capable client requesting a certain amount of traffic from the WAP. Selecting **On** enables TSPEC and the WAP handles traffic from QoS devices. **Off** disables TSPEC and QoS devices are not given priority.



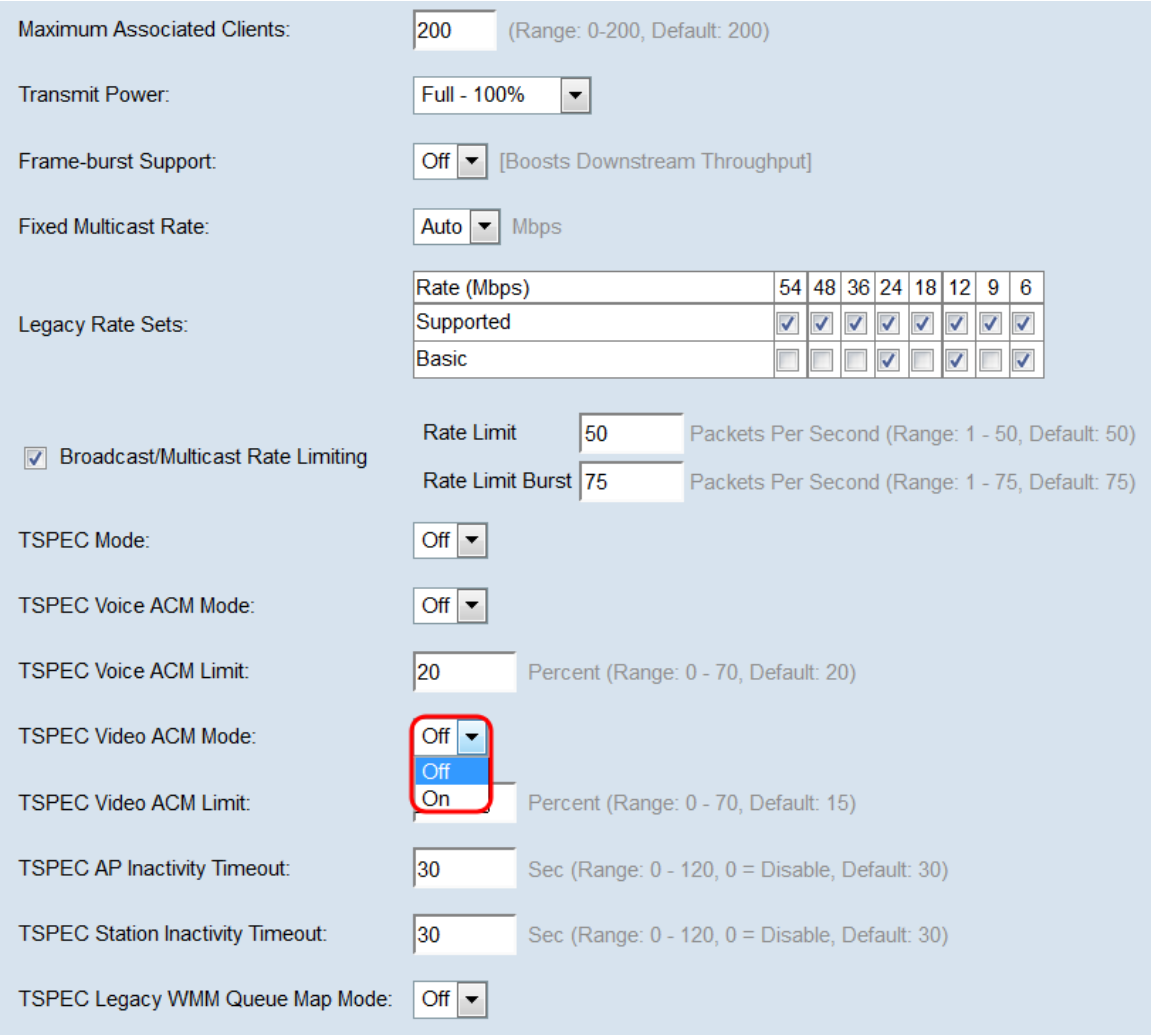
Step 20. In the *TSPEC Voice ACM Mode* drop-down list, choose a mode that regulates mandatory admission control (ACM) for the voice access category. Selecting **On** means that a station must send a TSPEC request for bandwidth to the WAP before sending or receiving a voice traffic stream. **Off** allows stations to send and receive voice traffic without a TSPEC request. This allows the WAP to have control over bandwidth usage for voice traffic.



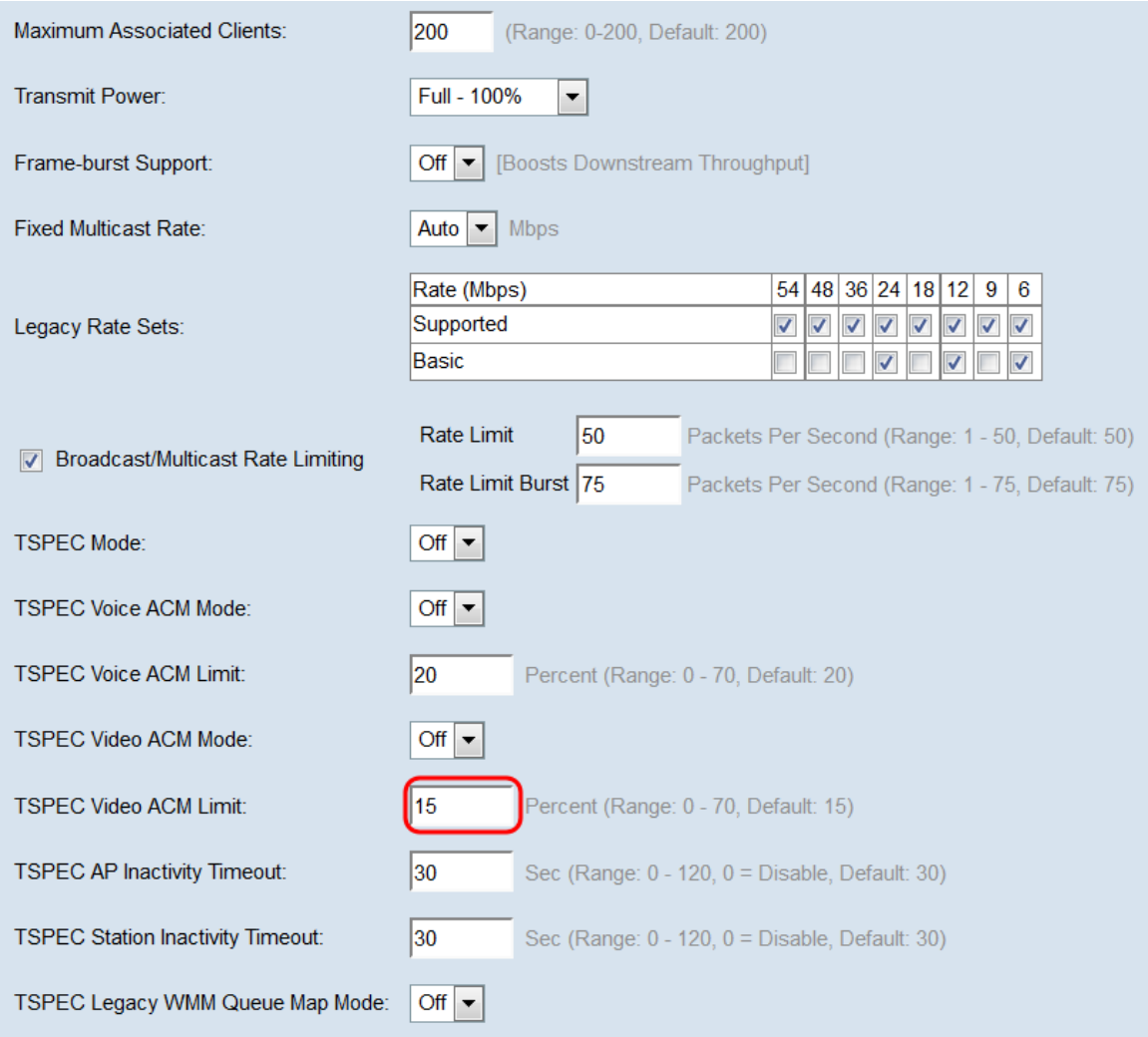
Step 21. In the *TSPEC Voice ACM Limit* field, enter the maximum amount of traffic the WAP tries to transmit through wireless with a voice AC to gain access. The range is 0 – 70 percent, and the default is 20 percent.



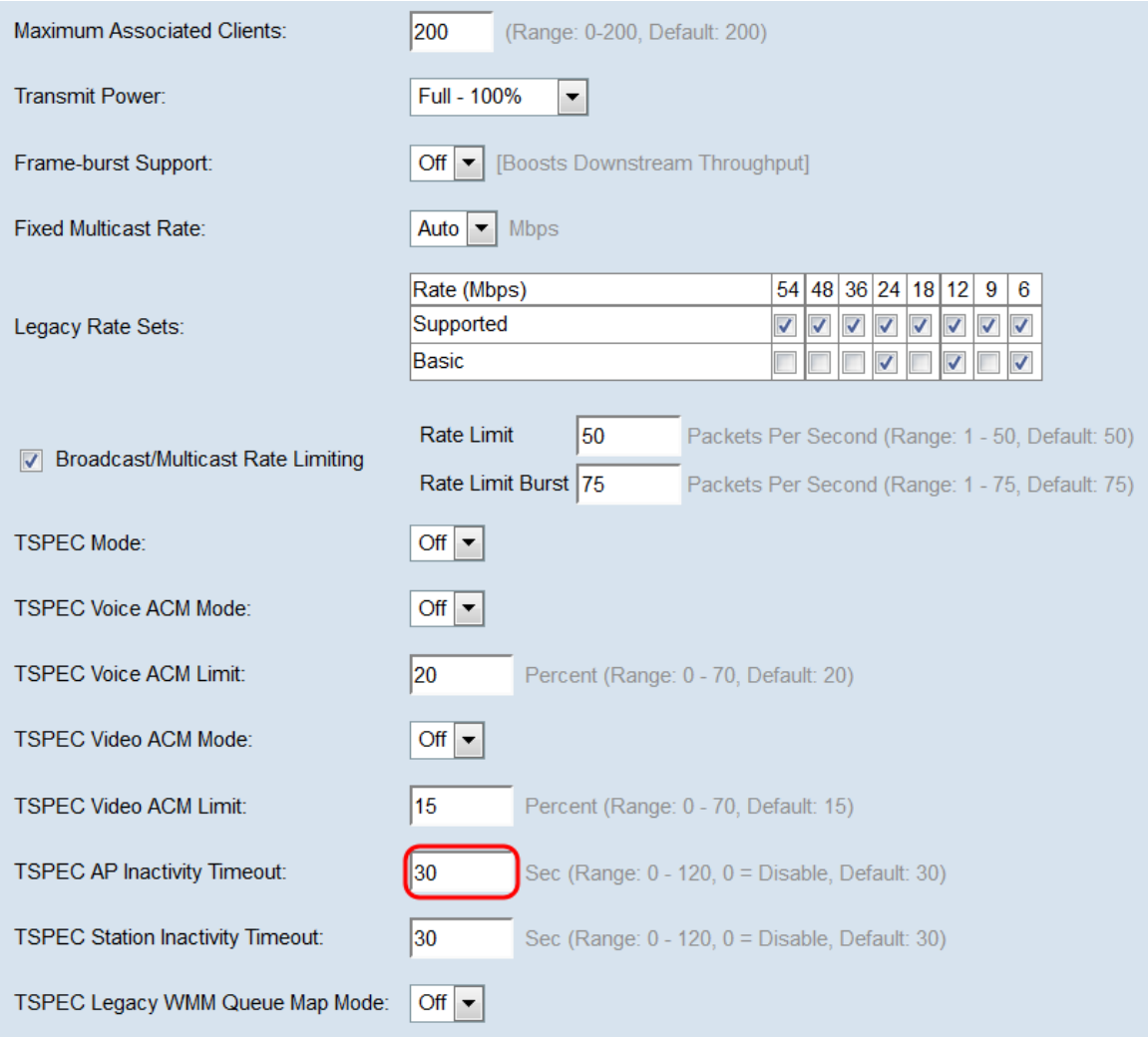
Step 22. In the *TSPEC Video ACM Mode* drop-down list, choose a mode that regulates mandatory admission control (ACM) for the video access category. Selecting **On** means that a station must send a TSPEC request for bandwidth to the WAP before sending or receiving a video traffic stream. **Off** allows stations to send and receive video traffic without a TSPEC request. This allows the WAP to have control over bandwidth usage for video traffic.



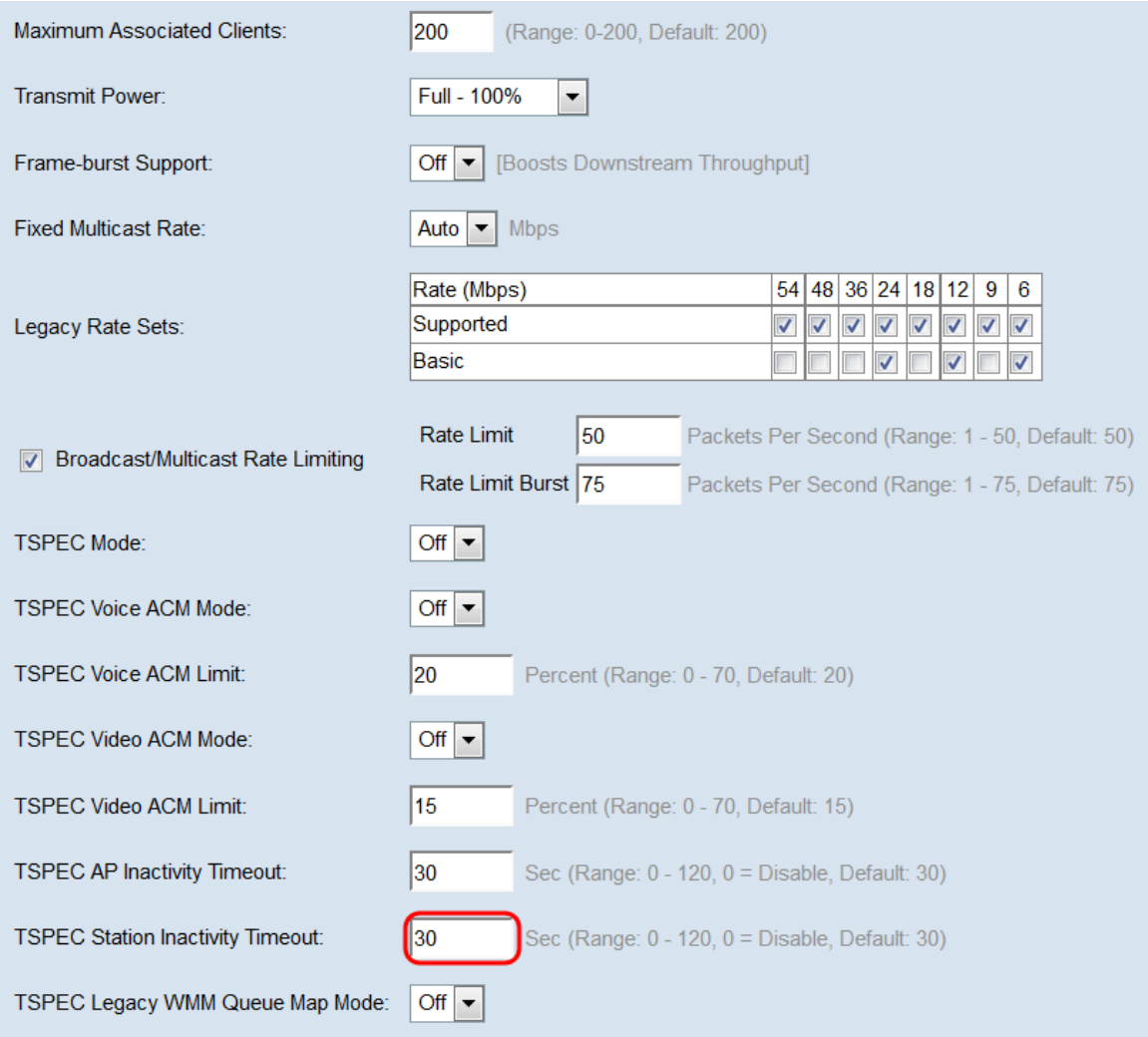
Step 23. In the *TSPEC Video ACM Limit* field, enter the maximum amount of traffic the WAP tries to transmit through wireless with a video AC to gain access. The range is 0 – 70 percent, and the default is 15 percent.



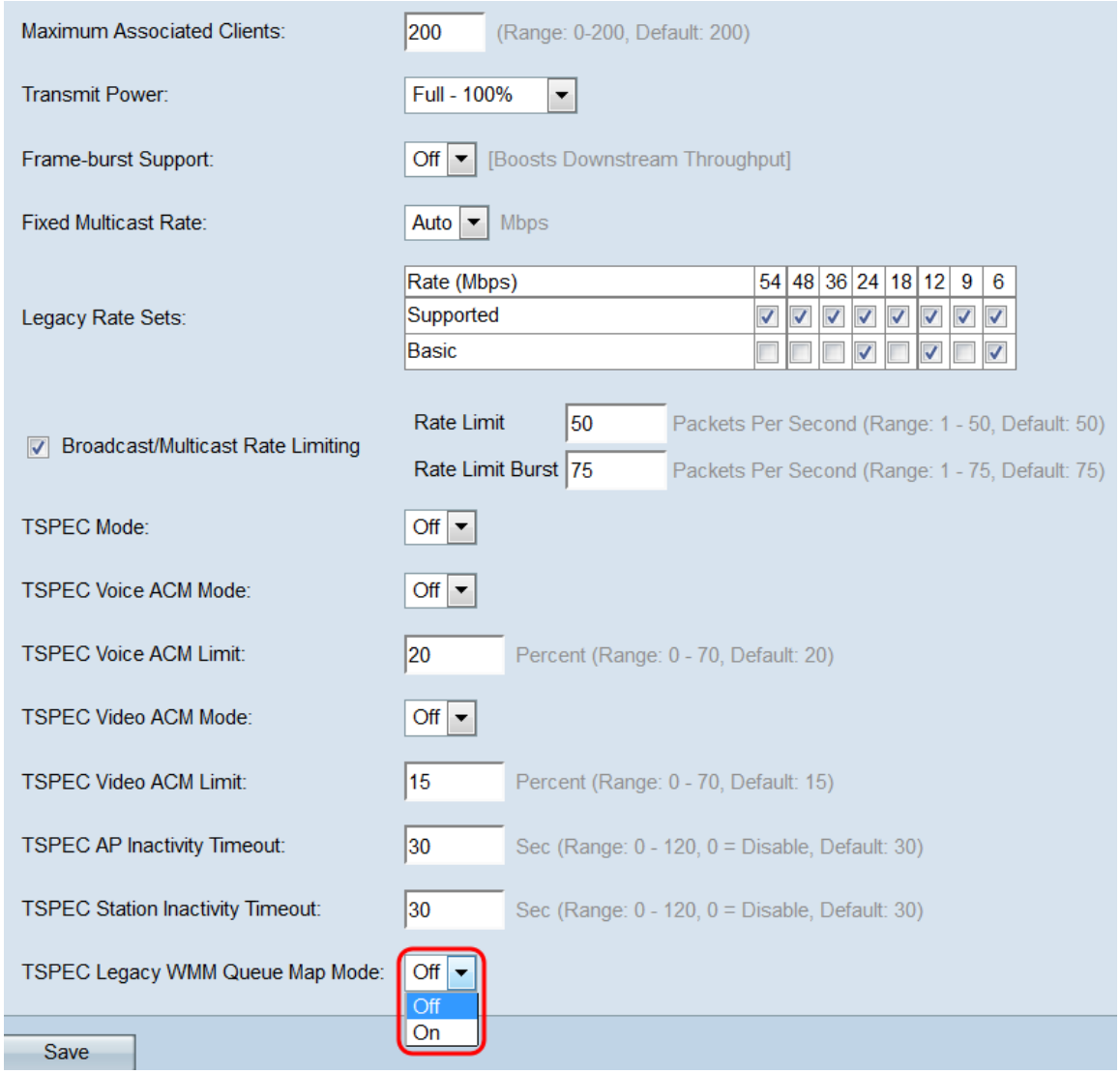
Step 24. In the *TSPEC AP Inactivity Timeout* field, enter the number of seconds for a WAP device to detect a downlink traffic specification as idle before deleting it. The range is 0 – 120 seconds, and the default is 30. Entering 0 disables this feature.



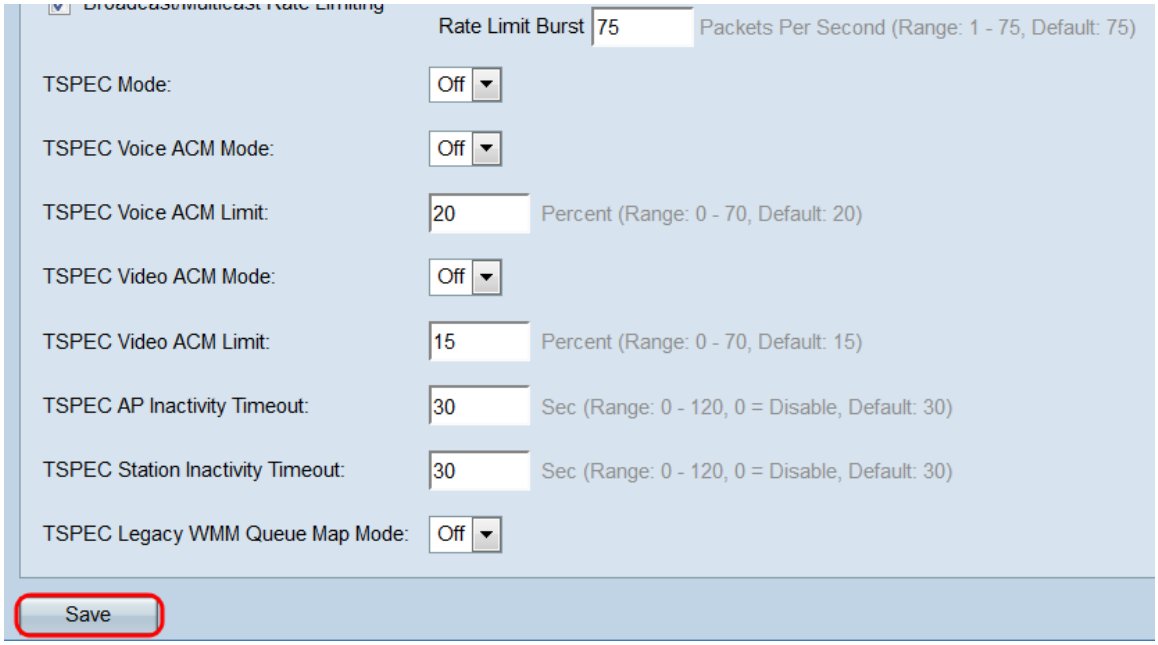
Step 25. In the *TSPEC Station Inactivity Timeout* field, enter the number of seconds for a WAP device to detect an uplink traffic specification as idle before deleting it. The range is 0 – 120 seconds, and the default is 30. Entering 0 disables this feature.



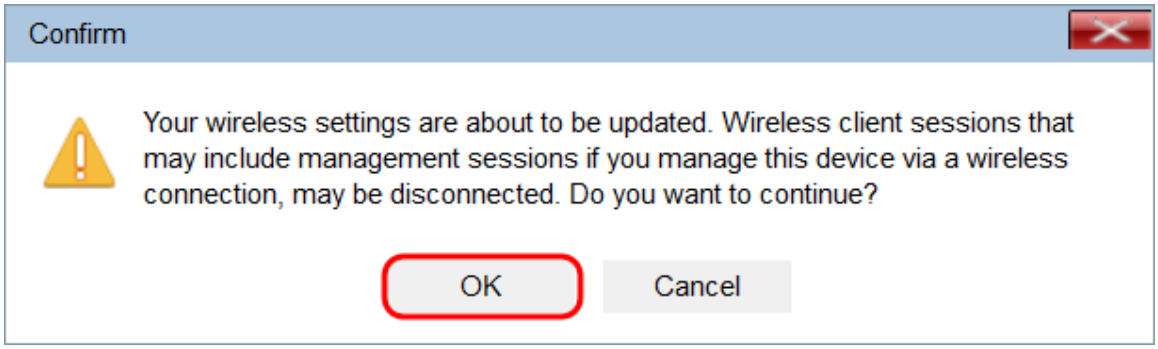
Step 26. In the *TSPEC Legacy WMM Queue Map Mode* drop-down list, select whether to enable (**On**) or disable (**Off**) the intermixing of legacy traffic on queues operating as ACM. By default, this feature is disabled.



Step 27. Click **Save** to save your changes.



Step 28. A pop-window will appear warning that wireless connections may be disconnected. Click **OK** to continue.


Confirm
Your wireless settings are about to be updated. Wireless client sessions that may include management sessions if you manage this device via a wireless connection, may be disconnected. Do you want to continue?
OK
Cancel