Wireless Specifications

Wi-Fi Provisioning Framework Specification

WR-SP-WiFi-MGMT-I01-100729

ISSUED

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Key to Document Status Codes

Work in Progress	An incomplete document, designed to guide discussion and generate feedback that may include several alternative requirements for consideration.
Draft	A document in specification format considered largely complete, but lacking review by Members and vendors. Drafts are susceptible to substantial change during the review process.
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Closed	A static document, reviewed, tested, validated, and closed to further engineering change requests to the specification through CableLabs.

Trademarks

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1 SCOPE

1.1 Introduction and Purpose

This specification details the management requirements for the Wireless Fidelity (Wi-Fi) air interface and roaming requirements defined in Wi-Fi Requirements for Cable Modem Gateways specification [WiFi-GW] and WR Roaming Architecture and Interfaces Specification [WiFi-ROAM]. The purpose of this specification is to define object models and over the wire interface definitions to support the management functions of the Wi-Fi requirements. The term management functions relate to the traditional FCAPS (Fault Configuration, Accounting, Performance and Security) areas of management.

1.2 Requirements

Throughout this document, the words that are used to define the significance of particular requirements are capitalized. These words are:

"MUST"	This word means that the item is an absolute requirement of this specification.
"MUST NOT"	This phrase means that the item is an absolute prohibition of this specification.
"SHOULD"	This word means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighed before choosing a different course.
"SHOULD NOT"	This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.
"MAY"	This word means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.

2 REFERENCES

2.1 Normative References

In order to claim compliance with this specification, it is necessary to conform to the following standards and other works as indicated, in addition to the other requirements of this specification. Notwithstanding, intellectual property rights may be required to use or implement such normative references.

[802.11]	IEEE 802.11: Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, 2007.
[802.11a]	IEEE 802.11a: High-speed Physical Layer in the 5 GHz Band, 1999.
[802.11b]	IEEE 802.11b: Higher-Speed Physical Layer Extension in the 2.4 GHz Band, 1999.
[802.11d]	IEEE 802.11d: Amendment 3: Specification for operation in additional regulatory domains, 2001.
[802.11e]	IEEE 802.11e: Amendment 8: Medium Access Control (MAC) Quality of Service Enhancements, 2005.
[802.11g]	IEEE 802.11g: Amendment 4: Further Higher Data Rate Extension in the 2.4 GHz Band, 2003.
[802.11i]	IEEE 802.11i: Amendment 6: Medium Access Control (MAC) Security Enhancements, 2004.
[802.11n]	IEEE 802.11n: Enhancement for higher throughput, 2009.
[802.1Q]	IEEE 802.1Q: Virtual Bridged Local Area Networks, 2005.
[802.1X]	IEEE 802.1X: Port-Based Network Access Control, 2004.
[OSSI3.0]	Data-Over-Cable Service Interface Specifications, DOCSIS 3.0, Operations Support System Interface Specification CM-SP-OSSIv3.0-I12-100611, June 11, 2010, Cable Television Laboratories, Inc.
[MULPIv3.0]	Data-Over-Cable Service Interface Specifications, DOCSIS 3.0 MAC and Upper Layer Protocols Interface Specification, CM-SP-MULPIv3.0- I13-100611, June 11, 2010, Cable Television Laboratories, Inc.
[ISO/IEC 3166-1]	ISO/IEC: 3166-1 Codes for the representation of names of countries and their subdivisions – Part 1: Country codes, 2006.
[RFC 2863]	IETF RFC 2863, The Interfaces Group MIB, June 2000.
[TR-098]	Broadband Forum: DSL Home™ Internet Gateway Device Version 1.1 Data Model for TR-069, September 2008.
[WMM]	Wi-Fi Alliance: Wi-Fi Multi-Media QoS based on 802.11e, Version 1.1.
[WPA]	Wi-Fi Alliance: Wi-Fi Protected Access (WPA) Enhanced Security Implementation Based on IEEE P802.11i standard, Version 3.1, August, 2004.
[WPS]	Wi-Fi Alliance: Wi-Fi Protected Setup™ Specification 1.0.

2.2 Informative References

This specification uses the following informative references.

[802.11k] IEEE 802.11k: Amendment 1: Radio Resource Measurement of Wireless LANs, 2008.

[eRouter] IPv4 and IPv6 eRouter Specification, CM-SP-eRouter-I04-100611, June 11, 2010, Cable Television Laboratories, Inc.

[RFC 2578] IETF RFC 2578/ STD0058, Structure of Management Information Version 2 (SMIv2), April 1999.

[RFC 2898] IETF RFC 2898, PKCS #5: Password-Based Cryptography Specification Version 2.0, September 2000.

[RFC 4122] IETF RFC 4122, A Universally Unique IDentifier (UUID) URN Namespace, July 2005.

[RFC 4639] IETF RFC 4639, Cable Device Management Information Base for Data-Over-Cable Service Interface Specification (DOCSIS) Compliant Cable Modems and Cable Modem Termination Systems, December 2006.

[RFC 5580] IETF RFC 5580, Carrying Location Objects in RADIUS and Diameter, August 2009.

[WiFi-GW] Wi-Fi Requirements for Cable Modem Gateways, WR-SP-WiFi-GW-I01-100729, July 29, 2010, Cable Television Laboratories, Inc.

[WiFi-ROAM] WR Roaming Architecture and Interfaces Specification, PKT-SP-WiFi-ROAM-I01-100729, July 29, 2010, Cable Television Laboratories, Inc.

2.3 Reference Acquisition

- Cable Television Laboratories, Inc., 858 Coal Creek Circle, Louisville, CO 80027; Phone +1-303-661-9100; Fax +1-303-661-9199; http://www.cablelabs.com
- Institute of Electrical and Electronics Engineers, (IEEE), http://www.ieee.org/web/standards/home/index.html
- Internet Engineering Task Force (IETF) Secretariat, 48377 Fremont Blvd., Suite 117, Fremont, California 94538, USA, Phone: +1-510-492-4080, Fax: +1-510-492-4001, http://www.ietf.org
- Wi-Fi Alliance, 3925 West Braker Lane Austin, TX 78759 USA, Phone: +1 (512) 305-0790, Fax: +1 (512) 305-0791, http://www.wi-fi.org
- Broadband Forum, 48377 Fremont Blvd, Suite 117 Fremont, CA 94538, Phone: +1.510.492.4020, Fax: +1.510.492.4001, http://www.broadband-forum.org

3 TERMS AND DEFINITIONS

This specification uses the following terms:

Multi-operator	Common agreements, requirements and operations amongst operators to support roaming.
Roaming	The use of a home network subscription to gain access to a partner network.

4 ABBREVIATIONS AND ACRONYMS

This specification uses the following abbreviations:

AP	Access Point
BSSID	Basic Service Set Identifier
CM	Cable Modem
CRUD	Create, Read, Update, Delete
DOCSIS	Data-Over-Cable Service Interface Specifications
DSCP	Differentiated Services Code Points
eDOCSIS	embedded DOCSIS
eRouter	An eSAFE device that is implemented in conjunction with the DOCSIS Embedded Cable Modem.
FCAPS	Fault Configuration, Accounting, Performance and Security
GI	Guard Interval
LED	Light Emitting Diode
SNMP	Simple Network Management Protocol
SRV	An SRV record or Service record is a category of data in the Internet Domain Name System specifying information on available services.
SSID	Service Set Identifier
U-APSD	Unscheduled Automatic Power Save Delivery
UL	Underwriters Laboratory
WDS	Wireless Distribution System
WEP	Wired Equivalent Privacy
Wi-Fi	Wireless Fidelity
Wi-Fi AP	Wireless Fidelity Access Point
Wi-Fi GW	Wireless Fidelity Gateway
WMM	Wi-Fi Multimedia
WPA	Wi-Fi Protected Access

5 OVERVIEW

The Wi-Fi specification suite defines requirements to integrate a Wi-Fi air interface access with the cable network. The Wi-Fi Access Point, AP, is treated as a port in a DOCSIS device. The AP communicates to the operator's core network through the DOCSIS interface. The cable modem, CM, holds the responsibility of the interface and provides wired network infrastructure to AP traffic.

This specification is focused on management requirements for Wi-Fi interface. The management features include user activation of the AP, user access via the AP, user selection of the network name, Service Set Identifier (SSID), user activation of Security settings, MSO activation of the AP, MSO configuration of an SSID for public usage, and MSO configuration of security on AP. Performance report requirements are driven by operator needs and features widely available in the Wi-Fi industry.

APs can report multiple performance parameters based on the signal strength received from a device, packets sent/received, user authentication, SSID, and QoS. These are required to be monitored for health of the AP, status of the Wi-Fi environment and to provide usage statistics to MSO. SNMP (Simple Network Management Protocol) is used to communicate parameters. The AP is configured through a CM configuration file. It is assumed that access point is integrated inside the cable modem. This specification does not address range extenders with integrated CM-WiFi device.

This specification defines the data requirements for the functional areas of operations (Fault, Configuration, Accounting, Performance and Security). The provisioning of the Wi-Fi aspects is tied to the provisioning and management process associated with the device hosting the Wi-Fi interfaces. Therefore, this specification considers a generic data model of the management requirements and provides the realization of the object models designed for the management protocol interface. For example, the SNMP modules derived from the object models in this specification can be used to manage a Wi-Fi interface hosted on a CM with an [eRouter] device.

Additional management interfaces using alternative protocols can be derived from the object model as needed.

5.1 Wi-Fi Management Features

The Wi-Fi management features are organized based on the management functional areas as shown in Table 1 below.

Table 1 - Wi-Fi Management Features

Feature	Management Functional Area	Description
Air Interface Configuration	Configuration	802.11 Air interface configuration parameters including Channel, modes of operation, rates, transmission power, etc.
SSID configuration	Configuration	Configuration of SSID domains as sub-interfaces for service separation
Capabilities and Supported Features	Configuration	List of Wi-Fi features support
Access Protection configuration	Configuration	Configuration of Access mechanisms including WEP (Wired Equivalent Privacy, WPA)Wi-Fi Protected Access), and WPA2
Resource And Traffic Priority	Configuration	Assignment of VLANs to SSIDs for traffic prioritization
Device operations	Configuration	Reset Air interface Factory default set Interfaces enabled during outages
Power Saving Status	Configuration, Performance	Configuration and status report of Power Saving
Current transmit power and RSSI (Received Signal Strength Indication)	Performance	Report of Air interface metrics that lead into measure robustness and link quality

Feature	Management Functional Area	Description
Operational Status	Configuration	Active antenna selections Current channel sections Total active associations
Performance Metrics	Performance	Report of Frames and packets counts to measure errors and failed conditions
Logging and Alerting	Fault	The record and reporting of fault conditions
Diagnostic procedures	Fault	Procedures used to collect health status to help diagnose faults
Local CPE access configuration	Configuration	CPE MAC restriction
AAA Radius Client	Security, Accounting	Client capabilities to help support authentication and accounting procedures with a network AAA server.
Roaming Modes of operation	Configuration	Web page redirection Local Web Page
Access Configuration	Security	GUI access and restriction to other groups (SSID domains)

5.1.1 Configuration Management

Cable operators can configure SSIDs to be subscriber controlled, or strictly operator managed. The Wi-Fi configuration may be hosted through a local web server running on the CM itself. The user is allowed to configure basic wireless settings such as SSID name, security options and passphrase through local web admin pages for SSIDs configured by the operator as subscriber controlled. The device will receive a pre-configured SSID defined by the operator via a CM configuration file. The device needs to keep all the configured SSIDs accessible during operation.

5.1.2 Performance Management

The device is required to support an [802.11n] interface. The device configuration is persistent. The Wi-Fi configuration has to be accessible across power cycles. The device will provide an option for the MSO to poll and acquire the performance parameters defined in Annex A.

5.1.3 Fault Management

The device will provide timely alarms for any internal failures such as radio strength failure or when operating on battery such that not all end devices can be served. The device will maintain the logs on its internal web server page to provide the information related to reboots, configuration changes, intruder detection.

5.1.4 Accounting Management

The device can report usage to an AAA server if it is configured to execute RADIUS accounting client functions.

5.1.5 Security Management

The device needs to support general WiFi security such as WEP, WPA-PSK, and WPA2 for secure access of the WiFi network. The manufacturer configuration provides default security settings. MAC address based WiFi access configuration may be allowed on the subscriber controlled SSID. This helps the end user to control the devices that are attached to gateway using user defined SSID.

The device will provide the AAA server address to all incoming requests. The incoming requests may be directed to access control web page defined by MSO. This helps the roaming devices to get authenticated on MSO network.

5.2 Object Model

The Wi-Fi GW requirements contained in this specification are focused on the wireless access and bridging requirements of 802.11 interfaces [802.11]. However, there are dependencies and relationships with the features offered by the device supporting the Wi-Fi interface, for example support of NAT, routing, bridging, tunneling and multiple user domains based on SSIDs. These aspects require visualization and integration of the MAC and IP layer features of the device to transport user data. The closest approximation to a device gateway is provided by the [eRouter] specification. However, [eRouter] does not contain data models for the IP layer interaction with the Physical and MAC layer components of the gateway LAN. Section 6.1.1 describes the strategies used to model the Wi-Fi interface requirements for integration with fully featured gateways or a simple device such as a bridging CM.

5.3 Wi-Fi Management Interfaces

Figure 1 and Figure 2 below show examples Wi-Fi Management on a device within the context of the management interfaces. In Figure 1, the CM supports Wi-Fi as part of its LAN facing CPE interfaces. In Figure 2, [eRouter] is the device supporting the Wi-Fi interfaces. Note the nomenclature of provisioning and management interfaces in this section is informative and not defined in [MULPIv3.0] or [eRouter] specifications. The data elements provided by the object model defined in this specification can be provisioned, configured and monitored via the management interfaces listed in Figure 1 and Figure 2 as described on each interface definition below.

Figure 1 shows the management interfaces for the CM (managed device).

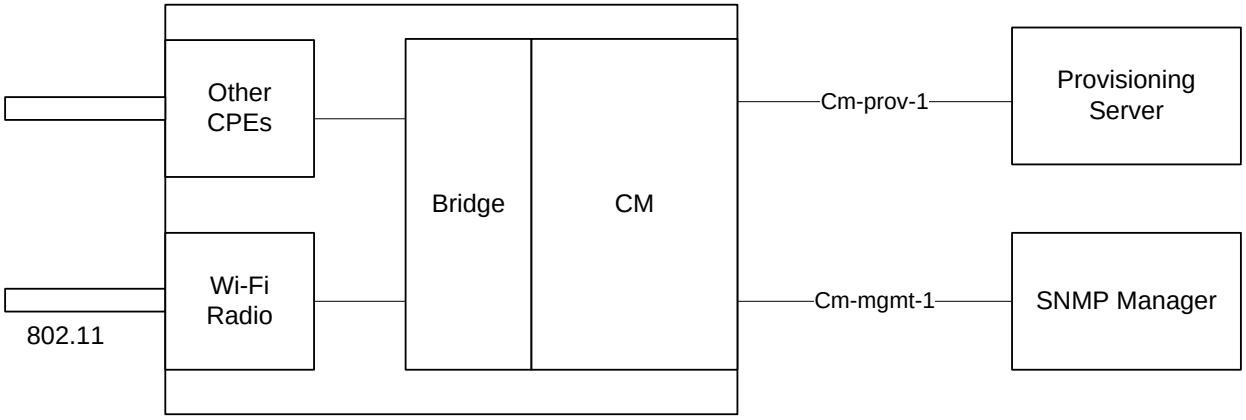

Figure 1 - CM Provisioning and Management Interfaces

5.3.1 Cm-prov-1

This interface provides DHCP and FTP to the CM for provisioning and configuration at initialization. The configuration file provides the attributes to initialize and configure the Wi-Fi interfaces.

5.3.2 Cm-mgmt-1

This interface corresponds to the management interface for operational CMs. Wi-Fi interface attributes and parameters can be monitored and updated through this interface.

Figure 2 shows the management interfaces for the eRouter (managed device).

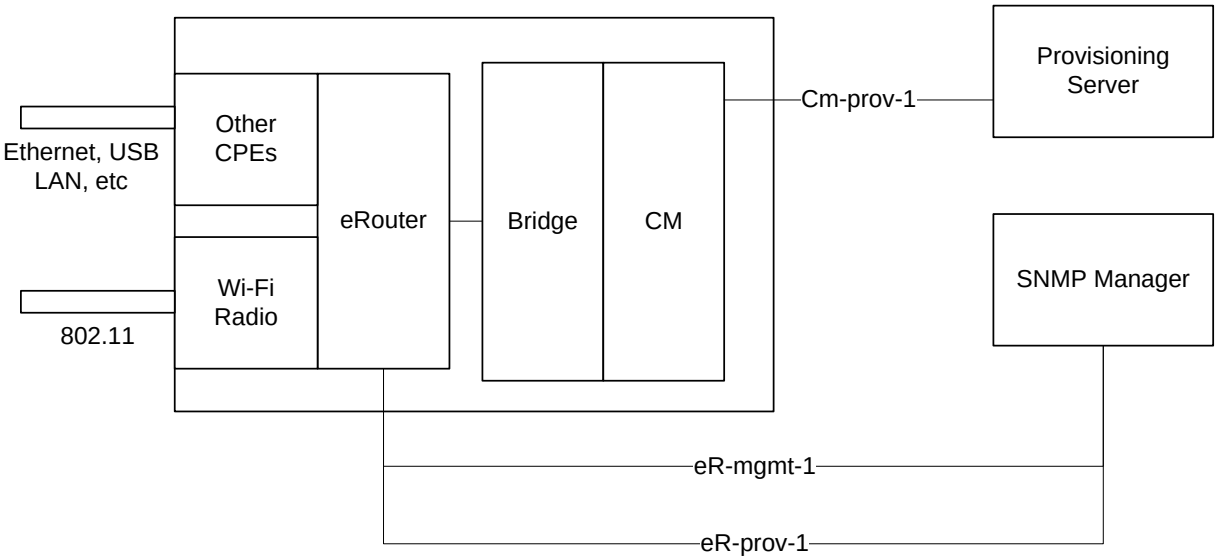

Figure 2 - eRouter Provisioning and Management Interfaces

5.3.3 Cm-prov-1

This is the same interface seen in Figure 1. In the context of eRouter this interface provides a mechanism to pass the eRouter (including Wi-Fi interface parameters) configuration parameters via the CM configuration file to the eRouter device. The DHCP functions are limited to the eCM component. See [eRouter] for details.

5.3.4 eR-prov-1

This interface provides DHCP to the eRouter component.

5.3.5 eR-mgmt-1

Corresponds to the management interface for operational eRouter. Wi-Fi interface attributes and parameters can be monitored and updated through this interface.

6 REQUIREMENTS

This section contains normative management requirements on the Wi-Fi GW management interface.

6.1 Object Model requirements

The Wi-Fi GW MUST support the object model defined in Annex A.

The Wi-Fi GW MUST support the object Model defined in Annex B.

6.1.1 Standards and Data Models Considerations

The object model in Annex A is based on [TR-098]. Specifically, the LANDevice WLANConfiguration objects provide the basis of the Wi-Fi GW requirements. Other LANDevice objects link the IP Layer management of the AP and [802.11] client stations. The mapping between the SNMP requirements listed in Annex A and the requirements in [TR-098] is not one-to-one. Below are a few examples:

- Certain WLANConfiguration attributes overlap with the IETF model on interface modeling. For example counters at the interface level in [RFC 2863] overlap with WLANConfiguration Stats. In this case, the preferred model of reporting is the conventional [RFC 2863]. However, implementation of the statistics listed in WLANConfiguration Stats object is not precluded by this specification.
- Certain Annex A requirements are not part of [TR-098] although required by operators. For example, VLAN tagging for SSIDs is mandated for this specification while in [TR-098] VLAN tags are defined at the bridge level (see 6.2.1.1).
- Roaming authentication configuration is not part of [TR-098].

The IEEE 802.11 MIB [802.11] does not provide a view of the configuration elements expected for device level management, but focuses on the lower level protocol primitives needed to configure the MAC and PHY layers. Therefore, the [TR-098] model is more appropriate for overall device management. Certain areas of the 802.11 MIB required by operators are not covered by [TR-098]. For example RTS threshold and DTIM interval are not defined in [TR-098]. The Wi-Fi GW data model includes objects for these items as an alternative to referencing the entire 802.11 MIB. In other cases a direct reference of [802.11] and a subsequent mapping model in Annex A (e.g., for other protocols support such as [TR-098]) are included. An example is performance metrics based on [802.11k].

6.2 Interface Protocols and Specifications Requirements

6.2.1 Requirements for SNMP Protocol

The Wi-Fi GW requirements reside in a managed device [eRouter]. The Wi-Fi GW that supports the SNMP interface MUST support the MIB objects referenced by Table 2.

Table 2 - SNMP Object Requirements

Object Model	SNNP MIB Object	Requirement
WLANConfiguration	clabWIFIWLANConfigurationTable	MUST
SSIDPolicy	clabWIFISSIDPolicyTable	MUST
WEPKey	clabWIFIWEPKeyTable	MUST
PreSharedKey	clabWIFIPreSharedKeyTable	MUST
RadiusClient	clabWIFIRadiusClientTable	MUST
APWMMParameter	clabWIFIAPWMMParameterTable	MAY

Object Model	SNNP MIB Object	Requirement
APWMMParameter	clabWIFIAPWMMParameterTable	MAY
WPS	clabWIFIWPSTable	MUST
Registrar	clabWIFIRegistrarTable	MUST
EventThreshold	clabWIFIEventThresholdTable	MUST
WIFIEventNotif	clabWIFIWIFIEventNotif	MUST
WLANStats	clabWIFIWLANStatsTable	SHOULD
DataRateStats	clabWIFIDataRateStatsTable	MAY
AssociatedDevice	clabWIFIAssociatedDevice	MUST
ClientSessions	clabWIFIClientSessionsTable	MUST
ClientStats	clabWIFIClientStatsTable	SHOULD
LANDevice	clabWIFILANDeviceTable	MUST
Hosts	clabWIFIHostsTable	MUST
Host	clabWIFIHostTable	MUST
LANHostConfigManagement	clabWIFILANHostConfigManagementTable	MUST

6.2.1.1 Wi-Fi Interface Model

This section details the Wi-Fi interface management requirements to accomplish separation and isolation of user domain traffic. The requirements in this section are driven by cable operator deployment models. The data models leverage design considerations from [TR-098] as well as functionality and management capabilities defined in [802.11]. User domains in Figure 3 below refer to the IP Forwarding layer that separates users based on their service type. For example, a residential user resides in the Residential Domain where LAN hosts (wired and wireless) are in the same network. Public Domain represents Internet with wireless access using an SSID other than the Residential Domain. Similarly, a Roaming Domain supports subscribers from a partner network with a roaming contract. A separate SSID is designated for roaming.

Public, Residential and Roaming Domains subscribers are attached to the same Wi-Fi radio. Thus, an interface hierarchy from layer 1 through layer 3 is needed to accomplish user domain traffic isolation.

Figure 3 shows the interface model to support SSID traffic isolation. The Wi-Fi interface corresponds to a physical 802.11 radio interface. Below the Wi-Fi interface, sub-interfaces are defined to represent each SSID configured for the radio interface. The Wi-Fi sub-interfaces can be seen as virtual Access Points. Ethernet interfaces are shown for illustration purposes. (Ethernet interfaces requirements are outside of the scope of this specification).

Above the physical interfaces are bridges. Bridges link LAN CPE devices with WAN interfaces. Bridges also defines the policies for VLAN tagging and Layer two traffic priorities. Above the bridges are the IP interfaces where IP networks and forwarding rules are defined.

The Virtual Access Points are isolated from each other by means of the IP interface and Bridge configuration. The dotted lines in Figure 3 represent the PHY and MAC layer dependencies. For example, Wi-Fi radio is shared by all SSID sub-interfaces.

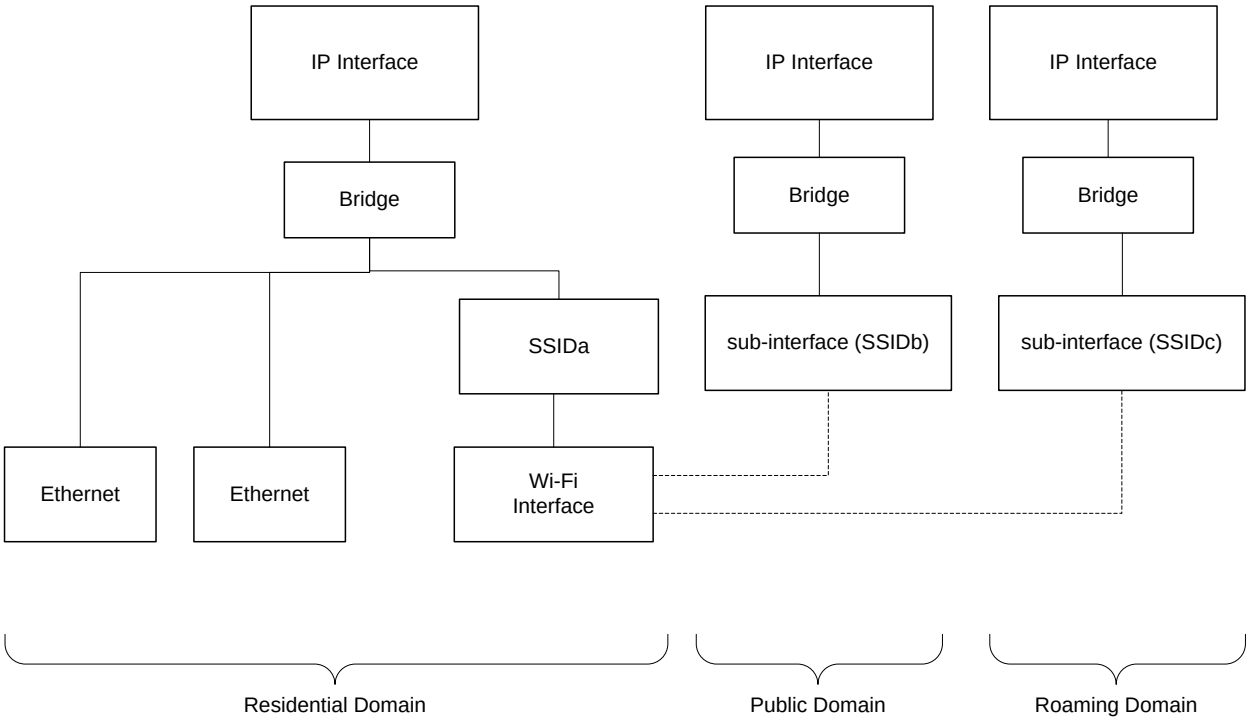

Figure 3 - User Domain Interface Model

Figure 3 also shows example of user domains configuration. By default Ethernet ports are always associated with the subscriber domain. Part of same domain is the configured SSID Wi-Fi sub-interface. Public and Roaming domain configurations are shown as well. Even though the Wi-Fi sub interfaces are below the Wi-Fi Interface can be isolated of each other as can be provisioned to separate IP interfaces

6.2.1.1.1 Model Simplification

This specification does not define a gateway path forwarding model, but focuses on the Wi-Fi interface operations. Management functional requirements from [WiFi-GW] are satisfied by mapping IP interfaces to Wi-Fi sub-interfaces. Therefore, this specification is silent about the support of multiple bridges from the Wi-Fi component and assumes direct association of the Wi-Fi sub-interfaces with the IP interfaces. Other gateway device specifications may place requirements on bridges operations and configuration. Nonetheless, bridging support from the CM is still valid as shown in Figure 3. In this situation the Wi-Fi radio performs direct traffic forwarding to the CM bridge which performs bridging policies based on CM provisioning and management capabilities.

Figure 4 shows the simplified model.

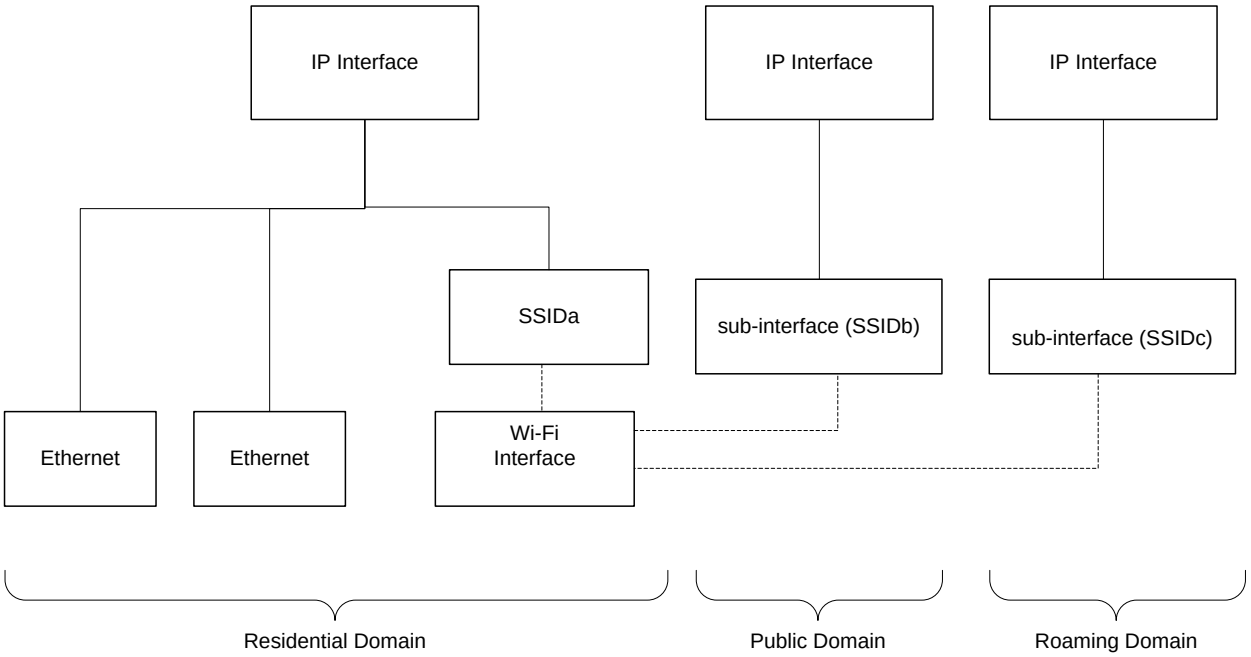

Figure 4 - User Domain Interface Simplified Model

6.2.1.1.2 Interface Creation and IfTable Relationship

The ifTable defined in [RFC 2863] does not provide a method to create new interfaces or sub-interfaces such as SSID Wi-Fi sub-interfaces and LAN/WAN IP Interfaces. The LANDevice object described in Annex A defines the artifacts to create IP Interfaces on the LAN side. The WLANConfiguration defines the artifacts to create SSID Wi-Fi sub-interfaces. The relationships between LANDevice and WLANConfiguration also define the interface stack hierarchy based on the simplifications defined in Section 6.2.1.1.1. The Wi-Fi GW MUST support SSID Wi-Fi sub-interfaces and LAN IP interfaces in the ifTable following the conventions listed in the following Sections (6.2.1.1.3 and 6.2.1.1.4).

6.2.1.1.3 Interface Numbering

This specification defines interface numbering for the purpose of creating deterministic configuration and operation procedures. This is similar to the reserved interface numbers found in [OSSI3.0].

The Wi-Fi GW MUST allocate the interfaces numbers indicated in Table 3.

Table 3 - Interface Numbering Requirements

Interface Numbers	Purpose
2XX	IP Interfaces in the LAN side
3XX	IP Interfaces in the WAN Side
1XXYY	Wi-Fi interfaces and sub-interfaces. XX corresponds to the Wi-Fi radio Interface with XX in (00..99). YY corresponds to the SSID sub-interface for Wi-Fi radio XX with YY in range 1..99. YY is '00' for radio Wi-Fi interfaces. • 10000 corresponds to the Wi-Fi Radio with ifAlias = wlan0 • 10001 corresponds to then Wi-Fi SSID sub-interface 1 on Wi-Fi radio 10000 Interface numbering for devices with more of 100 Radios and/or 99 SSID per radio is vendor specific

Other specifications that reference the Wi-Fi Interface requirements need to observe the interface numbering indicated in Table 3.

6.2.1.1.4 Interface Naming

This specification uses regular, well defined, conventions for interface naming. Interface names are typically used in web portals console ports etc. Even though this specification follows the CableLabs interface numbering schema for data models, the equivalent text names are explicitly defined to simplify operations. The Wi-Fi GW MUST follow the interface naming convention listed in Table 4. The Wi-Fi- gateway MUST report the interface name in ifName IF-MIB per [RFC 2863].

Table 4 - Interface Naming Requirements

Interface Name (ifName)	Purpose
lan(n)	IP Interfaces in the LAN side (n) is the one or two digit representation of XX in the interface number 2XX ; e.g., lan0
wan(n)	IP Interfaces in the WAN Side (n) is the one or two digit representation of XX in the interface number 2XX; e.g., wan0
wlan(n).(m)	Wi-Fi interfaces and sub-interfaces (n) corresponds to the one or two digit representation of XX in the interface number 1XXYY (m) corresponds to the one or two digit representation of YY in the interface number 1XXYY For Wi-Fi Interfaces '.(m)' is omitted. Examples • wlan0 corresponds to ifIndex 10000 • wlan0.1. corresponds to ifIndex 10001

6.2.1.1.5 Other Interface Requirements

The Wi-Fi GW MUST support the ifTable parameters listed in Table 5 as specified in [RFC 2863].

Table 5 - ifTable Parameters

Interface Numbers	ifType	ifDescr	Counters
IP Interfaces in the LAN side	ipForward(142)	LAN IP interface	per [RFC 2863]
IP Interfaces in the WAN Side	ipForward(142)	WAN IP interface	per [RFC 2863]
Wi-Fi interfaces	ieee80211(71)	Wi-Fi Radio Interface	per [RFC 2863]
Wi-Fi sub-interfaces	ieee80211(71)	Wi-Fi SSID sub-interface	per [RFC 2863]

The Wi-Fi GW MUST support the ifTable and ifXtable counters specified in the Interface MIB [RFC 2863] for the Wi-Fi interfaces and sub-interfaces.

6.2.1.1.6 ifStackTable Requirements

The Wi-Fi interface MUST report read-only instances of the interface stack represented in Figure 4. Note that the bridge interface layer may be omitted as shown in Section 6.2.1.1.1.

6.2.1.1.7 IpNetToPhysicalTable Requirements

The ipNetToPhysicalTable is similar to the requirements in the Host object (see Annex A). The Wi-Fi GW MUST support the IpNetToPhysicalTable. The Wi-Fi GW SHOULD Support the Host and Host objects defined in Annex A.

6.2.1.1.8 Residential Domain Requirements

The Wi-Fi GW MUST map by default non-Wi-Fi interfaces (e.g., Ethernet, USB LAN device interfaces) to the Wi-Fi Residential domain. However, the Wi-Fi GW MAY allow the configuration of non-Wi-Fi interfaces other than the Wi-Fi Residential Domain via the LANDevice object defined in Annex A.

6.2.1.2 Wi-Fi Diagnosis

The Wi-Fi GW MUST adhere to the recommendations for LED (Light Emitting Diodes) operations for LAN CPEs defined in [OSSI3.0].

Annex A Wi-Fi Interface Model

A.1 Object Model Overview

The object model specified here defines capabilities to manage the Wi-Fi air interface for residential, enterprise and public deployments. The model is driven by operator requirements and leverages aspects from [TR-098], 802.11 MIBs per [802.11] and [RFC 2863]. Many definitions are taking directly from [TR-098] and [802.11]. Whenever the original specs are vague on functionality or behavior, this specification enhances those definitions.

A.2 Object Model Definitions

A.2.1 Object Model Data Types

There are no data types defined for this object model.

A.2.2 Object Model Class Diagram

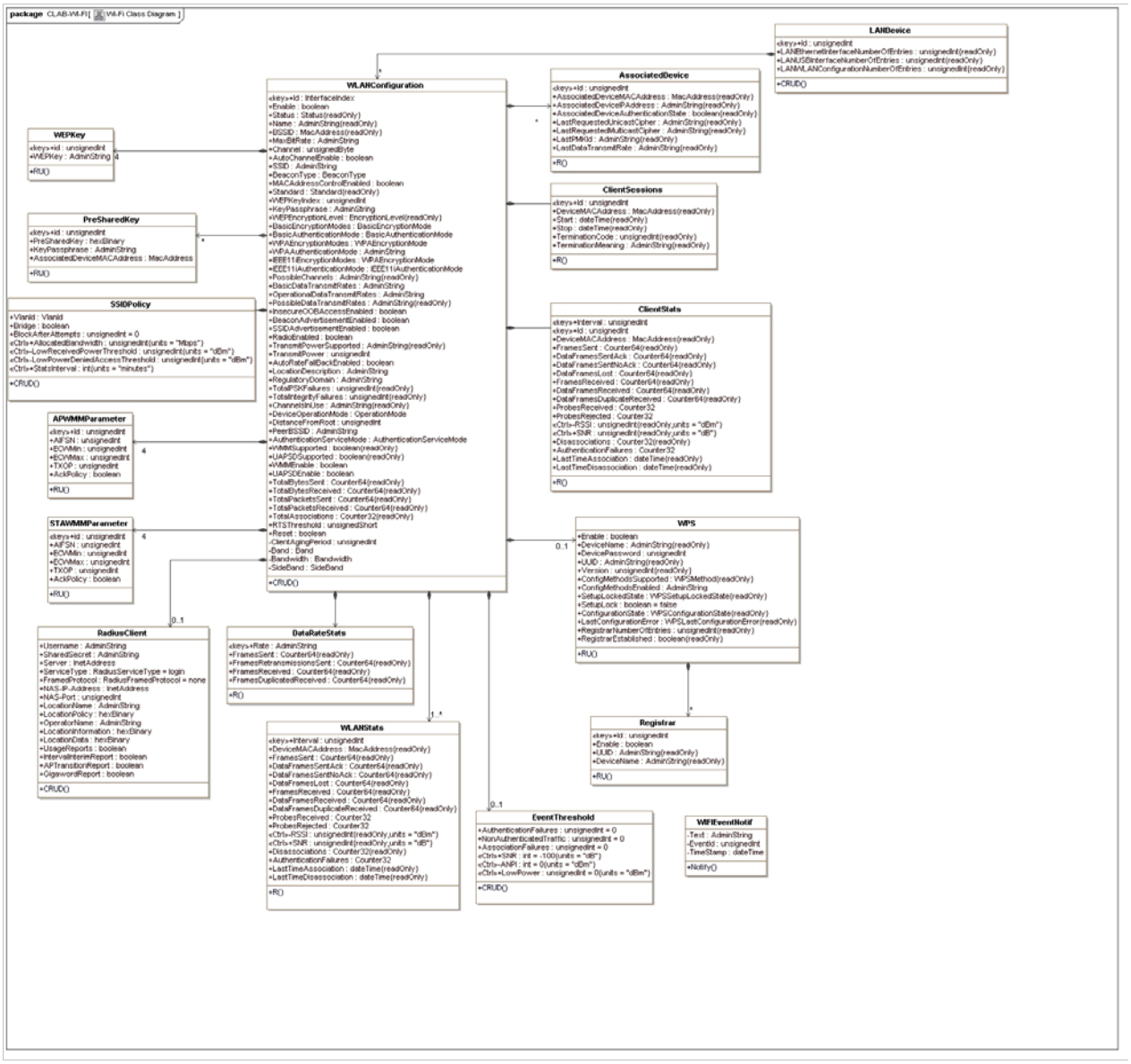

Figure 5 - Object Model Class Diagram

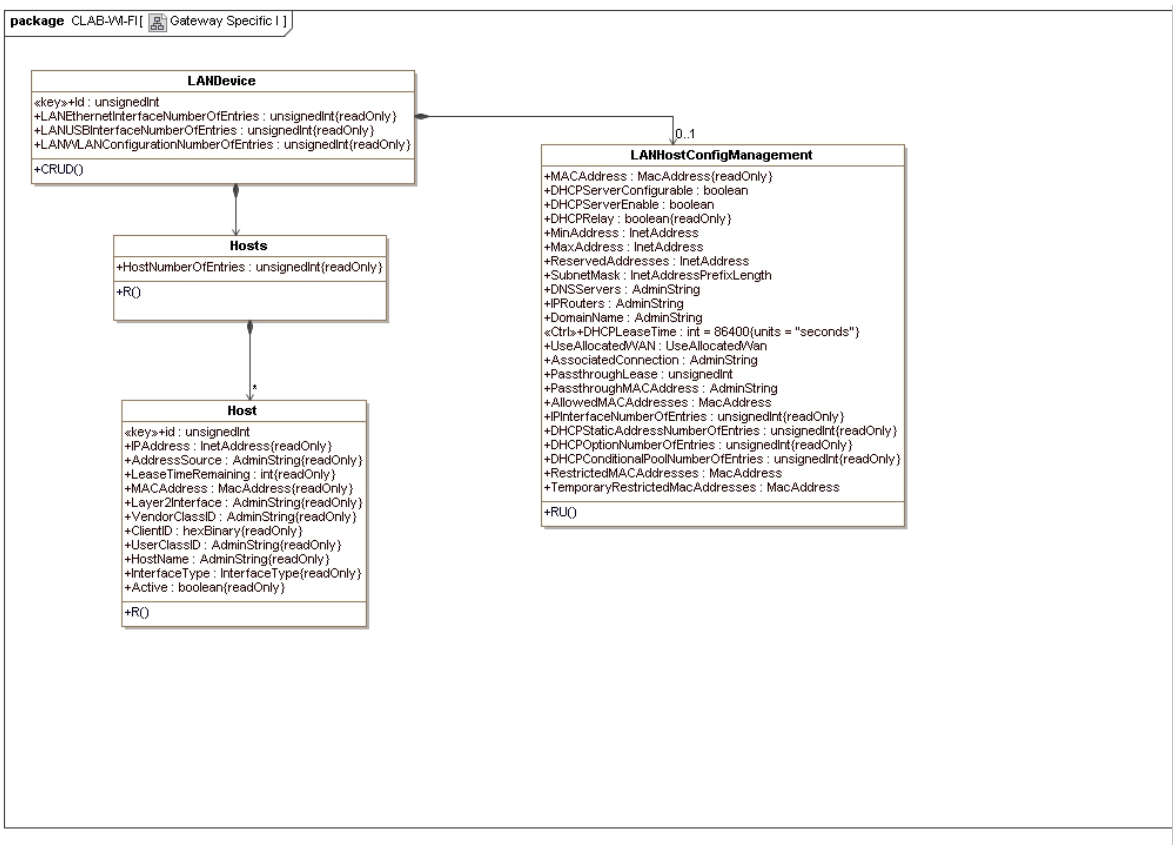

Figure 6 - LAN Host Class Diagram

A.2.3 Object Model Description

A.2.3.1 *LANHostConfigManagement Object*

The LANHostConfigManagement Object is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.

- Object Operations:

None

Table 6 - LANHostConfigManagement Object

Attribute Name	Type	Access	Type Constraints	Units	Default
MACAddress	MacAddress	R			
DHCPServerConfigurable	boolean	RU			
DHCPServerEnable	boolean	RU			
DHCPRelay	boolean	R			
MinAddress	InetAddress	RU			
MaxAddress	InetAddress	RU			
ReservedAddresses	InetAddress	RU			
SubnetMask	InetAddressPrefixLength	RU			

Attribute Name	Type	Access	Type Constraints	Units	Default
DNSServers	AdminString	RU			
IPRouters	AdminString	RU			
DomainName	AdminString	RU			
DHCPLeaseTime	int	RU		seconds	86400
UseAllocatedWAN	Enum	RU	Normal(1),UseAllocatedSubnet(2),Passthrough(3),		
AssociatedConnection	AdminString	RU			
PassthroughLease	unsignedInt	RU			
PassthroughMACAddress	AdminString	RU			
AllowedMACAddresses	MacAddress	RU			
IPInterfaceNumberOfEntries	unsignedInt	R			
DHCPStaticAddressNumberOfEntries	unsignedInt	R			
DHCPOptionNumberOfEntries	unsignedInt	R			
DHCPConditionalPoolNumberOfEntries	unsignedInt	R			
RestrictedMACAddresses	MacAddress	RU			
TemporaryRestrictedMacAddresses	MacAddress	RU			

Please refer to [TR-098] for the definition of the parameters listed in Table 6 above.

A.2.3.2 *WLANConfiguration Object*

This object models an [802.11] LAN connection on the device.

- Object Operations:

CRUD (Create, Read, Update, Delete): There are two types of instances to representing Wi-Fi interfaces:

1. Interfaces that corresponds to physical Radios. This corresponds to the 802.11 transmitter(s) and receiver(s) and processing resources that offers one or more Basic Service Sets on a particular channel. Those instances are not user created but reported by the Wi-Fi GW for users to configuration and monitoring.
2. Interfaces that correspond to SSID Wi-Fi sub-interfaces correspond to the virtual access points defined on top of a Wi-Fi radio. Each SSID associated with a Wi-Fi Radio determines a virtual access point. The operator creates those instances for a given Wi-Fi radio to properly reuse the data model from [TR-098].

This data model requires the following two constraints:

1. Associations of radios and virtual access points are derived from the Id attribute Radio interfaces. Ids are fixed and their values are in the form '1XX00'; where XX is in the range 0..99.
2. SSID Wi-Fi interfaces for a particular Radio with id= '1XX00', have an Id attribute in the form '1XXYY' with YY in the range 1..99. The interface 1XX00, even though is not a Wi-Fi Sub-interface, constitutes a virtual access and can represent the minimal possible configuration (a single BSS for a Wi-Fi radio interface).
3. Access to write attributes values depends on the instance being an interface or a sub-interface. The Wi-Fi interface instance determines the PHY and transmission characteristics of its own SSID and all other SSID Wi-Fi sub-interfaces associated with the radio. Since a Wi-Fi interface is also a virtual AP, all writable parameters are settable at this level. For a SSID Wi-Fi sub-interface, the configurable parameters are those that are not radio specific. Setting radio specific parameters at the sub-interface level could cause conflict with the radio interface or other sub-interfaces.

Therefore, the Wi-Fi GW ignores radio specific parameters when set at the sub-interface level without rejecting the set operations (events and exceptions may be generated). Radio specifics that apply only to the physical interface are: Basic Service Set Identifier (BSSID), Channel, l AutoChannelEnable, Standard, PossibleChannels, BasicDataTransmitRates, OperationalDataTransmitRates, PossibleDataTransmitRates, RadioEnabled, TransmitPowerSupported, TransmitPower, AutoRateFallBackEnabled, LocationDescription, RegulatoryDomain, ChannelsInUse, DeviceOperationMode, DistanceFromRoot, WMMSupported, WMMEnable, and UAPSDEnable.

The WLANConfiguration Object is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.

Table 7 - WLANConfiguration Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Id	InterfaceIndex	key			
Enable	boolean	CRUD			
Status	Enum	R	Up(1) Error(2) Disabled(3)		
Name	AdminString	R			
BSSID	MacAddress	R			
MaxBitRate	AdminString	CRUD			
Channel	unsignedByte	CRUD			
AutoChannelEnable	boolean	CRUD			
SSID	AdminString	CRUD			
BeaconType	Enum	CRUD	None(1) Basic(2) WPA(3) 11i(4) BasicandWPA(5) Basicand11i(6) WPAand11i(7) BasicandWPAand11iand(8)		
MACAddressControlEnabled	boolean	CRUD			
Standard	Enum	R	a(1) b(2) g(3) gOnly(4) n(5)		
WEPKeyIndex	unsignedInt	CRUD			
KeyPassphrase	AdminString	CRUD			
WEPEncryptionLevel	Enum	R	Disable(1) 40bit(2) 104bit(3)		
BasicEncryptionModes	Enum	CRUD	None(1) WEPEncryption(2)		
BasicAuthenticationMode	Enum	CRUD	None(1) EAPAuthentication(2) SharedAuthentication(3)		

Attribute Name	Type	Access	Type Constraints	Units	Default
WPAEncryptionModes	Enum	CRUD	WEPEncryption(1) TKIPEncryption(2) WEPandTKIPEncryption(3) AESEncryption(4) WEPandAESEncryption(5) TKIPandAESEncryption(6) WEPandTKIPandAESEncryption(7)		
WPAAuthenticationMode	AdminString	CRUD			
IEEE11iEncryptionModes	Enum	CRUD	WEPEncryption(1) TKIPEncryption(2) WEPandTKIPEncryption(3) AESEncryption(4) WEPandAESEncryption(5) TKIPandAESEncryption(6) WEPandTKIPandAESEncryption(7)		
IEEE11iAuthenticationMode	Enum	CRUD	PSKAuthentication(1) EAPAuthentication(2) EAPandPSKAuthentication(3)		
PossibleChannels	AdminString	R			
BasicDataTransmitRates	AdminString	CRUD			
OperationalDataTransmitRates	AdminString	CRUD			
PossibleDataTransmitRates	AdminString	R			
InsecureOOBAccessEnabled	boolean	CRUD			
BeaconAdvertisementEnabled	boolean	CRUD			
SSIDAdvertisementEnabled	boolean	CRUD			
RadioEnabled	boolean	CRUD			
TransmitPowerSupported	AdminString	R			
TransmitPower	unsignedInt	CRUD			
AutoRateFallBackEnabled	boolean	CRUD			
LocationDescription	AdminString	CRUD			
RegulatoryDomain	AdminString	CRUD			
TotalPSKFailures	unsignedInt	R			
TotalIntegrityFailures	unsignedInt	R			
ChannelsInUse	AdminString	R			
DeviceOperationMode	Enum	CRUD	InfrastructureAccessPoint(1) WirelessBridge(2) WirelessRepeater(3) WirelessStation(4)		
DistanceFromRoot	unsignedInt	CRUD			
PeerBSSID	AdminString	CRUD			
AuthenticationServiceMode	Enum	CRUD	None(1) LinkAuthentication(2) RadiusClient(3)		
WMMSupported	boolean	R			

Attribute Name	Type	Access	Type Constraints	Units	Default
UAPSDSupported	boolean	R			
WMMEnable	boolean	CRUD			
UAPSDEnable	boolean	CRUD			
TotalBytesSent	Counter64	R			
TotalBytesReceived	Counter64	R			
TotalPacketsSent	Counter64	R			
TotalPacketsReceived	Counter64	R			
TotalAssociations	Counter32	R			
RTSThreshold	unsignedShort	CRUD			
Reset	boolean	CRUD			
ClientAgingPeriod	unsignedInt	CRUD			
Band	Enum	CRUD	2.4Ghz(1) 5Ghz(2)		
Bandwidth	Enum	CRUD	20Hhz(1) 40Mhz(2)		
SideBand	Enum	CRUD	lower(1) upper(2)		

- Id

The key for a unique instance of this object. This value corresponds to the Interface Index (i.e., ifIndex in SMIv2).

- Enable

Enable is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.Enable.

- Status

Status is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}Status.

- Name

Name is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.Name.

- BSSID

The BSSID parameter is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.BSSID

- MaxBitRate

MaxBitRate is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.MaxBitRate.

- Channel

The Channel parameter is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.Channel.

- AutoChannelEnable

AutoChannelEnable is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AutoChannelEnable.

- SSID

The SSID parameter is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.SSID.

- BeaconType

BeaconType is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.BeaconType.

- MACAddressControlEnabled

MACAddressControlEnabled is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.MACAddressControlEnabled.

- Standard

The Standard parameter is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.Standard.

- WEPKeyIndex

WEPKeyIndex is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WEPKeyIndex.

- KeyPassphrase

KeyPassphrase is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.KeyPassPhrase.

- WEPEncryptionLevel

WEPEncryptionLevel is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WEPEncryptionLevel.

- BasicEncryptionModes

BasicEncryptionModes is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.BasicEncryptionModes.

- BasicAuthenticationMode

BasicAuthenticationMode is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.BasicAuthenticationMode.

- WPAEncryptionModes

WPAEncryptionModes is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPAEncryptionModes.

- WPAAuthenticationMode

WPAAuthenticationMode is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPAAuthenticationMode.

- IEEE11iEncryptionModes

IEEEiEncryptionModes is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.IEEE11EncryptionModes.

- IEEE11iAuthenticationMode

IEEEiAuthenticationMode is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.IEEE11iAuthenticationMode.

- PossibleChannels

PossibleChannels is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.PossibleChannels.

- BasicDataTransmitRates

BasicDataTransmitRates is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.BasicDataTransmitRates.

- OperationalDataTransmitRates

OperationalDataTransmitRates is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.OperationalDataTransmitRates.

- PossibleDataTransmitRates

PossibleDataTransmitRates is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.PossibleDataTransmitRates.

- InsecureOOBAccessEnabled

InsecureOOBAccessEnabled is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.InsecureOOBAccessEnabled.

- BeaconAdvertisementEnabled

BeaconAdvertisementEnabled is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.BeaconAdvertisementEnabled.

- SSIDAdvertisementEnabled

SSIDAdvertisementEnabled is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.SSIDAdvertisementEnabled.

- RadioEnabled

RadioEnabled is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.RadioEnabled.

- TransmitPowerSupported

TransmitPowerSupported is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.TransmitPowerSupported.

- TransmitPower

TransmitPower is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}TransmitPower.

- AutoRateFallBackEnabled

AutoRateFallBackEnabled is defined in [TR-098] as
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AutoRateFallBackEnabled.

- LocationDescription

LocationDescription is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.LocationDescription.

- RegulatoryDomain

RegulatoryDomain is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.RegulatoryDomain.

- TotalPSKFailures

TotalPSKFailures is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.TotalPSKFailures.

- TotalIntegrityFailures

TotalIntegrityFailures is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.TotalIntegrityFailures.

- ChannelsInUse

ChannelsInUse is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.ChannelInUse.

- DeviceOperationMode

DeviceOperationMode is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.DeviceOperationMode.

- DistanceFromRoot

DistanceFromRoot is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.DistanceFromRoot.

- PeerBSSID

PeerBSSID is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.PeerBSSID.

- AuthenticationServiceMode

AuthenticationServiceMode is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AuthenticationServiceMode.

- WMMSupported

WMMSupported is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WMMSupported.

- UAPSDSupported

UAPSDSupported is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AUPSDSupported.

- WMMEnable

WMMEnable is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WMMEnable.

- UAPSDEnable

UAPSDEnable is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.UAPSDEnable.

- TotalBytesSent

TotalBytesSent is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.TotalBytesSent.

- TotalBytesReceived

TotalBytesReceived is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.TotalBytesReceived.

- TotalPacketsSent

TotalPacketsSent is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.TotalPacketsSent.

- TotalPacketsReceived

TotalPacketsReceived is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.TotalPacketsReceived.

- TotalAssociations

TotalAssociations is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.TotalAssociations.

- RTSThreshold

RTSThreshold is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.RTSThreshold.

- Reset

The Reset parameter is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.Reset.

- ClientAgingPeriod

ClientAgingPeriod is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.ClientAgingPeriod.

- Band

The Band parameter determines which Band that the interface will be operating in. Possible values are '2.4GHz' and '5GHz'. The value '2.4GHz' is applicable to all values of Standard while the value '5GHz' is applicable to Standard='a' or 'n' only.

- Bandwidth

The Bandwidth parameter determines which Bandwidth that the interface will be operating in. Possible values are '20MHz' and '40MHz'. The value '20MHz' is applicable to all values of Standard while the value '40Hz' is applicable to Standard='n' only (indicating [802.11n] channel bonding).

- SideBand

The SideBand parameter determines which sideband the channel will operate in. Possible values are 'lower' and 'upper'. This object is applicable to Standard='n' with Bandwidth='40MHz' only.

A.2.3.3 *AssociatedDevice Object*

The AssociatedDevice object is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice{i}. The object is a table of the devices currently associated with the access point. The size of this table is given by WLAN-Configuration TotalAssociations. This object must be implemented for CPE that contain an 802.11 interface on the LAN side.

- Object Operations:

None

Table 8 - AssociatedDevice Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Id	unsignedInt	key			
AssociatedDeviceMACAddress	MacAddress	R			
AssociatedDeviceIPAddress	AdminString	R			
AssociatedDeviceAuthenticationState	boolean	R			
LastRequestedUnicastCipher	AdminString	R			
LastRequestedMulticastCipher	AdminString	R			
LastPMKId	AdminString	R			
LastDataTransmitRate	AdminString	R			

Please see [TR-098] for the definition of the parameters listed in Table 8.

- Id

The key that identifies a single client MAC Address.

A.2.3.4 *PreSharedKey Object*

The PreSharedKey object is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.PreSharedKey{i}.

- Object Operations:

None

Table 9 - PreSharedKey Object

Attribute Name	Type	Access	Type Constraints	Units	Default
id	unsignedInt	key			
PreSharedKey	hexBinary	RU	0|64		
KeyPassphrase	AdminString	RU	0..63		
AssociatedDeviceMACAddress	MacAddress	RU			

Please see is [TR-098] for the definition of the parameters listed in Table 9.

- id

The key for unique instance of this object.

A.2.3.5 *STAWMMParameter Object*

The STAWMMParamter object is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.STAWMMParameter.{i}.

- Object Operations:

None

Table 10 - STAWMMParameter Object

Attribute Name	Type	Access	Type Constraints	Units	Default
id	unsignedInt	key	2..15		
AIFSN	unsignedInt	RU	0..15		
ECWMin	unsignedInt	RU	0..15		
ECWMax	unsignedInt	RU	0..255		
TXOP	unsignedInt	RU			
AckPolicy	boolean	RU			

Please see [TR-098] for the definition of parameters listed in Table 10.

- id

The key for unique instance of this object.

A.2.3.6 *WEPKey Object*

The WEPKey Object is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WEPKey.{i}.

Table 11 - WEPKey Object

Attribute Name	Type	Access	Type Constraints	Units	Default
id	unsignedInt	key			
WEPKey	AdminString	RU			

Please see [TR-098] for the definition of the parameters listed in Table 11

- id

The key for unique instance of this object.

A.2.3.7 *Host Object*

The Host object is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.

- Object Operations:

None

Table 12 - Host Object

Attribute Name	Type	Access	Type Constraints	Units	Default
id	unsignedInt	key			
IPAddress	IPAddress	R			
AddressSource	AdminString	R			
LeaseTimeRemaining	int	R			
MACAddress	MacAddress	R			
Layer2Interface	AdminString	R			
VendorClassID	AdminString	R			
ClientID	hexBinary	R			
UserClassID	AdminString	R			
HostName	AdminString	R			
InterfaceType	Enum	R	Ethernet(1) USB(2) 802.11(3) HomePNA(4) HomePlug(5) MoCA(6)		
Active	boolean	R			

Please see [TR-098] for the definition of parameters listed in Table 12.

- id

The key for unique instance of this object.

A.2.3.8 *WLANStats Object*

The WLANStats object contains statistics for an 802.11 LAN interface on a CPE device. Note that these statistics refer to the link layer, not to the physical layer. Note that this object does not include the total byte and packet statistics, which are, for historical reasons, in the parent object.

- Object Operations:

None

Table 13 - WLANStats Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Interval	unsignedInt	key	0|24|48|96		
DeviceMACAddress	MacAddress	R			

Attribute Name	Type	Access	Type Constraints	Units	Default
FramesSent	Counter64	R			
DataFramesSentAck	Counter64	R			
DataFramesSentNoAck	Counter64	R			
DataFramesLost	Counter64	R			
FramesReceived	Counter64	R			
DataFramesReceived	Counter64	R			
DataFramesDuplicateReceived	Counter64	R			
ProbesReceived	Counter32	RU			
ProbesRejected	Counter32	RU			
RSSI	unsignedInt	R		dBm	
SNR	unsignedInt	R		dB	
Disassociations	Counter32	R			
AuthenticationFailures	Counter32	RU			
LastTimeAssociation	dateTime	R			
LastTimeDisassociation	dateTime	R			

- Interval

The Interval defines the interval of time where the measurements were accumulated. The interval of measurements is synchronized with the wall clock. The total number of intervals is based on a 24 hour period. For example, at an interval of 15 minutes, 96 intervals (1..96) are defined, at 30 minutes, 48 intervals (1..48) and 24 intervals (1..24) for 1 hour measurement interval. Devices with no capabilities to report measurements per interval will report the value 0 for the interval attribute of the unique statistics instance.

- Id

The Id is defined in [TR-098].

- DeviceMACAddress

The DeviceMACAddress is defined in [TR-098].

- FramesSent

FramesSent is the total number of frames transmitted out of the interface. For conventional 802.11 MAC ([802.11a], [802.11b], and [802.11g]), this counter corresponds to the total of MSDUs (MAC Service Data Unit) being transmitted. For High Throughput transmissions, this corresponds to the A-MSDU (Aggregation MSDU). The value of this counter may be reset to zero when the CPE is rebooted.

- DataFramesSentAck

DataFramesSentAck represents the total number of MSDU frames marked as duplicates and non duplicates acknowledged. The value of this counter may be reset to zero when the CPE is rebooted.

- DataFramesSentNoAck

DataFramesSentNoAck represent the total number of MSDU frames retransmitted out of the interface (i.e., marked as duplicate and non-duplicate) and not acknowledged but not including those defined in dataFramesLost. The value of this counter may be reset to zero when the CPE is rebooted.

- DataFramesLost

DataFramesLost represents the total number of MSDU frames retransmitted out of the interface that were not acknowledged and discarded for reaching max number of retransmissions. The value of this counter may be reset to zero when the CPE is rebooted.

- FramesReceived

FramesReceived presents the total number of frames received by the interface. For conventional 802.11 MAC ([802.11a], [802.11b], and [802.11g]), this counter corresponds to the total of MSDUs being transmitted. For High Throughput transmissions (n), this corresponds to A-MSDUs and MSDUs. The value of this counter may be reset to zero when the CPE is rebooted.

- DataFramesReceived

DataFramesReceived presents the total number of MSDU frames received and marked as non-duplicates. The value of this counter may be reset to zero when the CPE is rebooted.

- DataFramesDuplicateReceived

DataFramesDuplicateReceived represents the total number of duplicated frames received on this interface. The value of this counter may be reset to zero when the CPE is rebooted.

- ProbesReceived

ProbesReceived represents the total number of probes received by the Wi-Fi GW.

- ProbesRejected

ProbesRejected represents the total number of probes rejected by the Wi-Fi GW.

- RSSI

The Received Signal Strength indicator, RSSI parameter, is the energy observed at the antenna receiver for a current transmission.

- SNR

The Signal to Noise Ratio (SNR) parameter represents the strength of the signal compared to received noise.

- Disassociations

Disassociations represents the total number of client disassociations.

- AuthenticationFailures

AuthenticationFailures indicates the total number of authentication failures.

- LastTimeAssociation

The LastTimeAssociation parameter represents the last time when the client was previously associated.

- LastTimeDisassociation

The LastTimeDisassociation parameter represents the last time the client disassociated from the Wi-Fi interface. The all zeros value indicates the client is currently associated.

A.2.3.9 *Hosts Object*

The HOST object is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.Hosts.

- Object Operations:

None

Table 14 - Hosts Object

Attribute Name	Type	Access	Type Constraints	Units	Default
HostNumberOfEntries	unsignedInt	R			

Please see [TR-098] for the definition of the HostNumberOfEntries parameter.

A.2.3.10 *APWMMParameter Object*

The APWMMParameter object is defined in [TR-098] InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.APWWMMParameter.{i}.

Table 15 - APWMMParameter Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Id	unsignedInt	key			
AIFSN	unsignedInt	RU	2..15		
ECWMin	unsignedInt	RU	0..15		
ECWMax	unsignedInt	RU	0..15		
TXOP	unsignedInt	RU	0..255		
AckPolicy	boolean	RU			

Please see is defined in [TR-098] for the definition of parameters listed in Table 15.

- Id

The key for unique instance of this object.

A.2.3.11 *WPS Object*

The WPS object is defined in [TR-098] InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.

- Object Operations

RU: [WPS] can be enabled for the Wi-Fi interfaces and sub-interfaces. The [WPS] configuration on an interface applies to all its sub-interfaces. Individual sub-interface configuration overrides the interface setup for that sub-interface.

Table 16 - WPS Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Enable	boolean	RU			
DeviceName	AdminString	R			
DevicePassword	unsignedInt	RU			
UUID	AdminString	R			
Version	unsignedInt	R			
ConfigMethodsSupported	Enum	R	USBFlashDrive(1) Ethernet(2) Label(3) Display(4) ExternalNFCToken(5) IntegratedNFCToken(6) NFCInterface(7) PushButton(8) Keypad(9)		
ConfigMethodsEnabled	AdminString	RU			
SetupLockedState	Enum	R	Unlocked(1) LockedByLocalManagement(2) LockedByRemoteManagement(3) PINRetryLimitReached(4)		
SetupLock	boolean	RU			false
ConfigurationState	Enum	R	NotConfigured(1) Configured(2)		
LastConfigurationError	Enum	R	NoError(1) DecryptionCRCFailure(2) SignalTooWeak(3) CouldntConnectToRegistrar(4) RogueActivitySuspected(5) DeviceBusy(6) SetupLocked(7) MessageTimeout(8) RegistrationSessionTimeout(9) DevicePasswordAuthFailure(10)		
RegistrarNumberOfEntries	unsignedInt	R			
RegistrarEstablished	boolean	R			

Please see [TR-098] for a definition of the parameters listed in Table 16.

A.2.3.12 *LANDevice Object*

The LANDevice object is defined in [TR-098] as InternetGatewayDevice.LANDevice.{i}.

- Object Operations:

CRUD: The IP Interfaces are modeled as IP Forwarding interfaces types (i.e., IANA ifType 'ipForward').

Table 17 - LANDevice Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Id	unsignedInt	key			
LANEthernetInterfaceNumberOfEntries	unsignedInt	R			
LANUSBInterfaceNumberOfEntries	unsignedInt	R			
LANWLANConfigurationNumberOfEntries	unsignedInt	R			

Please see [TR-098] for a definition of the parameters listed in Table 17.

- Id

The key for unique instance of this object. This value corresponds to the Interface Index (i.e., ifIndex in SMIv2).

A.2.3.13 *Registrar Object*

The Registrar object is defined in [TR-098] InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.Registrar{i}.

- Object Operations:

None

Table 18 - Registrar Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Id	unsignedInt	key			
Enable	boolean	RU			
UUID	AdminString	R			
DeviceName	AdminString	R			

Please see [TR-098] for the definition of the parameters listed in Table 18.

- Id

The key for unique instance of this object.

A.2.3.14 *SSIDPolicy Object*

The SSIDPolicy object defines the configuration of policies and behaviors controlled at the Wi-Fi interface or Wi-Fi SSID subinterface level.

- Object Operations:

None

Table 19 - SSIDPolicy Object

Attribute Name	Type	Access	Type Constraints	Units	Default
VlanId	VlanId	CRUD			
Bridge	boolean	CRUD			
BlockAfterAttempts	unsignedInt	CRUD			0
AllocatedBandwidth	unsignedInt	CRUD		Mbps	
LowReceivedPowerThreshold	unsignedInt	CRUD		dBm	

Attribute Name	Type	Access	Type Constraints	Units	Default
LowPowerDeniedAccessThreshold	unsignedInt	CRUD		dBm	
StatsInterval	int	CRUD	-1|0|10|30|60	minutes	0

- VlanId

The VlanID parameter presents the VLan Identifier per [802.1Q] that is mapped to the SSID.

- Bridge

The value 'true' for the Bridge parameter indicates that the SSID is in bridge mode, otherwise the SSIS is in router mode.

- BlockAfterAttempts

The BlockAfterAttempts parameter indicates the maximum number of attempts a client is allowed to attempt registration before being denied access. The value zero indicates no connection attempts restrictions.

- AllocatedBandwidth

The AllocatedBandwidth parameter indicates the maximum bandwidth reserved for a particular interface. The value zero indicates no limit.

- LowReceivedPowerThreshold

The LowReceivedPowerThreshold parameter indicates the power level threshold to generate an event whenever the station received power is below the threshold.

- LowPowerDeniedAccessThreshold

The LowPowerDeniedAccessThreshold parameter indicates the power level threshold to deny client association whenever the station received power is below the threshold.

- StatsInterval

The StatsInterval parameter indicates the interval value to collect per-interval statistics.

The value 0 indicates no interval and values reported are snapshots at the time of the request.

A.2.3.15 *DataRateStats Object*

The DataRateStats object contains statistics for each speed rate of an 802.11 LAN interface. The device is only required to report counters at the 802.11 interface level and not discriminate traffic per SSID Wi-Fi sub-interface.

- Object Operations:

None

Table 20 - DataRateStats Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Rate	AdminString	key			
FramesSent	Counter64	R			
FramesRetransmissionsSent	Counter64	R			
FramesReceived	Counter64	R			
FramesDuplicatedReceived	Counter64	R			

- Rate

The Rate key represents the data speed for the statistics collected. The value is reported in ASCII characters in units of Mbps.

- FramesSent

The FramesSent parameter indicates the total number of frames transmitted out of the interface (not marked as duplicated). The value of this counter may be reset to zero when the CPE is rebooted.

- FramesRetransmissionsSent

The FramesRetransmissionSent parameter indicates the total number of frames retransmitted out of the interface (marked as duplicated). The value of this counter may be reset to zero when the CPE is rebooted.

- FramesReceived

The FramesReceived parameter indicates the total number of frames received on this interface (not marked as duplicated). The value of this counter may be reset to zero when the CPE is rebooted.

- FramesDuplicatedReceived

The FramesDuplicatedReceived parameter indicates the total number of duplicated frames received on this interface. The value of this counter may be reset to zero when the CPE is rebooted.

A.2.3.16 *RadiusClient Object*

The RadiusClient object is used configure a RADIUS client on the Wi-Fi GW in order to support subscriber authentication, admission and accounting control signaling.

- Object Operations:

None

Table 21 - RadiusClient Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Username	AdminString	CRUD	0..128		
SharedSecret	AdminString	CRUD			
Server	InetAddress	CRUD			
ServiceType	Enum	CRUD	login(1) framed(2)		
FramedProtocol	Enum	CRUD	none(1) ppp(2) slip(3) arap(4) gprs-pdp(5)		
NAS-IP-Address	InetAddress	CRUD			
NAS-Port	unsignedInt	CRUD			
LocationPolicy	hexBinary	CRUD			
OperatorName	AdminString	CRUD			
LocationInformation	hexBinary	CRUD			

Attribute Name	Type	Access	Type Constraints	Units	Default
LocationData	hexBinary	CRUD			
UsageReports	boolean	CRUD			
IntervalInterimReport	boolean	CRUD			
APTransitionReport	boolean	CRUD			
GigawordReport	boolean	CRUD			

- Username

The Username parameter contains the username for access authentication.

- SharedSecret

The SharedSecret parameter contains a passphrase for the Radius client. Reading this value returns return an empty string.

- Server

The Server parameter indicates the RADIUS Server IP or FQDN.

- ServiceType

The ServiceType parameter indicates the type of service to use in the Access-Request as a hint for the type of service to use in the connection.

- FramedProtocol

The FramedProtocol parameter indicates the framing to be used if ServiceType is 'framed'.

- NAS-IP-Address

The NAS-IP-Address parameter corresponds to the RADIUS attribute NAS-IP-Address used in Access request packets. If not specified, the local hostname of the RADIUS client is used.

- NAS-Port

The NAS-Port parameter corresponds to the RADIUS NAS-Port attribute. Port 17 is used for Cable and 19 for 802.11 Authentication.

- LocationPolicy

The LocationPolicy corresponds to the string value of the RADIUS Basic-Location-Policy-Rules attribute per [RFC 5580].

- OperatorName

The OperatorName parameter corresponds to the string value of the RADIUS Operator-Name attribute per [RFC 5580].

- LocationInformation

The LocationInformation parameter corresponds to the string value of the RADIUS Location-Information attribute per [RFC 5580].

- LocationData

The Location Data parameter corresponds to the string value of the RADIUS LocationData attribute per [RFC 5580].

- UsageReports

The UsageReports parameter indicates whether the client send usage data ('true') or not ('false').

- IntervalInterimReport

The IntervalInterimReport parameter indicates whether the client sends Interim reports at periodic time intervals. A value of ('true') indicates Interim reports are sent based upon a periodic time interval.

- APTransitionReport

A (‘true’) value for the APTransitionReport parameter indicates the client sends Interim reports when the stations transitions to a different Access point.

- GigawordReport

A (‘true’) value for Gigaword Report indicates the client sends Interim reports when the 32-bit counters rollover.

A.2.3.17 *ClientStats Object*

The ClientStats object contains accumulative statistics for each client station served by the Wi-Fi GW. A station is reported only after it is associated for the first time.

- Object Operations:

R: Aging instances is vendor specific but expected to remain if possible, however, clients with At active current associations have priority over disassociated clients. There are no persistent requirements for this object. This object supports at least the greater between 30 and the maximum number of simultaneous associated clients.

Table 22 - ClientStats Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Interval	unsignedInt	key	0|24|48|96		
Id	unsignedInt	key			
DeviceMACAddress	MacAddress	R			
FramesSent	Counter64	R			
DataFramesSentAck	Counter64	R			
DataFramesSentNoAck	Counter64	R			
DataFramesLost	Counter64	R			
FramesReceived	Counter64	R			
DataFramesReceived	Counter64	R			
DataFramesDuplicateReceived	Counter64	R			
ProbesReceived	Counter32	RU			
ProbesRejected	Counter32	RU			
RSSI	unsignedInt	R		dBm	

Attribute Name	Type	Access	Type Constraints	Units	Default
SNR	unsignedInt	R		dB	
Disassociations	Counter32	R			
AuthenticationFailures	Counter32	RU			
LastTimeAssociation	dateTime	R			
LastTimeDisassociation	dateTime	R			

- Interval

The Interval parameter indicates when the measurements were accumulated. The interval of measurements is synchronized with the wall clock. The total number of intervals is based on a 24 hour period. At an interval of 15 minutes 96 intervals (1..96) are defined, at 30 minutes, 48 intervals (1..48) and 24 intervals (1..24) for 1 hour measurement interval. Devices with no capable to report measurements per interval will report the value 0 for the interval attribute.

- Id

The Id key identifies a single client MAC Address.

- DeviceMACAddress

The DeviceMACAddress parameter indicates the MAC address of an associated client device.

- FramesSent

The FramesSent parameter indicates the total number of frames transmitted out of the interface. For conventional 802.11 MAC ([802.11a], [802.11b], and [802.11g]) this counter corresponds to the total of MSDUs being transmitted. For High Throughput transmissions this corresponds to the A-MSDU. The value of this counter may be reset to zero when the CPE is rebooted.

- DataFramesSentAck

The DataFramesSentAck parameter indicates the total number of MSDU frames marked as duplicates and non duplicates acknowledged. The value of this counter may be reset to zero when the CPE is rebooted.

- DataFramesSentNoAck

The DataFramesSentNoAck parameter indicates the total number of MSDU frames retransmitted out of the interface (i.e., marked as duplicate and non-duplicate) and not acknowledged, but does not exclude those defined in the DataFramesLost parameter. The value of this counter may be reset to zero when the CPE is rebooted.

- DataFramesLost

The DataFramesLost parameter indicates the total number of MSDU frames retransmitted out of the interface that were not acknowledged and discarded for reaching max number of retransmissions. The value of this counter may be reset to zero when the CPE is rebooted.

- FramesReceived

The FramesReceived parameter indicates the total number of frames received by the Wi-Fi interface. For conventional 802.11 MAC ([802.11a], [802.11b], and [802.11g]) this counter corresponds to the total of MSDUs being transmitted. For High Throughput transmissions (n), this corresponds to A-MSDUs and MSDUs. The value of this counter may be reset to zero when the CPE is rebooted.

- DataFramesReceived

The DataFramesReceived parameter indicates the total number of MSDU frames received and marked as non-duplicates. The value of this counter may be reset to zero when the CPE is rebooted.

- DataFramesDuplicateReceived

The DataFramesDuplicateReceived parameter indicates the total number of duplicated frames received on this interface. The value of this counter may be reset to zero when the CPE is rebooted.

- ProbesReceived

The ProbesReceived parameter indicates the total number of probes received.

- ProbesRejected

The ProbesRejected parameter indicates the total number of probes rejected.

- RSSI

The Received Signal Strength Indicator, RSSI, parameter is the energy observed at the antenna receiver for a current transmission.

- SNR

The signal to Noise Ratio (SNR) parameter indicates the signal strength received from a client compared to the noise received.

- Disassociations

The Disassociations parameter indicates the total number of client disassociations.

- AuthenticationFailures

The AuthenticationFailures parameter indicates the total number of authentication failures.

- LastTimeAssociation

The LastTimeAssociation parameter indicates the last time the client was associated.

- LastTimeDisassociation

The LastTimeDisassociation parameter indicates the last time the client disassociated from the interface. The all zeros value indicates the client is currently associated.

A.2.3.18 *ClientSessions Object*

The ClientSessions object represents the current and closed sessions (association connections). When the maximum number of instances is reached, the oldest closed session instance is replaced by a newly created client association.

- Object Operations:

None

Table 23 - ClientSessions Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Id	unsignedInt	key			
DeviceMACAddress	MacAddress	R			

Attribute Name	Type	Access	Type Constraints	Units	Default
Start	dateTime	R			
Stop	dateTime	R			
TerminationCode	unsignedInt	R			
TerminationMeaning	AdminString	R			

- Id

The Id key identifies a single client MAC Address.

- DeviceMACAddress

The DeviceMACAddress parameter indicates the MAC address of an associated client device.

- Start

The Start parameter indicates the time when the session started.

- Stop

The Stop parameter indicates the time when the session ended. When the session is active, the value reported is all zeros.

- TerminationCode

The TerminationCode parameter indicates the Reason Code or the Status Code that lead to ending the association of the station. Reason Code and Status Code overlap. The context of the type of termination is provided by the TerminationMeaning attribute. The value zero indicates the session is active.

- TerminationMeaning

The TerminationMeaning parameter indicates the meaning of the Reason Code or Status Code for the ended session. The zero-length string is used when the instance corresponds to an active session.

A.2.3.19 *WIFIEventNotif Object*

This object represents the Wi-Fi GW notification object.

- Object Operations:

None

Table 24 - WIFIEventNotif Object

Attribute Name	Type	Access	Type Constraints	Units	Default
Text	AdminString	Notify			
EventId	unsignedInt	Notify			
TimeStamp	dateTime	Notify			

- Text

This attribute represents the Event Message of the event.

- EventId

The identifier of the event

- TimeStamp

Date and Time when the event was generated (not the time when the event was dispatched).

A.2.3.20 *EventThreshold Object*

This EventsThreshold object represents the threshold levels applied to certain events per Wi-Fi SSID interface and sub-interfaces. The value 0 indicates no threshold, and events of this type are not generated.

- Object Operations:

CRUD: The absence of an instance for an interface or sub interface indicates the events on that interface are not generated.

Table 25 - EventThreshold Object

Attribute Name	Type	Access	Type Constraints	Units	Default
AuthenticationFailures	unsignedInt	CRUD			0
NonAuthenticatedTraffic	unsignedInt	CRUD			0
AssociationFailures	unsignedInt	CRUD			0
SNR	int	CRUD		dB	-100
ANPI	int	CRUD		dBm	0
LowPower	unsignedInt	CRUD		dBm	0

- AuthenticationFailures

The AuthenticationFailures parameter indicates the number of authentication failures a station produces to generate the event. The value 0 indicates no threshold and events of this type are generated.

- NonAuthenticatedTraffic

The NonAuthenticatedTraffic parameter represents the number of non-authenticated messages received from a station to generate an event. The value 0 indicates no threshold, and events of this type are generated.

- AssociationFailures

The AssociationFailures indicates the number of association failures from a station to generate an event.

- SNR

The SNR parameter indicates the threshold to report SNR. The value -100 indicates no threshold, and events of this type are not generated.

- ANPI

The ANPI parameter indicates the threshold to report the Average Noise plus Interference. The value -1 indicates no threshold, and events of this type are not generated.

- LowPower

The LowerPower parameter indicates the threshold to report Disassociation due to low power. The Wi-Fi GW should refuse associations when the power level is below this RSSI level. The value -1 indicates no threshold, and events of this type are not generated.

A.2.4 CLAB-WIFI-MIB

```
CLAB-WIFI-MIB DEFINITIONS ::= BEGIN
IMPORTS
    MODULE-IDENTITY,
    OBJECT-TYPE,
    NOTIFICATION-TYPE,
    Unsigned32,
    Integer32,
    Counter32,
    Counter64
                        FROM SNMPv2-SMI
    OBJECT-GROUP,
    MODULE-COMPLIANCE,
    NOTIFICATION-GROUP
                        FROM SNMPv2-CONF
    SnmpAdminString
                        FROM SNMP-FRAMEWORK-MIB

    MacAddress,
    DateAndTime,
    TruthValue,
    RowStatus
                        FROM SNMPv2-TC

    InetAddress,
    InetAddressPrefixLength

                        FROM INET-ADDRESS-MIB
    InterfaceIndex
                        FROM IF-MIB

    VlanId
                        FROM Q-BRIDGE-MIB

    clabProjWireless
                        FROM CLAB-DEF-MIB;

             clabWIFIMib MODULE-IDENTITY

    LAST-UPDATED "201007290000Z" -- July 29, 2010

    ORGANIZATION "Cable Television Laboratories, Inc."
    CONTACT-INFO
            "Broadband Network Services
             Cable Television Laboratories, Inc.
             858 Coal Creek Circle,
             Louisville, CO 80027, USA
             Phone: +1 303-661-9100
             Email: mibs@cablelabs.com"
     DESCRIPTION
            "This MIB module contains the management objects
             for the Wi-Fi interface."
     REVISION "201007290000Z" -- July 29, 2010
     DESCRIPTION
             "Initial version, published as part of the CableLabs
             Wi-Fi Provisioning Framework Specification
             WR-SP-WiFi-MGMT-I01-100729
             Copyright 2010 Cable Television Laboratories, Inc.
             All rights reserved."


    ::= { clabProjWireless 1 }

-- Textual Conventions
```

```
-- Object Definitions
clabWIFINotifications OBJECT IDENTIFIER ::= { clabWIFIMib 0 }
clabWIFINotificationsObjects OBJECT IDENTIFIER ::= { clabWIFINotifications 2 }
clabWIFIObjects OBJECT IDENTIFIER ::= { clabWIFIMib 1 }


-- Notifications
clabWIFIWIFIEventNotif NOTIFICATION-TYPE
    OBJECTS {
        clabWIFIWIFIEventNotifText,
        clabWIFIWIFIEventNotifEventId,
        clabWIFIWIFIEventNotifTimeStamp
    }
    STATUS current
    DESCRIPTION
        "A notification to report Wi-fi related events."
    ::= { clabWIFINotifications 1 }

clabWIFIWIFIEventNotifText    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
        "This attribute represents the Event Message of the event."
    ::= {clabWIFINotificationsObjects 1 }

clabWIFIWIFIEventNotifEventId    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
        "The identifier of the event"
    ::= {clabWIFINotificationsObjects 2 }

clabWIFIWIFIEventNotifTimeStamp    OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
        "Date and Time when the event was generated. (not the time when the event was
dispatched)."
    ::= {clabWIFINotificationsObjects 3 }

clabWIFILANHostConfigManagementTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFILANHostConfigManagementEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 1 }

clabWIFILANHostConfigManagementEntry    OBJECT-TYPE
    SYNTAX      ClabWIFILANHostConfigManagementEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFILANHostConfigManagementTable."
    INDEX {
            clabWIFILANDeviceId
          }
    ::= {clabWIFILANHostConfigManagementTable 1 }

ClabWIFILANHostConfigManagementEntry ::= SEQUENCE {
    clabWIFILANHostConfigManagementMACAddress
```

```
                MacAddress,
    clabWIFILANHostConfigManagementDHCPServerConfigurable
                TruthValue,
    clabWIFILANHostConfigManagementDHCPServerEnable
                TruthValue,
    clabWIFILANHostConfigManagementDHCPRelay
                TruthValue,
    clabWIFILANHostConfigManagementMinAddress
                InetAddress,
    clabWIFILANHostConfigManagementMaxAddress
                InetAddress,
    clabWIFILANHostConfigManagementReservedAddresses
                InetAddress,
    clabWIFILANHostConfigManagementSubnetMask
                InetAddressPrefixLength,
    clabWIFILANHostConfigManagementDNSServers
                SnmpAdminString,
    clabWIFILANHostConfigManagementIPRouters
                SnmpAdminString,
    clabWIFILANHostConfigManagementDomainName
                SnmpAdminString,
    clabWIFILANHostConfigManagementDHCPLeaseTime
                Integer32,
    clabWIFILANHostConfigManagementUseAllocatedWAN
                INTEGER,
    clabWIFILANHostConfigManagementAssociatedConnection
                SnmpAdminString,
    clabWIFILANHostConfigManagementPassthroughLease
                Unsigned32,
    clabWIFILANHostConfigManagementPassthroughMACAddress
                SnmpAdminString,
    clabWIFILANHostConfigManagementAllowedMACAddresses
                MacAddress,
    clabWIFILANHostConfigManagementIPInterfaceNumberOfEntries
                Unsigned32,
    clabWIFILANHostConfigManagementDHCPStaticAddressNumberOfEntries
                Unsigned32,
    clabWIFILANHostConfigManagementDHCPOptionNumberOfEntries
                Unsigned32,
    clabWIFILANHostConfigManagementDHCPConditionalPoolNumberOfEntries
                Unsigned32,
    clabWIFILANHostConfigManagementRestrictedMACAddresses
                MacAddress,
    clabWIFILANHostConfigManagementTemporaryRestrictedMacAddresses
                MacAddress
      }

clabWIFILANHostConfigManagementMACAddress    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.MACAddress"
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 1 }

clabWIFILANHostConfigManagementDHCPServerConfigurable    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.DHCPServerConfigurable."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
```

```
    ::= {clabWIFILANHostConfigManagementEntry 2 }

clabWIFILANHostConfigManagementDHCPServerEnable    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.DHCPServerEnable."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 3 }

clabWIFILANHostConfigManagementDHCPRelay    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.DHCPRelay."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 4 }

clabWIFILANHostConfigManagementMinAddress    OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.MinAddress."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 5 }

clabWIFILANHostConfigManagementMaxAddress    OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.MaxAddress."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 6 }

clabWIFILANHostConfigManagementReservedAddresses    OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.ReservedAddress."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."

    ::= {clabWIFILANHostConfigManagementEntry 7 }

clabWIFILANHostConfigManagementSubnetMask    OBJECT-TYPE
    SYNTAX      InetAddressPrefixLength
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.SubnetMask."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
```

```
    ::= {clabWIFILANHostConfigManagementEntry 8 }

clabWIFILANHostConfigManagementDNSServers    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.DNSServers"
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."

    ::= {clabWIFILANHostConfigManagementEntry 9 }

clabWIFILANHostConfigManagementIPRouters    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.IPRouters."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 10 }

clabWIFILANHostConfigManagementDomainName    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.DomainName."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 11 }

clabWIFILANHostConfigManagementDHCPLeaseTime    OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.DHCPLeaseTime."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    DEFVAL      { 86400 }
    ::= {clabWIFILANHostConfigManagementEntry 12 }

clabWIFILANHostConfigManagementUseAllocatedWAN    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          normal(1),useAllocatedSubnet(2),passthrough(3)
                         }
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.UseAllocatedWAN."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 13 }

clabWIFILANHostConfigManagementAssociatedConnection    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
```

```
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.AssociatedConnection."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 14 }

clabWIFILANHostConfigManagementPassthroughLease    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.PassThroughLease."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 15 }

clabWIFILANHostConfigManagementPassthroughMACAddress    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.PassThroughMacAddress."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 16 }

clabWIFILANHostConfigManagementAllowedMACAddresses    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.AllowedMACAddresses."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 17 }

clabWIFILANHostConfigManagementIPInterfaceNumberOfEntries    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.IPInterfaceNumberOfEntries
."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 18 }

clabWIFILANHostConfigManagementDHCPStaticAddressNumberOfEntries    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.DHCPStatucAddressNumberOfE
ntries."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 19 }

clabWIFILANHostConfigManagementDHCPOptionNumberOfEntries    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
```

```
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.DHCPOptionNumberOfEntries.
"
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 20 }

clabWIFILANHostConfigManagementDHCPConditionalPoolNumberOfEntries    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.DHCPConditionalPoolNumberO
fEntries."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 21 }

clabWIFILANHostConfigManagementRestrictedMACAddresses    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.RestrictedMACAddresses."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 22 }

clabWIFILANHostConfigManagementTemporaryRestrictedMacAddresses    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANHostConfigManagement.TemporaryRestrictedMacAddr
esses."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANHostConfigManagementEntry 23 }

clabWIFIWLANConfigurationTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIWLANConfigurationEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 2 }

clabWIFIWLANConfigurationEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIWLANConfigurationEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIWLANConfigurationTable."
    INDEX {
            clabWIFIWLANConfigurationId
          }
    ::= {clabWIFIWLANConfigurationTable 1 }

ClabWIFIWLANConfigurationEntry ::= SEQUENCE {
    clabWIFIWLANConfigurationId
```

```
            InterfaceIndex,
clabWIFIWLANConfigurationEnable
            TruthValue,
clabWIFIWLANConfigurationStatus
            INTEGER,
clabWIFIWLANConfigurationName
            SnmpAdminString,
clabWIFIWLANConfigurationBSSID
            MacAddress,
clabWIFIWLANConfigurationMaxBitRate
            SnmpAdminString,
clabWIFIWLANConfigurationChannel
            Unsigned32,
clabWIFIWLANConfigurationAutoChannelEnable
            TruthValue,
clabWIFIWLANConfigurationSSID
            SnmpAdminString,
clabWIFIWLANConfigurationBeaconType
            INTEGER,
clabWIFIWLANConfigurationMACAddressControlEnabled
            TruthValue,
clabWIFIWLANConfigurationStandard
            INTEGER,
clabWIFIWLANConfigurationWEPKeyIndex
            Unsigned32,
clabWIFIWLANConfigurationKeyPassphrase
            SnmpAdminString,
clabWIFIWLANConfigurationWEPEncryptionLevel
            INTEGER,
clabWIFIWLANConfigurationBasicEncryptionModes
            INTEGER,
clabWIFIWLANConfigurationBasicAuthenticationMode
            INTEGER,
clabWIFIWLANConfigurationWPAEncryptionModes
            INTEGER,
clabWIFIWLANConfigurationWPAAuthenticationMode
            SnmpAdminString,
clabWIFIWLANConfigurationIEEE11iEncryptionModes
            INTEGER,
clabWIFIWLANConfigurationIEEE11iAuthenticationMode
            INTEGER,
clabWIFIWLANConfigurationPossibleChannels
            SnmpAdminString,
clabWIFIWLANConfigurationBasicDataTransmitRates
            SnmpAdminString,
clabWIFIWLANConfigurationOperationalDataTransmitRates
            SnmpAdminString,
clabWIFIWLANConfigurationPossibleDataTransmitRates
            SnmpAdminString,
clabWIFIWLANConfigurationInsecureOOBAccessEnabled
            TruthValue,
clabWIFIWLANConfigurationBeaconAdvertisementEnabled
            TruthValue,
clabWIFIWLANConfigurationSSIDAdvertisementEnabled
            TruthValue,
clabWIFIWLANConfigurationRadioEnabled
            TruthValue,
clabWIFIWLANConfigurationTransmitPowerSupported
            SnmpAdminString,
clabWIFIWLANConfigurationTransmitPower
            Unsigned32,
clabWIFIWLANConfigurationAutoRateFallBackEnabled
            TruthValue,
clabWIFIWLANConfigurationLocationDescription
            SnmpAdminString,
clabWIFIWLANConfigurationRegulatoryDomain
            SnmpAdminString,
```

```
    clabWIFIWLANConfigurationTotalPSKFailures
                Unsigned32,
    clabWIFIWLANConfigurationTotalIntegrityFailures
                Unsigned32,
    clabWIFIWLANConfigurationChannelsInUse
                SnmpAdminString,
    clabWIFIWLANConfigurationDeviceOperationMode
                INTEGER,
    clabWIFIWLANConfigurationDistanceFromRoot
                Unsigned32,
    clabWIFIWLANConfigurationPeerBSSID
                SnmpAdminString,
    clabWIFIWLANConfigurationAuthenticationServiceMode
                INTEGER,
    clabWIFIWLANConfigurationWMMSupported
                TruthValue,
    clabWIFIWLANConfigurationUAPSDSupported
                TruthValue,
    clabWIFIWLANConfigurationWMMEnable
                TruthValue,
    clabWIFIWLANConfigurationUAPSDEnable
                TruthValue,
    clabWIFIWLANConfigurationTotalBytesSent
                Counter64,
    clabWIFIWLANConfigurationTotalBytesReceived
                Counter64,
    clabWIFIWLANConfigurationTotalPacketsSent
                Counter64,
    clabWIFIWLANConfigurationTotalPacketsReceived
                Counter64,
    clabWIFIWLANConfigurationTotalAssociations
                Counter32,
    clabWIFIWLANConfigurationRTSThreshold
                Unsigned32,
    clabWIFIWLANConfigurationReset
                TruthValue,
    clabWIFIWLANConfigurationClientAgingPeriod
                Unsigned32,
    clabWIFIWLANConfigurationBand
                INTEGER,
    clabWIFIWLANConfigurationBandwidth
                INTEGER,
    clabWIFIWLANConfigurationSideBand
                INTEGER
      }

clabWIFIWLANConfigurationId    OBJECT-TYPE
    SYNTAX      InterfaceIndex
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The key for a unique instance of this object.
        This value corresponds to the Interface Index (i.e., ifIndex in SMIv2)."
    ::= {clabWIFIWLANConfigurationEntry 1 }

clabWIFIWLANConfigurationEnable    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.Enable."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 2 }

clabWIFIWLANConfigurationStatus    OBJECT-TYPE
```

```
    SYNTAX      INTEGER  {
                          up(1),error(2),disabled(3)
                         }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.Status."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 3 }

clabWIFIWLANConfigurationName    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.Name."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 4 }

clabWIFIWLANConfigurationBSSID    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.BSSID."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 5 }

clabWIFIWLANConfigurationMaxBitRate    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.MaxBitRate."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 6 }

clabWIFIWLANConfigurationChannel    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.Channel."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 7 }

clabWIFIWLANConfigurationAutoChannelEnable    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.AutoChannelEnable."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
   ::= {clabWIFIWLANConfigurationEntry 8 }
```

```
clabWIFIWLANConfigurationSSID    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.SSID."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 9 }

clabWIFIWLANConfigurationBeaconType    OBJECT-TYPE
    SYNTAX      INTEGER  {

none(1),basic(2),wPA(3),value11i(4),basicandWPA(5),basicand11i(6),wPAand11i(7),basican
dWPAand11iand(8)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.BeaconType."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 10 }

clabWIFIWLANConfigurationMACAddressControlEnabled    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.MacAddressControlEnabled."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 11 }

clabWIFIWLANConfigurationStandard    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          a(1),b(2),g(3),gOnly(4),n(5)
                         }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.Standard."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 12 }

clabWIFIWLANConfigurationWEPKeyIndex    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.Index."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 13 }

clabWIFIWLANConfigurationKeyPassphrase    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
```

```
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.KeyPassPhrase."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 14 }

clabWIFIWLANConfigurationWEPEncryptionLevel    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          disable(1),value40bit(2),value104bit(3)
                         }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.WEPEncryptionLevel."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 15 }

clabWIFIWLANConfigurationBasicEncryptionModes    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          none(1),wEPEncryption(2)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.BasicEncryptionModes."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 16 }

clabWIFIWLANConfigurationBasicAuthenticationMode    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          none(1),eAPAuthentication(2),sharedAuthentication(3)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.BasicAuthenticationMode."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 17 }

clabWIFIWLANConfigurationWPAEncryptionModes    OBJECT-TYPE
    SYNTAX      INTEGER  {

wEPEncryption(1),tKIPEncryption(2),wEPandTKIPEncryption(3),aESEncryption(4),wEPandAESE
ncryption(5),tKIPandAESEncryption(6),wEPandTKIPandAESEncryption(7)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.WPAEncryptionModes."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 18 }

clabWIFIWLANConfigurationWPAAuthenticationMode    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.WPAAuthenticationMode."
```

```
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 19 }

clabWIFIWLANConfigurationIEEE11iEncryptionModes    OBJECT-TYPE
    SYNTAX      INTEGER  {

wEPEncryption(1),tKIPEncryption(2),wEPandTKIPEncryption(3),aESEncryption(4),wEPandAESE
ncryption(5),tKIPandAESEncryption(6),wEPandTKIPandAESEncryption(7)
                        }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.IEEE11iEncryptionModes."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 20 }

clabWIFIWLANConfigurationIEEE11iAuthenticationMode    OBJECT-TYPE
    SYNTAX      INTEGER  {

pSKAuthentication(1),eAPAuthentication(2),eAPandPSKAuthentication(3)
                        }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.IEEE11iAuthenticationMode."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 21 }

clabWIFIWLANConfigurationPossibleChannels    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.PossibleChannels."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 22 }

clabWIFIWLANConfigurationBasicDataTransmitRates    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.BasicDataTransmitRates."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 23 }

clabWIFIWLANConfigurationOperationalDataTransmitRates    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.OperationalDataRates."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 24 }

clabWIFIWLANConfigurationPossibleDataTransmitRates    OBJECT-TYPE
```

```
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.PossibleDataTransmitRates."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 25 }

clabWIFIWLANConfigurationInsecureOOBAccessEnabled    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.InsecureOOBAccessEnabled."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 26 }

clabWIFIWLANConfigurationBeaconAdvertisementEnabled    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.AdvertisementEnabled."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 27 }

clabWIFIWLANConfigurationSSIDAdvertisementEnabled    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.SSIDAdvertisementEnabled."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 28 }

clabWIFIWLANConfigurationRadioEnabled    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.RadioEnabled."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 29 }

clabWIFIWLANConfigurationTransmitPowerSupported    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.TransmitPowerSupported."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 30 }

clabWIFIWLANConfigurationTransmitPower    OBJECT-TYPE
    SYNTAX      Unsigned32
```

```
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.TransmitPower."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 31 }

clabWIFIWLANConfigurationAutoRateFallBackEnabled    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.RateFallBackEnabled."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 32 }

clabWIFIWLANConfigurationLocationDescription    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.LocationDescription."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 33 }

clabWIFIWLANConfigurationRegulatoryDomain    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.RegulatoryDomain."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 34 }

clabWIFIWLANConfigurationTotalPSKFailures    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.TotalPSKFailures."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 35 }

clabWIFIWLANConfigurationTotalIntegrityFailures    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.TotalIntegrityFailures."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 36 }

clabWIFIWLANConfigurationChannelsInUse    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
```

```
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.ChannelsInUse."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 37 }

clabWIFIWLANConfigurationDeviceOperationMode    OBJECT-TYPE
    SYNTAX      INTEGER  {

infrastructureAccessPoint(1),wirelessBridge(2),wirelessRepeater(3),wirelessStation(4)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.DeviceOperationMode."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 38 }

clabWIFIWLANConfigurationDistanceFromRoot    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.DistanceFromRoot."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 39 }

clabWIFIWLANConfigurationPeerBSSID    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.PeerBSSID."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 40 }

clabWIFIWLANConfigurationAuthenticationServiceMode    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          none(1),linkAuthentication(2),radiusClient(3)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.AuthenticationServiceMode."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 41 }

clabWIFIWLANConfigurationWMMSupported    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.WMMSupported."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 42 }
```

```
clabWIFIWLANConfigurationUAPSDSupported    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.AUPSDSupported."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 43 }

clabWIFIWLANConfigurationWMMEnable    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.WMMEnable."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 44 }

clabWIFIWLANConfigurationUAPSDEnable    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.UAPSDEnable."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 45 }

clabWIFIWLANConfigurationTotalBytesSent    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.TotalBytesSent."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 46 }

clabWIFIWLANConfigurationTotalBytesReceived    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.TotalBytesReceived."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 47 }

clabWIFIWLANConfigurationTotalPacketsSent    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.TotalPacketsSent."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 48 }
```

```
clabWIFIWLANConfigurationTotalPacketsReceived    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.TotalPacketsReceived."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 49 }

clabWIFIWLANConfigurationTotalAssociations    OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.TotalAssociations."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 50 }

clabWIFIWLANConfigurationRTSThreshold    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.RTSThreshold."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 51 }

clabWIFIWLANConfigurationReset    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.Reset."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 52 }

clabWIFIWLANConfigurationClientAgingPeriod    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANInterfaces.WLAN-
Configuration.{i}.ClientAgingPeriod."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWLANConfigurationEntry 53 }

clabWIFIWLANConfigurationBand    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          value2dot4Ghz(1),value5Ghz(2)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Determines which Band that the interface will be operating in. Possible
values are '2.4GHz' and '5GHz'. The value '2.4GHz' is applicable to all Standard,
while the value '5GHz' is applicable to Standard='a' or 'n' only."
    ::= {clabWIFIWLANConfigurationEntry 54 }
```

```
clabWIFIWLANConfigurationBandwidth    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          value20Hhz(1),value40Mhz(2)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Determines which Bandwidth that the interface will be operating in. Possible
values are '20MHz' and '40MHz'. The value '20MHz' is applicable to all Standard, while
the value '40Hz' is applicable to Standard='n' only (indicating 802.11n channel
bonding). "
    ::= {clabWIFIWLANConfigurationEntry 55 }

clabWIFIWLANConfigurationSideBand    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          lower(1),upper(2)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Determines which sideband the channel will operate in. Possible values are
'lower' and 'upper'. This object is applicable to Standard='n' with Bandwidth='40MHz'
only."
    ::= {clabWIFIWLANConfigurationEntry 56 }

clabWIFIAssociatedDeviceTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIAssociatedDeviceEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice{i}."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 3 }

clabWIFIAssociatedDeviceEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIAssociatedDeviceEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIAssociatedDeviceTable."
    INDEX {
           clabWIFIWLANConfigurationId,
           clabWIFIAssociatedDeviceId
          }
    ::= {clabWIFIAssociatedDeviceTable 1 }

ClabWIFIAssociatedDeviceEntry ::= SEQUENCE {
    clabWIFIAssociatedDeviceId
                 Unsigned32,
    clabWIFIAssociatedDeviceAssociatedDeviceMACAddress
                 MacAddress,
    clabWIFIAssociatedDeviceAssociatedDeviceIPAddress
                 SnmpAdminString,
    clabWIFIAssociatedDeviceAssociatedDeviceAuthenticationState
                 TruthValue,
    clabWIFIAssociatedDeviceLastRequestedUnicastCipher
                 SnmpAdminString,
    clabWIFIAssociatedDeviceLastRequestedMulticastCipher
                 SnmpAdminString,
    clabWIFIAssociatedDeviceLastPMKId
                 SnmpAdminString,
    clabWIFIAssociatedDeviceLastDataTransmitRate
                 SnmpAdminString
      }
```

```
clabWIFIAssociatedDeviceId    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The key that identifies a single client MAC Address."
    ::= {clabWIFIAssociatedDeviceEntry 1 }

clabWIFIAssociatedDeviceAssociatedDeviceMACAddress    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice{i}.MACAddre
ss."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAssociatedDeviceEntry 2 }

clabWIFIAssociatedDeviceAssociatedDeviceIPAddress    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice{i}.IPAddres
s."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAssociatedDeviceEntry 3 }

clabWIFIAssociatedDeviceAssociatedDeviceAuthenticationState    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice{i}.Authenti
cationState."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAssociatedDeviceEntry 4 }

clabWIFIAssociatedDeviceLastRequestedUnicastCipher    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice{i}.UnicastC
ipher."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAssociatedDeviceEntry 5 }

clabWIFIAssociatedDeviceLastRequestedMulticastCipher    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice{i}.Multicas
tCipher."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAssociatedDeviceEntry 6 }
```

```
clabWIFIAssociatedDeviceLastPMKId    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice{i}.LastPMKI
d."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAssociatedDeviceEntry 7 }

clabWIFIAssociatedDeviceLastDataTransmitRate    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.AssociatedDevice{i}.DataTran
smitRate."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAssociatedDeviceEntry 8 }

clabWIFIPreSharedKeyTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIPreSharedKeyEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.PreSharedKey{i}."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 4 }

clabWIFIPreSharedKeyEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIPreSharedKeyEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIPreSharedKeyTable."
    INDEX {
            clabWIFIWLANConfigurationId,
            clabWIFIPreSharedKeyid
          }
    ::= {clabWIFIPreSharedKeyTable 1 }

ClabWIFIPreSharedKeyEntry ::= SEQUENCE {
    clabWIFIPreSharedKeyid
                  Unsigned32,
    clabWIFIPreSharedKeyPreSharedKey
                  OCTET STRING,
    clabWIFIPreSharedKeyKeyPassphrase
                  SnmpAdminString,
    clabWIFIPreSharedKeyAssociatedDeviceMACAddress
                  MacAddress
      }

clabWIFIPreSharedKeyid    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The key for unique instance of this object."
    ::= {clabWIFIPreSharedKeyEntry 1 }
```

```
clabWIFIPreSharedKeyPreSharedKey    OBJECT-TYPE
    SYNTAX      OCTET STRING  (SIZE( 0|64 ))
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.PreSharedKey{i}.PreSharedKey
."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIPreSharedKeyEntry 2 }

clabWIFIPreSharedKeyKeyPassphrase    OBJECT-TYPE
    SYNTAX      SnmpAdminString  (SIZE( 0..63 ))
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.PreSharedKey{i}.KeyPassprase
."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIPreSharedKeyEntry 3 }

clabWIFIPreSharedKeyAssociatedDeviceMACAddress    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.PreSharedKey{i}.AssociatedDe
viceMACAddress."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIPreSharedKeyEntry 4 }

clabWIFISTAWMMParameterTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFISTAWMMParameterEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.STAWMMParameter.{i}."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 5 }

clabWIFISTAWMMParameterEntry    OBJECT-TYPE
    SYNTAX      ClabWIFISTAWMMParameterEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFISTAWMMParameterTable."
    INDEX {
            clabWIFIWLANConfigurationId,
            clabWIFISTAWMMParameterid
          }
    ::= {clabWIFISTAWMMParameterTable 1 }

ClabWIFISTAWMMParameterEntry ::= SEQUENCE {
    clabWIFISTAWMMParameterid
                 Unsigned32,
    clabWIFISTAWMMParameterAIFSN
                 Unsigned32,
    clabWIFISTAWMMParameterECWMin
                 Unsigned32,
    clabWIFISTAWMMParameterECWMax
```

```
                Unsigned32,
    clabWIFISTAWMMParameterTXOP
                Unsigned32,
    clabWIFISTAWMMParameterAckPolicy
                TruthValue
      }

clabWIFISTAWMMParameterid    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The key for unique instance of this object."
    ::= {clabWIFISTAWMMParameterEntry 1 }

clabWIFISTAWMMParameterAIFSN    OBJECT-TYPE
    SYNTAX      Unsigned32  (2..15 )
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.STAWMMParameter.{i}.AIFSN."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFISTAWMMParameterEntry 2 }

clabWIFISTAWMMParameterECWMin    OBJECT-TYPE
    SYNTAX      Unsigned32  (0..15 )
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.STAWMMParameter.{i}.ECWMin."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFISTAWMMParameterEntry 3 }

clabWIFISTAWMMParameterECWMax    OBJECT-TYPE
    SYNTAX      Unsigned32  (0..15 )
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.STAWMMParameter.{i}.Max."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFISTAWMMParameterEntry 4 }

clabWIFISTAWMMParameterTXOP    OBJECT-TYPE
    SYNTAX      Unsigned32  (0..255 )
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.STAWMMParameter.{i}.TXOP."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFISTAWMMParameterEntry 5 }

clabWIFISTAWMMParameterAckPolicy    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.STAWMMParameter.{i}.AckPolic
y."
```

```
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFISTAWMMParameterEntry 6 }

clabWIFIWEPKeyTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIWEPKeyEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WEPKey.{i}."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 6 }

clabWIFIWEPKeyEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIWEPKeyEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIWEPKeyTable."
    INDEX {
            clabWIFIWLANConfigurationId,
            clabWIFIWEPKeyid
          }
    ::= {clabWIFIWEPKeyTable 1 }

ClabWIFIWEPKeyEntry ::= SEQUENCE {
    clabWIFIWEPKeyid
                 Unsigned32,
    clabWIFIWEPKeyWEPKey
                 SnmpAdminString
      }

clabWIFIWEPKeyid    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The key for unique instance of this object."
    ::= {clabWIFIWEPKeyEntry 1 }

clabWIFIWEPKeyWEPKey    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WEPKey.{i}.WEPKey."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWEPKeyEntry 2 }

clabWIFIHostTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIHostEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 7 }

clabWIFIHostEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIHostEntry
    MAX-ACCESS  not-accessible
```

```
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIHostTable."
    INDEX {
            clabWIFILANDeviceId,
            clabWIFIHostid

          }
    ::= {clabWIFIHostTable 1 }

ClabWIFIHostEntry ::= SEQUENCE {
    clabWIFIHostid
                Unsigned32,
    clabWIFIHostIPAddress
                InetAddress,
    clabWIFIHostAddressSource
                SnmpAdminString,
    clabWIFIHostLeaseTimeRemaining
                Integer32,
    clabWIFIHostMACAddress
                MacAddress,
    clabWIFIHostLayer2Interface
                SnmpAdminString,
    clabWIFIHostVendorClassID
                SnmpAdminString,
    clabWIFIHostClientID
                OCTET STRING,
    clabWIFIHostUserClassID
                SnmpAdminString,
    clabWIFIHostHostName
                SnmpAdminString,
    clabWIFIHostInterfaceType
                INTEGER,
    clabWIFIHostActive
                TruthValue
      }

clabWIFIHostid    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The key for unique instance of this object."
    ::= {clabWIFIHostEntry 1 }

clabWIFIHostIPAddress    OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.IPAddress."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 2 }

clabWIFIHostAddressSource    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.AddressSource."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 3 }
```

```
clabWIFIHostLeaseTimeRemaining    OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.LeaseTimeRemaining."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 4 }

clabWIFIHostMACAddress    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.MACAddress."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 5 }

clabWIFIHostLayer2Interface    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.LAyer2Interface."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 6 }

clabWIFIHostVendorClassID    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.VendorClassID."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 7 }

clabWIFIHostClientID    OBJECT-TYPE
    SYNTAX      OCTET STRING
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.ClientID."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 8 }

clabWIFIHostUserClassID    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.UserClassID."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 9 }

clabWIFIHostHostName    OBJECT-TYPE
```

```
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.HostName."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 10 }

clabWIFIHostInterfaceType    OBJECT-TYPE
    SYNTAX      INTEGER  {

ethernet(1),uSB(2),value802dot11(3),homePNA(4),homePlug(5),moCA(6)
                         }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.InterfaceType."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 11 }

clabWIFIHostActive    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.Host.{i}.Active."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostEntry 12 }

clabWIFIWLANStatsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIWLANStatsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object contains statistics for an 802.11 LAN interface on a CPE device.
Note that these statistics refer to the link layer, not to the physical layer. Note
that this object does not include the total byte and packet statistics, which are, for
historical reasons, in the parent object."

clabWIFIWLANStatsEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIWLANStatsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIWLANStatsTable."
    INDEX {
            clabWIFIWLANConfigurationId,
            clabWIFIWLANStatsInterval
          }
    ::= {clabWIFIWLANStatsTable 1 }

ClabWIFIWLANStatsEntry ::= SEQUENCE {
    clabWIFIWLANStatsInterval
                 Unsigned32,
    clabWIFIWLANStatsDeviceMACAddress
                 MacAddress,
    clabWIFIWLANStatsFramesSent
                 Counter64,
    clabWIFIWLANStatsDataFramesSentAck
                 Counter64,
    clabWIFIWLANStatsDataFramesSentNoAck
```

```
                Counter64,
    clabWIFIWLANStatsDataFramesLost
                Counter64,
    clabWIFIWLANStatsFramesReceived
                Counter64,
    clabWIFIWLANStatsDataFramesReceived
                Counter64,
    clabWIFIWLANStatsDataFramesDuplicateReceived
                Counter64,
    clabWIFIWLANStatsProbesReceived
                Counter32,
    clabWIFIWLANStatsProbesRejected
                Counter32,
    clabWIFIWLANStatsRSSI
                Unsigned32,
    clabWIFIWLANStatsSNR
                Unsigned32,
    clabWIFIWLANStatsDisassociations
                Counter32,
    clabWIFIWLANStatsAuthenticationFailures
                Counter32,
    clabWIFIWLANStatsLastTimeAssociation
                DateAndTime,
    clabWIFIWLANStatsLastTimeDisassociation
                DateAndTime
      }

clabWIFIWLANStatsInterval    OBJECT-TYPE
    SYNTAX      Unsigned32  (0|24|48|96 )
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Interval where the measurements were accumulated.
The interval of measurements is synchronized with the wall clock
The total number of intervals is based on a 24 hour period. At an interval of 15
minutes 96 intervals (1..96) are defined, at 30 minutes, 48 intervals (1..48) and 24
intervals (1..24) for 1 hour measurement interval.
Devices with  no capabilities to report measurements per interval will report the
value 0 for the interval attribute of the unique statistics instance."
    ::= {clabWIFIWLANStatsEntry 1 }

clabWIFIWLANStatsDeviceMACAddress    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The MAC address of an associated client device."
    ::= {clabWIFIWLANStatsEntry 2 }

clabWIFIWLANStatsFramesSent    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of frames transmitted out of the interface.
For conventional 802.11 MAC (a,b,g) this counter corresponds to the total of MSDUs
(MAC Service Data Unit) being transmitted.
For High Throughput transmissions this corresponds to the A-MSDU (Aggregation MSDU)
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIWLANStatsEntry 3 }

clabWIFIWLANStatsDataFramesSentAck    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

```
        "The total number of MSDU frames marked as duplicates and non duplicates
acknowledged.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIWLANStatsEntry 4 }

clabWIFIWLANStatsDataFramesSentNoAck    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of MSDU frames retransmitted out of the interface (i.e.,
marked as duplicate and non-duplicate) and not acknowledged but not including those
defined in dataFramesLost.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIWLANStatsEntry 5 }

clabWIFIWLANStatsDataFramesLost    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of MSDU frames retransmitted out of the interface that where
not acknowledged and discarded for reaching max number of retransmissions.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIWLANStatsEntry 6 }

clabWIFIWLANStatsFramesReceived    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of frames received by the interface.
For conventional 802.11 MAC (a,b,g) this counter corresponds to the total of MSDUs
(MAC Service Data Unit) being transmitted.
For High Throughput transmissions (n) this corresponds to A-MSDUs (Aggregation MSDU)
and MSDUs.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIWLANStatsEntry 7 }

clabWIFIWLANStatsDataFramesReceived    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of MSDU frames received and  marked as non-duplicates.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIWLANStatsEntry 8 }

clabWIFIWLANStatsDataFramesDuplicateReceived    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of duplicated frames received on this interface.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIWLANStatsEntry 9 }

clabWIFIWLANStatsProbesReceived    OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total number of probes received."
    ::= {clabWIFIWLANStatsEntry 10 }

clabWIFIWLANStatsProbesRejected    OBJECT-TYPE
    SYNTAX      Counter32
```

```
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total number of probes rejected."
    ::= {clabWIFIWLANStatsEntry 11 }

clabWIFIWLANStatsRSSI    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The Received Signal Strength indicator is the energy observed at the antenna
receiver for a current transmission."
    ::= {clabWIFIWLANStatsEntry 12 }

clabWIFIWLANStatsSNR    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The signal to Noise Ratio (SNR)."
    ::= {clabWIFIWLANStatsEntry 13 }

clabWIFIWLANStatsDisassociations    OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total number of client disassociations."
    ::= {clabWIFIWLANStatsEntry 14 }

clabWIFIWLANStatsAuthenticationFailures    OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total number of authentication failures."
    ::= {clabWIFIWLANStatsEntry 15 }

clabWIFIWLANStatsLastTimeAssociation    OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Last time the client was associated."
    ::= {clabWIFIWLANStatsEntry 16 }

clabWIFIWLANStatsLastTimeDisassociation    OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Last time the client disassociate from the interface.
The all zeros value indicates the client is currently associated. "
    ::= {clabWIFIWLANStatsEntry 17 }

clabWIFIHostsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIHostsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANDevice.{i}.Hosts."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 9 }

clabWIFIHostsEntry    OBJECT-TYPE
```

```
    SYNTAX      ClabWIFIHostsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIHostsTable."
    INDEX {
            clabWIFILANDeviceId
          }
    ::= {clabWIFIHostsTable 1 }

ClabWIFIHostsEntry ::= SEQUENCE {
    clabWIFIHostsHostNumberOfEntries
                Unsigned32
      }

clabWIFIHostsHostNumberOfEntries    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.Hosts.NumberOfEntries."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIHostsEntry 1 }

clabWIFIAPWMMParameterTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIAPWMMParameterEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
IInternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.APWWMMParameter.{i}."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 10 }

clabWIFIAPWMMParameterEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIAPWMMParameterEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIAPWMMParameterTable."
    INDEX {
            clabWIFIWLANConfigurationId,
            clabWIFIAPWMMParameterId
          }
    ::= {clabWIFIAPWMMParameterTable 1 }

ClabWIFIAPWMMParameterEntry ::= SEQUENCE {
    clabWIFIAPWMMParameterId
                Unsigned32,
    clabWIFIAPWMMParameterAIFSN
                Unsigned32,
    clabWIFIAPWMMParameterECWMin
                Unsigned32,
    clabWIFIAPWMMParameterECWMax
                Unsigned32,
    clabWIFIAPWMMParameterTXOP
                Unsigned32,
    clabWIFIAPWMMParameterAckPolicy
                TruthValue
      }

clabWIFIAPWMMParameterId    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
```

```
    STATUS      current
    DESCRIPTION
        "The key for unique instance of this object."
    ::= {clabWIFIAPWMMParameterEntry 1 }

clabWIFIAPWMMParameterAIFSN    OBJECT-TYPE
    SYNTAX      Unsigned32  (2..15 )
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
IInternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.APWWMMParameter.{i}.AIFSN."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAPWMMParameterEntry 2 }

clabWIFIAPWMMParameterECWMin    OBJECT-TYPE
    SYNTAX      Unsigned32  (0..15 )
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
IInternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.APWWMMParameter.{i}.ECWMin.
"
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAPWMMParameterEntry 3 }

clabWIFIAPWMMParameterECWMax    OBJECT-TYPE
    SYNTAX      Unsigned32  (0..15 )
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
IInternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.APWWMMParameter.{i}.ECWMax.
"
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAPWMMParameterEntry 4 }

clabWIFIAPWMMParameterTXOP    OBJECT-TYPE
    SYNTAX      Unsigned32  (0..255 )
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
IInternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.APWWMMParameter.{i}.TXOP."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAPWMMParameterEntry 5 }

clabWIFIAPWMMParameterAckPolicy    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
IInternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.APWWMMParameter.{i}.AckPoli
cy."
    REFERENCE
            "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIAPWMMParameterEntry 6 }

clabWIFIWPSTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIWPSEntry
    MAX-ACCESS  not-accessible
    STATUS      current
```

```
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 11 }

clabWIFIWPSEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIWPSEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIWPSTable."
    INDEX {
            clabWIFIWLANConfigurationId
          }
    ::= {clabWIFIWPSTable 1 }

ClabWIFIWPSEntry ::= SEQUENCE {
    clabWIFIWPSEnable
                TruthValue,
    clabWIFIWPSDeviceName
                SnmpAdminString,
    clabWIFIWPSDevicePassword
                Unsigned32,
    clabWIFIWPSUUID
                SnmpAdminString,
    clabWIFIWPSVersion
                Unsigned32,
    clabWIFIWPSConfigMethodsSupported
                INTEGER,
    clabWIFIWPSConfigMethodsEnabled
                SnmpAdminString,
    clabWIFIWPSSetupLockedState
                INTEGER,
    clabWIFIWPSSetupLock
                TruthValue,
    clabWIFIWPSConfigurationState
                INTEGER,
    clabWIFIWPSLastConfigurationError
                INTEGER,
    clabWIFIWPSRegistrarNumberOfEntries
                Unsigned32,
    clabWIFIWPSRegistrarEstablished
                TruthValue
      }

clabWIFIWPSEnable    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.Enable."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 1 }

clabWIFIWPSDeviceName    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.DeviceName."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
```

```
    ::= {clabWIFIWPSEntry 2 }

clabWIFIWPSDevicePassword    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.DevicePassword."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 3 }

clabWIFIWPSUUID    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.UUID."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 4 }

clabWIFIWPSVersion    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.Version."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 5 }

clabWIFIWPSConfigMethodsSupported    OBJECT-TYPE
    SYNTAX      INTEGER  {

uSBFlashDrive(1),ethernet(2),label(3),display(4),externalNFCToken(5),integratedNFCToke
n(6),nFCInterface(7),pushButton(8),keypad(9)
                          }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.MethodsSupported."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 6 }

clabWIFIWPSConfigMethodsEnabled    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.MethodsEnabled."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 7 }

clabWIFIWPSSetupLockedState    OBJECT-TYPE
    SYNTAX      INTEGER  {

unlocked(1),lockedByLocalManagement(2),lockedByRemoteManagement(3),pINRetryLimitReache
d(4)
                          }
```

```
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.SetupLockedState."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 8 }

clabWIFIWPSSetupLock    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.SetupLock."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    DEFVAL      { false }
    ::= {clabWIFIWPSEntry 9 }

clabWIFIWPSConfigurationState    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          notConfigured(1),configured(2)
                         }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.ConfigurationState."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 10 }

clabWIFIWPSLastConfigurationError    OBJECT-TYPE
    SYNTAX      INTEGER  {

noError(1),decryptionCRCFailure(2),signalTooWeak(3),couldntConnectToRegistrar(4),rogue
ActivitySuspected(5),deviceBusy(6),setupLocked(7),messageTimeout(8),registrationSessio
nTimeout(9),devicePasswordAuthFailure(10)
                         }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.ConfigurationError."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 11 }

clabWIFIWPSRegistrarNumberOfEntries    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.RegistrarNumberOfEntries
."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 12 }

clabWIFIWPSRegistrarEstablished    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

```
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.RegistrarEstablished."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIWPSEntry 13 }

clabWIFILANDeviceTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFILANDeviceEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098 InternetGatewayDevice.LANDevice.{i}."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 12 }

clabWIFILANDeviceEntry    OBJECT-TYPE
    SYNTAX      ClabWIFILANDeviceEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFILANDeviceTable."
    INDEX {
            clabWIFILANDeviceId
          }
    ::= {clabWIFILANDeviceTable 1 }

ClabWIFILANDeviceEntry ::= SEQUENCE {
    clabWIFILANDeviceId
                  Unsigned32,
    clabWIFILANDeviceLANEthernetInterfaceNumberOfEntries
                  Unsigned32,
    clabWIFILANDeviceLANUSBInterfaceNumberOfEntries
                  Unsigned32,
    clabWIFILANDeviceLANWLANConfigurationNumberOfEntries
                  Unsigned32
      }

clabWIFILANDeviceId    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The key for unique instance of this object.
        This value corresponds to the Interface Index (i.e., ifIndex in SMIv2). "
    ::= {clabWIFILANDeviceEntry 1 }

clabWIFILANDeviceLANEthernetInterfaceNumberOfEntries    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANEthernetInterfaceNumberOfEntries."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANDeviceEntry 2 }

clabWIFILANDeviceLANUSBInterfaceNumberOfEntries    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANUSBInterfaceNumberOfEntries."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
```

```
    ::= {clabWIFILANDeviceEntry 3 }


clabWIFILANDeviceLANWLANConfigurationNumberOfEntries    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.LANWLANConfigurationNumberOfEntries."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFILANDeviceEntry 4 }

clabWIFIRegistrarTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIRegistrarEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.Registrar{i}."
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIObjects 13 }

clabWIFIRegistrarEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIRegistrarEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIRegistrarTable."
    INDEX {
            clabWIFIWLANConfigurationId,
            clabWIFIRegistrarId
          }
    ::= {clabWIFIRegistrarTable 1 }

ClabWIFIRegistrarEntry ::= SEQUENCE {
    clabWIFIRegistrarId
                  Unsigned32,
    clabWIFIRegistrarEnable
                  TruthValue,
    clabWIFIRegistrarUUID
                  SnmpAdminString,
    clabWIFIRegistrarDeviceName
                  SnmpAdminString
      }

clabWIFIRegistrarId    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The key for unique instance of this object."
    ::= {clabWIFIRegistrarEntry 1 }

clabWIFIRegistrarEnable    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.Registrar{i}.Enable"
    REFERENCE
              "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIRegistrarEntry 2 }
```

```
clabWIFIRegistrarUUID    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.Registrar{i}.UUID."
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIRegistrarEntry 3 }

clabWIFIRegistrarDeviceName    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object is defined in TR-098
InternetGatewayDevice.LANDevice.{i}.WLANConfiguration.{i}.WPS.Registrar{i}.DeviceName.
"
    REFERENCE
             "TR-098 Internet Gateway Device Data Model for TR-069."
    ::= {clabWIFIRegistrarEntry 4 }

clabWIFISSIDPolicyTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFISSIDPolicyEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object defines the configuration of policies and behaviors controlled at
the Wi-Fi interface or Wi-Fi SSID subinterface level. "
    ::= {clabWIFIObjects 14 }

clabWIFISSIDPolicyEntry    OBJECT-TYPE
    SYNTAX      ClabWIFISSIDPolicyEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFISSIDPolicyTable."
    INDEX {
           clabWIFIWLANConfigurationId
         }
    ::= {clabWIFISSIDPolicyTable 1 }

ClabWIFISSIDPolicyEntry ::= SEQUENCE {
    clabWIFISSIDPolicyVlanId
                 VlanId,
    clabWIFISSIDPolicyBridge
                 TruthValue,
    clabWIFISSIDPolicyBlockAfterAttempts
                 Unsigned32,
    clabWIFISSIDPolicyAllocatedBandwidth
                 Unsigned32,
    clabWIFISSIDPolicyLowReceivedPowerThreshold
                 Unsigned32,
    clabWIFISSIDPolicyLowPowerDeniedAccessThreshold
                 Unsigned32,
    clabWIFISSIDPolicyStatsInterval
                 Integer32
      }

clabWIFISSIDPolicyVlanId    OBJECT-TYPE
    SYNTAX      VlanId
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "VLan Identifier mapped to the SSID"
    ::= {clabWIFISSIDPolicyEntry 1 }
```

```
clabWIFISSIDPolicyBridge    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The value 'true' indicates if the SSID is in bridge mode, otherwise the SSIS
is in router mode."
    ::= {clabWIFISSIDPolicyEntry 2 }

clabWIFISSIDPolicyBlockAfterAttempts    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Indicates the maximum number of attempts a client is allowed to attempt
registration before being denied access.
The value zero indicates no connection attempts restrictions."
    DEFVAL      { 0 }
    ::= {clabWIFISSIDPolicyEntry 3 }

clabWIFISSIDPolicyAllocatedBandwidth    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The maximum bandwidth reserved for a particular interface.
The value zero indicates no limit."
    ::= {clabWIFISSIDPolicyEntry 4 }

clabWIFISSIDPolicyLowReceivedPowerThreshold    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Indicates a power level threshold to generate an event whenever the station
received power is below the threshold."
    ::= {clabWIFISSIDPolicyEntry 5 }

clabWIFISSIDPolicyLowPowerDeniedAccessThreshold    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Indicates a power level threshold to deny client association whenever the
station received power is below the threshold."
    ::= {clabWIFISSIDPolicyEntry 6 }

clabWIFISSIDPolicyStatsInterval    OBJECT-TYPE
    SYNTAX      Integer32  (-1|0|10|30|60 )
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "2
"
    ::= {clabWIFISSIDPolicyEntry 7 }

clabWIFIDataRateStatsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIDataRateStatsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object contains statistics for each speed rate of an 802.11 LAN
interface.
The device is only required to report counters at the 802.11 interface level and not
discriminate traffic per SSID Wi-Fi sub-interface. "
    ::= {clabWIFIObjects 15 }
```

```
clabWIFIDataRateStatsEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIDataRateStatsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIDataRateStatsTable."
    INDEX {
            clabWIFIWLANConfigurationId,
            clabWIFIDataRateStatsRate
          }
    ::= {clabWIFIDataRateStatsTable 1 }

ClabWIFIDataRateStatsEntry ::= SEQUENCE {
    clabWIFIDataRateStatsRate
                 SnmpAdminString,
    clabWIFIDataRateStatsFramesSent
                 Counter64,
    clabWIFIDataRateStatsFramesRetransmissionsSent
                 Counter64,
    clabWIFIDataRateStatsFramesReceived
                 Counter64,
    clabWIFIDataRateStatsFramesDuplicatedReceived
                 Counter64
      }

clabWIFIDataRateStatsRate    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This key represents the data speed for the statistics collected. the value is
reported in ASCII characters in units of Mbps."
    ::= {clabWIFIDataRateStatsEntry 1 }

clabWIFIDataRateStatsFramesSent    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of frames transmitted out of the interface (not marked as
duplicated).
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIDataRateStatsEntry 2 }

clabWIFIDataRateStatsFramesRetransmissionsSent    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of frames retransmitted out of the interface (marked as
duplicated).
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIDataRateStatsEntry 3 }

clabWIFIDataRateStatsFramesReceived    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of frames received on this interface (not marked as
duplicated).
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIDataRateStatsEntry 4 }

clabWIFIDataRateStatsFramesDuplicatedReceived    OBJECT-TYPE
    SYNTAX      Counter64
```

```
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of duplicated frames received on this interface.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIDataRateStatsEntry 5 }

clabWIFIRadiusClientTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIRadiusClientEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Radius Client information for the SSIDs Requiring Radius authentication."
    ::= {clabWIFIObjects 16 }

clabWIFIRadiusClientEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIRadiusClientEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIRadiusClientTable."
    INDEX {
            clabWIFIWLANConfigurationId
          }
    ::= {clabWIFIRadiusClientTable 1 }

ClabWIFIRadiusClientEntry ::= SEQUENCE {
    clabWIFIRadiusClientUsername
                SnmpAdminString,
    clabWIFIRadiusClientSharedSecret
                SnmpAdminString,
    clabWIFIRadiusClientServer
                InetAddress,
    clabWIFIRadiusClientServiceType
                INTEGER,
    clabWIFIRadiusClientFramedProtocol
                INTEGER,
    clabWIFIRadiusClientNAS-IP-Address
                InetAddress,
    clabWIFIRadiusClientNAS-Port
                Unsigned32,
    clabWIFIRadiusClientLocationPolicy
                OCTET STRING,
    clabWIFIRadiusClientOperatorName
                SnmpAdminString,
    clabWIFIRadiusClientLocationInformation
                OCTET STRING,
    clabWIFIRadiusClientLocationData
                OCTET STRING,
    clabWIFIRadiusClientUsageReports
                TruthValue,
    clabWIFIRadiusClientIntervalInterimReport
                TruthValue,
    clabWIFIRadiusClientAPTransitionReport
                TruthValue,
    clabWIFIRadiusClientGigawordReport
                TruthValue
      }

clabWIFIRadiusClientUsername    OBJECT-TYPE
    SYNTAX      SnmpAdminString  (SIZE( 0..128 ))
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The username for access authentication."
    ::= {clabWIFIRadiusClientEntry 1 }
```

```
clabWIFIRadiusClientSharedSecret    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "A passphrase for Radius client authentication.
Reading this value returns return an empty string."
    ::= {clabWIFIRadiusClientEntry 2 }

clabWIFIRadiusClientServer    OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The Radius Server IP or FQDN"
    ::= {clabWIFIRadiusClientEntry 3 }

clabWIFIRadiusClientServiceType    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          login(1),framed(2)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The type of service to use in the Access-Request as a hint for the type of
service to use in the connection."
    ::= {clabWIFIRadiusClientEntry 4 }

clabWIFIRadiusClientFramedProtocol    OBJECT-TYPE
    SYNTAX      INTEGER  {
                          none(1),ppp(2),slip(3),arap(4),gprspdp(5)
                         }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Indicates the framing to be used if ServiceType is 'framed'."
    ::= {clabWIFIRadiusClientEntry 5 }

clabWIFIRadiusClientNAS-IP-Address    OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Corresponds to the Radius attribute NAS-IP-Address used in Access request
packets. If not specified, the local hostname of the Radius client is used."
    ::= {clabWIFIRadiusClientEntry 6 }

clabWIFIRadiusClientNAS-Port    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Corresponds to the Radius NAS-Port attribute.
Port 17 is used for Cable and 19 for 802.11 Authentication."
    ::= {clabWIFIRadiusClientEntry 7 }


clabWIFIRadiusClientLocationPolicy    OBJECT-TYPE
    SYNTAX      OCTET STRING
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Corresponds to the string value of the Radius Basic-Location-Policy-Rules
attribute per RFC 5580."
    ::= {clabWIFIRadiusClientEntry 8 }

clabWIFIRadiusClientOperatorName    OBJECT-TYPE
```

```
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Corresponds to the string value of the Radius Operator-Name attribute per RFC
5580."
    ::= {clabWIFIRadiusClientEntry 9 }

clabWIFIRadiusClientLocationInformation    OBJECT-TYPE
    SYNTAX      OCTET STRING
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Corresponds to the string value of the Radius Location-Information  attribute
per RFC 5580."
    ::= {clabWIFIRadiusClientEntry 10 }

clabWIFIRadiusClientLocationData    OBJECT-TYPE
    SYNTAX      OCTET STRING
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Corresponds to the string value of the Radius LocationData attribute per RFC
5580."
    ::= {clabWIFIRadiusClientEntry 11 }

clabWIFIRadiusClientUsageReports    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Whether the client send usage data ('true') or not ('false')."
    ::= {clabWIFIRadiusClientEntry 12 }

clabWIFIRadiusClientIntervalInterimReport    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Whether the client send Interim reports at time intervals ('true') or not
('false')."
    ::= {clabWIFIRadiusClientEntry 13 }

clabWIFIRadiusClientAPTransitionReport    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Whether the client send Interim reports when the stations transitions to a
different Access point ('true') or not ('false')."
    ::= {clabWIFIRadiusClientEntry 14 }

clabWIFIRadiusClientGigawordReport    OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Whether the client send Interim reports when the 32-bit counters rollover
('true') or not ('false')."
    ::= {clabWIFIRadiusClientEntry 15 }

clabWIFIClientStatsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIClientStatsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object contains accumulative statistics for each client station.
```

```
A station is reported only after is associated for the first time."
    ::= {clabWIFIObjects 17 }

clabWIFIClientStatsEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIClientStatsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIClientStatsTable."
    INDEX {
            clabWIFIWLANConfigurationId,
            clabWIFIClientStatsInterval,
            clabWIFIClientStatsId
          }
    ::= {clabWIFIClientStatsTable 1 }

ClabWIFIClientStatsEntry ::= SEQUENCE {
    clabWIFIClientStatsInterval
                Unsigned32,
    clabWIFIClientStatsId
                Unsigned32,
    clabWIFIClientStatsDeviceMACAddress
                MacAddress,
    clabWIFIClientStatsFramesSent
                Counter64,
    clabWIFIClientStatsDataFramesSentAck
                Counter64,
    clabWIFIClientStatsDataFramesSentNoAck
                Counter64,
    clabWIFIClientStatsDataFramesLost
                Counter64,
    clabWIFIClientStatsFramesReceived
                Counter64,
    clabWIFIClientStatsDataFramesReceived
                Counter64,
    clabWIFIClientStatsDataFramesDuplicateReceived
                Counter64,
    clabWIFIClientStatsProbesReceived
                Counter32,
    clabWIFIClientStatsProbesRejected
                Counter32,
    clabWIFIClientStatsRSSI
                Unsigned32,
    clabWIFIClientStatsSNR
                Unsigned32,
    clabWIFIClientStatsDisassociations
                Counter32,
    clabWIFIClientStatsAuthenticationFailures
                Counter32,
    clabWIFIClientStatsLastTimeAssociation
                DateAndTime,
    clabWIFIClientStatsLastTimeDisassociation
                DateAndTime
      }

clabWIFIClientStatsInterval    OBJECT-TYPE
    SYNTAX      Unsigned32  (0|24|48|96 )
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Interval where the measurements were accumulated.
The interval of measurements is synchronized with the wall clock
The total number of intervals is based on a 24 hour period. At an interval of 15
minutes 96 intervals (1..96) are defined, at 30 minutes, 48 intervals (1..48) and 24
intervals (1..24) for 1 hour measurement interval.
Devices with  no capable to report measurements per interval will report the value 0
for the interval attribute."
```

```
    ::= {clabWIFIClientStatsEntry 1 }

clabWIFIClientStatsId    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The key that identifies a single client MAC Address."
    ::= {clabWIFIClientStatsEntry 2 }

clabWIFIClientStatsDeviceMACAddress    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The MAC address of an associated client device."
    ::= {clabWIFIClientStatsEntry 3 }

clabWIFIClientStatsFramesSent    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of frames transmitted out of the interface.
For conventional 802.11 MAC (a,b,g) this counter corresponds to the total of MSDUs
(MAC Service Data Unit) being transmitted.
For High Throughput transmissions this corresponds to the A-MSDU (Aggregation MSDU)
The value of this counter MAY be reset to zero when the CPE is rebooted.
"
    ::= {clabWIFIClientStatsEntry 4 }

clabWIFIClientStatsDataFramesSentAck    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of MSDU frames marked as duplicates and non duplicates
acknowledged.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIClientStatsEntry 5 }

clabWIFIClientStatsDataFramesSentNoAck    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of MSDU frames retransmitted out of the interface (i.e.,
marked as duplicate and non-duplicate) and not acknowledged but not including those
defined in dataFramesLost.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIClientStatsEntry 6 }

clabWIFIClientStatsDataFramesLost    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of MSDU frames retransmitted out of the interface that where
not acknowledged and discarded for reaching max number of retransmissions.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIClientStatsEntry 7 }

clabWIFIClientStatsFramesReceived    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

```
        "The total number of frames received by the interface.
For conventional 802.11 MAC (a,b,g) this counter corresponds to the total of MSDUs
(MAC Service Data Unit) being transmitted.
For High Throughput transmissions (n) this corresponds to A-MSDUs (Aggregation MSDU)
and MSDUs.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIClientStatsEntry 8 }

clabWIFIClientStatsDataFramesReceived    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of MSDU frames received and  marked as non-duplicates.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIClientStatsEntry 9 }

clabWIFIClientStatsDataFramesDuplicateReceived    OBJECT-TYPE
    SYNTAX      Counter64
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of duplicated frames received on this interface.
The value of this counter MAY be reset to zero when the CPE is rebooted."
    ::= {clabWIFIClientStatsEntry 10 }

clabWIFIClientStatsProbesReceived    OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total number of probes received."
    ::= {clabWIFIClientStatsEntry 11 }

clabWIFIClientStatsProbesRejected    OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total number of probes rejected."
    ::= {clabWIFIClientStatsEntry 12 }

clabWIFIClientStatsRSSI    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The Received Signal Strength indicator is the energy observed at the antenna
receiver for a current transmission."
    ::= {clabWIFIClientStatsEntry 13 }

clabWIFIClientStatsSNR    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The signal to Noise Ratio (SNR)."
    ::= {clabWIFIClientStatsEntry 14 }

clabWIFIClientStatsDisassociations    OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total number of client disassociations."
    ::= {clabWIFIClientStatsEntry 15 }
```

```
clabWIFIClientStatsAuthenticationFailures    OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Total number of authentication failures."
    ::= {clabWIFIClientStatsEntry 16 }

clabWIFIClientStatsLastTimeAssociation    OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Last time the client was associated."
    ::= {clabWIFIClientStatsEntry 17 }

clabWIFIClientStatsLastTimeDisassociation    OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Last time the client disassociate from the interface.
The all zeros value indicates the client is currently associated. "
    ::= {clabWIFIClientStatsEntry 18 }

clabWIFIClientSessionsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIClientSessionsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object represents the current and closed sessions (association
connections).
When the maximum number of instances is reached, the oldest closed session instance is
replaced by a newly created client association."
    ::= {clabWIFIObjects 18 }

clabWIFIClientSessionsEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIClientSessionsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIClientSessionsTable."
    INDEX {
            clabWIFIWLANConfigurationId,
            clabWIFIClientSessionsId
          }
    ::= {clabWIFIClientSessionsTable 1 }

ClabWIFIClientSessionsEntry ::= SEQUENCE {
    clabWIFIClientSessionsId
                Unsigned32,
    clabWIFIClientSessionsDeviceMACAddress
                MacAddress,
    clabWIFIClientSessionsStart
                DateAndTime,
    clabWIFIClientSessionsStop
                DateAndTime,
    clabWIFIClientSessionsTerminationCode
                Unsigned32,
    clabWIFIClientSessionsTerminationMeaning
                SnmpAdminString
      }

clabWIFIClientSessionsId    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  not-accessible
    STATUS      current
```

```
    DESCRIPTION
        "The key that identifies a single client MAC Address."
    ::= {clabWIFIClientSessionsEntry 1 }

clabWIFIClientSessionsDeviceMACAddress    OBJECT-TYPE
    SYNTAX      MacAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The MAC address of an associated client device."
    ::= {clabWIFIClientSessionsEntry 2 }

clabWIFIClientSessionsStart    OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The time when the session started."
    ::= {clabWIFIClientSessionsEntry 3 }

clabWIFIClientSessionsStop    OBJECT-TYPE
    SYNTAX      DateAndTime
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The time when the session ended.
If the session us current the value reported is all zeros."
    ::= {clabWIFIClientSessionsEntry 4 }

clabWIFIClientSessionsTerminationCode    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The Reason Code or the Status Code that lead to ending the association of the
station. Reason code and Status code overlaps. The context of the type of termination
is provided by the TerminationMeaning attribute.
The value zero indicates the session is active."
    ::= {clabWIFIClientSessionsEntry 5 }

clabWIFIClientSessionsTerminationMeaning    OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The meaning of the Reason Code or Status Code for the ended session.  The
zero-length string is used when the instance corresponds to an active session."
    ::= {clabWIFIClientSessionsEntry 6 }


clabWIFIEventThresholdTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF ClabWIFIEventThresholdEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object represents threshold levels applied to certain events per Wi-Fi
SSID interface and sub-interfaces.
The value 0 indicates no threshold and events of this type are generated."
    ::= {clabWIFIObjects 19 }

clabWIFIEventThresholdEntry    OBJECT-TYPE
    SYNTAX      ClabWIFIEventThresholdEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Conceptual row of clabWIFIEventThresholdTable."
    INDEX {
```

```
            clabWIFIWLANConfigurationId
          }
    ::= {clabWIFIEventThresholdTable 1 }

ClabWIFIEventThresholdEntry ::= SEQUENCE {
    clabWIFIEventThresholdAuthenticationFailures
                Unsigned32,
    clabWIFIEventThresholdNonAuthenticatedTraffic
                Unsigned32,
    clabWIFIEventThresholdAssociationFailures
                Unsigned32,
    clabWIFIEventThresholdSNR
                Integer32,
    clabWIFIEventThresholdANPI
                Integer32,
    clabWIFIEventThresholdLowPower
                Unsigned32
      }

clabWIFIEventThresholdAuthenticationFailures    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Indicates the number of Authentication failures a station simultaneously
produces to generate the event.
The value 0 indicates no threshold and events of this type are not generated."
    DEFVAL      { 0 }
    ::= {clabWIFIEventThresholdEntry 1 }

clabWIFIEventThresholdNonAuthenticatedTraffic    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Represents the number of non-authenticated messages received from a station
to generate an event.
The value 0 indicates no threshold and events of this type are not generated."
    DEFVAL      { 0 }
    ::= {clabWIFIEventThresholdEntry 2 }

clabWIFIEventThresholdAssociationFailures    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Indicates the number of simultaneous association failures from a station to
generate an event."
    DEFVAL      { 0 }
    ::= {clabWIFIEventThresholdEntry 3 }

clabWIFIEventThresholdSNR    OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The threshold for SNR.
The value -1 indicates no threshold and events of this type are not generated."
    DEFVAL      { -100 }
    ::= {clabWIFIEventThresholdEntry 4 }

clabWIFIEventThresholdANPI    OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The threshold for Average Noise Plus Interference.
```

```
The value -1 indicates no threshold and events of this type are not generated."
    DEFVAL      { 0 }
    ::= {clabWIFIEventThresholdEntry 5 }

clabWIFIEventThresholdLowPower    OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The threshold for Disassociation and prevent association when the power level
is below this RSSI level. The value -1 indicates no threshold and events of this type
are not generated."
    DEFVAL      { 0 }
    ::= {clabWIFIEventThresholdEntry 6 }

-- Conformance Definitions
             clabWIFIMibConformance OBJECT IDENTIFIER ::= { clabWIFIMib 2 }
clabWIFIMibCompliances OBJECT IDENTIFIER ::= { clabWIFIMibConformance 1 }
clabWIFIMibGroups      OBJECT IDENTIFIER ::= { clabWIFIMibConformance 2 }

clabWIFICompliance MODULE-COMPLIANCE
    STATUS      current
    DESCRIPTION
         "The compliance statement for the."
    MODULE -- this MODULE
    MANDATORY-GROUPS {
            clabWIFIObjectsGroup,
            clabWIFINotificationsGroup
            }
    ::= { clabWIFIMibCompliances 1 }

    clabWIFIObjectsGroup OBJECT-GROUP
    OBJECTS {
              clabWIFILANHostConfigManagementMACAddress,
              clabWIFILANHostConfigManagementDHCPServerConfigurable,
              clabWIFILANHostConfigManagementDHCPServerEnable,
              clabWIFILANHostConfigManagementDHCPRelay,
              clabWIFILANHostConfigManagementMinAddress,
              clabWIFILANHostConfigManagementMaxAddress,
              clabWIFILANHostConfigManagementReservedAddresses,
              clabWIFILANHostConfigManagementSubnetMask,
              clabWIFILANHostConfigManagementDNSServers,
              clabWIFILANHostConfigManagementIPRouters,
              clabWIFILANHostConfigManagementDomainName,
              clabWIFILANHostConfigManagementDHCPLeaseTime,
              clabWIFILANHostConfigManagementUseAllocatedWAN,
              clabWIFILANHostConfigManagementAssociatedConnection,
              clabWIFILANHostConfigManagementPassthroughLease,
              clabWIFILANHostConfigManagementPassthroughMACAddress,
              clabWIFILANHostConfigManagementAllowedMACAddresses,
              clabWIFILANHostConfigManagementIPInterfaceNumberOfEntries,
              clabWIFILANHostConfigManagementDHCPStaticAddressNumberOfEntries,
              clabWIFILANHostConfigManagementDHCPOptionNumberOfEntries,
              clabWIFILANHostConfigManagementDHCPConditionalPoolNumberOfEntries,
              clabWIFILANHostConfigManagementRestrictedMACAddresses,
              clabWIFILANHostConfigManagementTemporaryRestrictedMacAddresses,
              clabWIFIWLANConfigurationEnable,
              clabWIFIWLANConfigurationStatus,
              clabWIFIWLANConfigurationName,
              clabWIFIWLANConfigurationBSSID,
              clabWIFIWLANConfigurationMaxBitRate,
              clabWIFIWLANConfigurationChannel,
              clabWIFIWLANConfigurationAutoChannelEnable,
              clabWIFIWLANConfigurationSSID,
              clabWIFIWLANConfigurationBeaconType,
              clabWIFIWLANConfigurationMACAddressControlEnabled,
              clabWIFIWLANConfigurationStandard,
```

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clabWIFIWLANConfigurationWEPKeyIndex,
clabWIFIWLANConfigurationKeyPassphrase,
clabWIFIWLANConfigurationWEPEncryptionLevel,
clabWIFIWLANConfigurationBasicEncryptionModes,
clabWIFIWLANConfigurationBasicAuthenticationMode,
clabWIFIWLANConfigurationWPAEncryptionModes,
clabWIFIWLANConfigurationWPAAuthenticationMode,
clabWIFIWLANConfigurationIEEE11iEncryptionModes,
clabWIFIWLANConfigurationIEEE11iAuthenticationMode,
clabWIFIWLANConfigurationPossibleChannels,
clabWIFIWLANConfigurationBasicDataTransmitRates,
clabWIFIWLANConfigurationOperationalDataTransmitRates,
clabWIFIWLANConfigurationPossibleDataTransmitRates,
clabWIFIWLANConfigurationInsecureOOBAccessEnabled,
clabWIFIWLANConfigurationBeaconAdvertisementEnabled,
clabWIFIWLANConfigurationSSIDAdvertisementEnabled,
clabWIFIWLANConfigurationRadioEnabled,
clabWIFIWLANConfigurationTransmitPowerSupported,
clabWIFIWLANConfigurationTransmitPower,
clabWIFIWLANConfigurationAutoRateFallBackEnabled,
clabWIFIWLANConfigurationLocationDescription,
clabWIFIWLANConfigurationRegulatoryDomain,
clabWIFIWLANConfigurationTotalPSKFailures,
clabWIFIWLANConfigurationTotalIntegrityFailures,
clabWIFIWLANConfigurationChannelsInUse,
clabWIFIWLANConfigurationDeviceOperationMode,
clabWIFIWLANConfigurationDistanceFromRoot,
clabWIFIWLANConfigurationPeerBSSID,
clabWIFIWLANConfigurationAuthenticationServiceMode,
clabWIFIWLANConfigurationWMMSupported,
clabWIFIWLANConfigurationUAPSDSupported,
clabWIFIWLANConfigurationWMMEnable,
clabWIFIWLANConfigurationUAPSDEnable,
clabWIFIWLANConfigurationTotalBytesSent,
clabWIFIWLANConfigurationTotalBytesReceived,
clabWIFIWLANConfigurationTotalPacketsSent,
clabWIFIWLANConfigurationTotalPacketsReceived,
clabWIFIWLANConfigurationTotalAssociations,
clabWIFIWLANConfigurationRTSThreshold,
clabWIFIWLANConfigurationReset,
clabWIFIWLANConfigurationClientAgingPeriod,
clabWIFIWLANConfigurationBand,
clabWIFIWLANConfigurationBandwidth,
clabWIFIWLANConfigurationSideBand,
clabWIFIAssociatedDeviceAssociatedDeviceMACAddress,
clabWIFIAssociatedDeviceAssociatedDeviceIPAddress,
clabWIFIAssociatedDeviceAssociatedDeviceAuthenticationState,
clabWIFIAssociatedDeviceLastRequestedUnicastCipher,
clabWIFIAssociatedDeviceLastRequestedMulticastCipher,
clabWIFIAssociatedDeviceLastPMKId,
clabWIFIAssociatedDeviceLastDataTransmitRate,
clabWIFIPreSharedKeyPreSharedKey,
clabWIFIPreSharedKeyKeyPassphrase,
clabWIFIPreSharedKeyAssociatedDeviceMACAddress,
clabWIFISTAWMMParameterAIFSN,
clabWIFISTAWMMParameterECWMin,
clabWIFISTAWMMParameterECWMax,
clabWIFISTAWMMParameterTXOP,
clabWIFISTAWMMParameterAckPolicy,
clabWIFIWEPKeyWEPKey,
clabWIFIHostIPAddress,
clabWIFIHostAddressSource,
clabWIFIHostLeaseTimeRemaining,
clabWIFIHostMACAddress,
clabWIFIHostLayer2Interface,
clabWIFIHostVendorClassID,
clabWIFIHostClientID,
```

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clabWIFIHostUserClassID,
clabWIFIHostHostName,
clabWIFIHostInterfaceType,
clabWIFIHostActive,
clabWIFIWLANStatsDeviceMACAddress,
clabWIFIWLANStatsFramesSent,
clabWIFIWLANStatsDataFramesSentAck,
clabWIFIWLANStatsDataFramesSentNoAck,
clabWIFIWLANStatsDataFramesLost,
clabWIFIWLANStatsFramesReceived,
clabWIFIWLANStatsDataFramesReceived,
clabWIFIWLANStatsDataFramesDuplicateReceived,
clabWIFIWLANStatsProbesReceived,
clabWIFIWLANStatsProbesRejected,
clabWIFIWLANStatsRSSI,
clabWIFIWLANStatsSNR,
clabWIFIWLANStatsDisassociations,
clabWIFIWLANStatsAuthenticationFailures,
clabWIFIWLANStatsLastTimeAssociation,
clabWIFIWLANStatsLastTimeDisassociation,
clabWIFIHostsHostNumberOfEntries,
clabWIFIAPWMMParameterAIFSN,
clabWIFIAPWMMParameterECWMin,
clabWIFIAPWMMParameterECWMax,
clabWIFIAPWMMParameterTXOP,
clabWIFIAPWMMParameterAckPolicy,
clabWIFIWPSEnable,
clabWIFIWPSDeviceName,
clabWIFIWPSDevicePassword,
clabWIFIWPSUUID,
clabWIFIWPSVersion,
clabWIFIWPSConfigMethodsSupported,
clabWIFIWPSConfigMethodsEnabled,
clabWIFIWPSSetupLockedState,
clabWIFIWPSSetupLock,
clabWIFIWPSConfigurationState,
clabWIFIWPSLastConfigurationError,
clabWIFIWPSRegistrarNumberOfEntries,
clabWIFIWPSRegistrarEstablished,
clabWIFILANDeviceLANEthernetInterfaceNumberOfEntries,
clabWIFILANDeviceLANUSBInterfaceNumberOfEntries,
clabWIFILANDeviceLANWLANConfigurationNumberOfEntries,
clabWIFIRegistrarEnable,
clabWIFIRegistrarUUID,
clabWIFIRegistrarDeviceName,
clabWIFISSIDPolicyVlanId,
clabWIFISSIDPolicyBridge,
clabWIFISSIDPolicyBlockAfterAttempts,
clabWIFISSIDPolicyAllocatedBandwidth,
clabWIFISSIDPolicyLowReceivedPowerThreshold,
clabWIFISSIDPolicyLowPowerDeniedAccessThreshold,
clabWIFISSIDPolicyStatsInterval,
clabWIFIDataRateStatsFramesSent,
clabWIFIDataRateStatsFramesRetransmissionsSent,
clabWIFIDataRateStatsFramesReceived,
clabWIFIDataRateStatsFramesDuplicatedReceived,
clabWIFIRadiusClientUsername,
clabWIFIRadiusClientSharedSecret,
clabWIFIRadiusClientServer,
clabWIFIRadiusClientServiceType,
clabWIFIRadiusClientFramedProtocol,
clabWIFIRadiusClientNAS-IP-Address,
clabWIFIRadiusClientNAS-Port,
clabWIFIRadiusClientLocationPolicy,
clabWIFIRadiusClientOperatorName,
clabWIFIRadiusClientLocationInformation,
clabWIFIRadiusClientLocationData,
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            clabWIFIRadiusClientUsageReports,
            clabWIFIRadiusClientIntervalInterimReport,
            clabWIFIRadiusClientAPTransitionReport,
            clabWIFIRadiusClientGigawordReport,
            clabWIFIClientStatsDeviceMACAddress,
            clabWIFIClientStatsFramesSent,
            clabWIFIClientStatsDataFramesSentAck,
            clabWIFIClientStatsDataFramesSentNoAck,
            clabWIFIClientStatsDataFramesLost,
            clabWIFIClientStatsFramesReceived,
            clabWIFIClientStatsDataFramesReceived,
            clabWIFIClientStatsDataFramesDuplicateReceived,
            clabWIFIClientStatsProbesReceived,
            clabWIFIClientStatsProbesRejected,
            clabWIFIClientStatsRSSI,
            clabWIFIClientStatsSNR,
            clabWIFIClientStatsDisassociations,
            clabWIFIClientStatsAuthenticationFailures,
            clabWIFIClientStatsLastTimeAssociation,
            clabWIFIClientStatsLastTimeDisassociation,
            clabWIFIClientSessionsDeviceMACAddress,
            clabWIFIClientSessionsStart,
            clabWIFIClientSessionsStop,
            clabWIFIClientSessionsTerminationCode,
            clabWIFIClientSessionsTerminationMeaning,
            clabWIFIWIFIEventNotifText,
            clabWIFIWIFIEventNotifEventId,
            clabWIFIWIFIEventNotifTimeStamp,
            clabWIFIEventThresholdAuthenticationFailures,
            clabWIFIEventThresholdNonAuthenticatedTraffic,
            clabWIFIEventThresholdAssociationFailures,
            clabWIFIEventThresholdSNR,
            clabWIFIEventThresholdANPI,
            clabWIFIEventThresholdLowPower
    }
    STATUS      current
    DESCRIPTION
            "Objects implemented in clabWIFIGroup."
    ::= { clabWIFIMibGroups 1 }


       clabWIFINotificationsGroup NOTIFICATION-GROUP
       NOTIFICATIONS {
           clabWIFIWIFIEventNotif
       }
       STATUS      current
       DESCRIPTION
           "Notifications implemented in clabWIFINotificationsGroup"
       ::= { clabWIFIMibGroups 2 }
END
```

Annex B IEEE 802.11 MIB modules Requirements

Table 26 shows the compliance for IEEE [802.11] MIB objects. Unless otherwise noted, support for IEEE MIBs is deemed optional as current operator requirements for Wi-Fi requirements are included in Annex A.

The column Support indicates compliance requirement, with values MAY, MUST and NA (not applicable).

The column Access indicates the compliance requirement for access via SNMP request PDU messages. Possible values [RFC 2578] include 'read-only', 'read-write' and 'read-create'.

Table 26 - 802.11 MIB Requirements

802.11 MIB Objects	Support	Access
dot11StationConfigTable	MAY	read-only
dot11AuthenticationAlgorithms	MAY	read-only
dot11WEPDefaultKeysTable	MAY	read-only
WEPKeyMappings	MAY	read-only
dot11PrivacyTable	MAY	read-only
dot11MultiDomainCapability	MAY	read-only
dot11SpectrumManagement	MAY	read-only
dot11RSNAConfigTable	MAY	read-only
dot11RSNAConfigPairwiseCiphersTable	MAY	read-only
dot11RSNAConfigAuthenticationSuitesTable	MAY	read-only
dot11RSNAStatsTable	MAY	read-only
dot11RegulatoryClassesTable	MAY	read-only
dot11RRMRequestTable	MAY	read-only
dot11ChannelLoadReportTable	MAY	read-only
dot11NoiseHistogramReportTable	MAY	read-only
dot11BeaconReportTable	MAY	read-only
dot11FrameReportTable	MAY	read-only
dot11STAStatisticsReportTable	MAY	read-only
dot11LCIReportTable	MAY	read-only
dot11TransmitStreamReportTable	MAY	read-only
dot11APChannelReportTable	MAY	read-only
dot11RRMNeighborReportTable	MAY	read-only
dot11HTStationConfigTable	MAY	read-only
dot11OperationTable	MAY	read-only
dot11CountersTable	MAY	read-only
dot11GroupAddressesTable	MAY	read-only
dot11EDCATable	MAY	read-only
dot11QAPEDCATable	MAY	read-only
dot11QosCountersTable	MAY	read-only
dot11ResourceInfoTable	MAY	read-only
dot11PhyOperationTable	MAY	read-only
dot11PhyOperationTable	MAY	read-only
dot11PhyAntennaTable	MAY	read-only
dot11PhyTxPowerTable	MAY	read-only
dot11PhyFHSSTable	NA	-

802.11 MIB Objects	Support	Access
dotPhyDSSSTable	MAY	read-only
dot11PhyIRTable	NA	-
dot11RegDomainsSupportedTable	MAY	read-only
dot11AntennasListTable	MAY	read-only
dot11SupportedDataRatesTxTable	MAY	read-only
dot11SupportedDataRatesRxTable	MAY	read-only
dot11PhyOFDMTable	MAY	read-only
dot11PhyHRDSSSTable	MAY	read-only
dot11HoppingPatternTable	NA	-
dot11PhyERPTable	MAY	read-only
dot11PhyHTTable	MAY	read-only
dot11SupportedMCSTxTable	MAY	read-only
dot11SupportedMCSRxTable	MAY	read-only
dot11TransmitBeamformingConfigTable	MAY	read-only
dot11FastBSSTransitionConfigTable	MAY	read-only
dot11LCIDSETable	MAY	read-only

Annex C Events Content and Format

This section contains the definitions of events related to the Wi-Fi functionality. The events can be reported via different mechanisms, for example, Local Log, syslog, SNMP notifications, etc. Depending on the managed device containing the Wi-Fi component, the event mechanism varies. For example a DOCSIS CM may report the events as part of a syslog message, an entry in the CM local log or an SNMP notification

Each row in Table 27 specifies a Wi-Fi GW event definition

The "Process" and "Sub-Process" columns indicate in which stage the event happens. The "Priority" column indicates the priority the event is assigned. These priorities are defined in the docsDevEvLevel object of the Cable Device MIB [RFC 4639] and in the LEVEL field of the syslog.

The "Event Message" column specifies the event text. The Event Message text may include the symbols <TAGS> and any other tag, e.g., <BSSID> as defined below. Before the first tag there is always a space character. Tags are always separated by commas

The "Message Notes and Details" column provides additional information about the event text in the "Event Message" column. Some of the text fields include variable information. The variables are explained in the "Message Notes and Details" column. For some events the "Message Notes and Details" column may include the keyword <Deprecated> to indicate this event is being deprecated and its implementation is optional.

For events where the "Event Message" or "Message Notes and Details" column includes other parameters such as <P1>, <P2>, …, <Pn>. There is a single space before and after any parameter <Px> in the Event Message text.

This specification defines the tags in Table 27 as part of the "Event Message" column:

Table 27 - Wi-Fi GW event definition

TAG	Description	Format*
<WG-MAC>	Wi-Fi GW MAC Address;	"WG-MAC=xx:xx:xx:xx:xx:xx", xx in lowercase
<STA-MAC>	MAC Address of the wireless station	"STA-MAC=xx:xx:xx:xx:xx:xx", xx in lowercase
<BSSID>	MAC Address of AP (e.g., neighbor AP);	"BSSID=xx:xx:xx:xx:xx:xx", xx in lowercase
<SSID>	SSID value (e.g., neighbor AP);	"BSSID=xx:xx:xx:xx:xx:xx", xx in lowercase
<IF>	Wi-Fi Interface Name	"IF=wlan0"
<ANPI>	Average Noise Plus Interference	"ANPI=nnn"
<ANPI>	Average Noise Plus Interference	"ANPI=nnn"
<ANPI-THRSHLD>	ANPI threshold	"ANPI-THRSHLD=mmm"
<SNR>	Signal to Noise Ratio	"SNR=nnn"
<SNR-THRSHLD>	SNR threshold	"SNR-THRSHLD=mmm"
<REASON-CODE>	Reason code of an indication of Disassociation, Deauthentication, DELTS, ELBA, or DLS Teardown per [802.11] Reason Code field section.	"REASON-CODE=nn"
<REASON-CODE-DESCR>	The meaning of the REASON-CODE per [802.11] Reason Code field section.	"REASON-CODE-DESCR=meaning Reason Code text"
<STATUS-CODE>	Status code in response to a request massage from a station per [802.11] Status Code field section.	"STATUS-CODE=nn"
<STATUS-CODE-DESCR>	The meaning of the STATUS-CODE per [802.11] Status Code field section.	"STATUS-CODE-DESCR=meaning Reason Code text"

Example Event Message:

Rouge IP Detected: WG-MAC=00:54:aa:3:78:01;BSSIS=00:af:e3:5b:55:89;SSID=Free Internet

The "Error Code Set" and Event ID are defined per [OSSI3.0].

The "Requirement" Column indicates the normative requirement of the event.

The "Notification Name" Column indicates the identifier of the notification being sent e.g., SNMP Notification.

The Wi-Fi WG MAY append additional vendor-specific text to the end of the event text.

Table 28 - Event Format and Content

Process	Sub-Process	Priority	Event Message	Message Notes and Detail	Error Code Set	Event ID	Requirement	Notification Name
Connection	Association	Warning	Rouge AP Detected: <WG-MAC>;<BSSID>;<SSID>		X001.1	88.000101	SHOULD	SNMP: clabWIFIWIFIEventNotif
Connection	Association Termination	Warning	<REASON-CODE-DESCR>;<REASON-CODE>;<WG-MAC>;<STA-MAC>;<IF>	See Section C.1.1	X001.2	88000102	MUST	SNMP: clabWIFIWIFIEventNotif
Connection	Association Failure	Warning	<STATUS-CODE-DESCR>;<STATUS-CODE>;<WG-MAC>;<STA-MAC>;<IF>	See Section C.1.2	X001.3	88000103	MUST	SNMP: clabWIFIWIFIEventNotif
Connection	Authentication Failure	Warning	Station exceeds Authentication attempts: <WG-MAC>;<STA-MAC>;<IF>	See Section C.1.3	X001.4	88000104	SHOULD	SNMP: clabWIFIWIFIEventNotif
Connection	Association Failure	Warning	Station exceeds Association: <WG-MAC>;<STA-MAC>;<IF>	See Section C.1.4	X001.5	88000105	SHOULD	SNMP: clabWIFIWIFIEventNotif
Connection	Association	Warning	Station exceeds non-authenticated traffic: <WG-MAC>;<STA-MAC>;<IF>	See Section C.1.5	X001.6	88000106	SHOULD	SNMP: clabWIFIWIFIEventNotif
Connection	Association	Warning	Black Address List Detected: <WG-MAC>;<STA-MAC>;<IF>		X001.7	88000107	SHOULD	SNMP: clabWIFIWIFIEventNotif
Connection	Association	Warning	Black Address List Changed by operator <WG-MAC>		X001.8	88000108	SHOULD	SNMP: clabWIFIWIFIEventNotif
Operation	Failure	Error	Radio Failure: <WG-MAC>;<IF>		X002.1	88000201	MUST	SNMP: clabWIFIWIFIEventNotif
Operation	Thresholds Exceeded	Warning	Noise plus Interference exceeded threshold: <ANPI>;<ANPI-THRSHLD>;<IF>	Threshold defined by A.2.3.20	X002.2	88000202	MUST	SNMP: clabWIFIWIFIEventNotif
Operation	Threshold Exceeded	Warning	SNR below threshold: <SNR>;<SNR-THRSHLD>;<STA-MAC>;<IF>	Threshold defined by A.2.3.20	X002.3	88000203	MUST	SNMP: clabWIFIWIFIEventNotif
Operation	Failure	Warning	Interface Reset (Link Up/Down)		X002.4	88000205	MUST	linkUp, linkDown [RFC 2863]

Configuration	Updated	Information	Configuration Changed <P1>	P1: Config File | Management	X003.1	88000301	MUST	SNMP: clabWIFIWIFIEventNotif
Accounting	Failure	Error	Radius Failure:<STA-MAC>, Reason: <P1>	P1 = Vendor specific text	X003.1	88000301	MUST	SNMP: clabWIFIWIFIEventNotif

C.1 Special Event Requirements

This section details requirements of certain events of Table 28.

C.1.1 Requirements for Event X001.2

This section details management events generated when the Wi-Fi GW sends certain [802.11] unsolicited notifications to the station with particular Reason Code field value.

Theses events are specified per [802.11] notification occurrence, or per aggregation or threshold condition of those [802.11] notification messages as noted in Table 29.

The Wi-Fi GW MUST generate events of type X001.2 for the reason codes and conditions listed in Table 29.

Table 29 - Requirements for Event X001.2

Reason Code	Meaning	Occurrence	Policy	Additional Details
34	Disassociated because excessive number of frames need to be acknowledged, but are not acknowledged due to AP transmissions and/or poor channel conditions.	per occurrence	none	
5	Disassociated because AP is unable to handle all currently associated STAs	per occurrence	none	
23	IEEE 802.1X authentication per [802.1X][802.1X] failed	per occurrence	none	
35	Disassociated because STA is transmitting outside the limits of its TXOPs	per occurrence	none	

C.1.2 Requirements for Event X001.3

This section details the management events generated by the Wi-Fi GW that relates to [802.11] responses to request messages from the client station with particular Status Code field value.

Theses events are specified per 802.11 response message occurrence, or per aggregation or threshold condition of those [802.11] notifications messages as noted in.

The Wi-Fi GTW MUST generate events of type X001.3 for the reason codes and conditions listed in Table 30.

Table 30 - Requirements for Event X001.3

Status Code	Meaning	Occurrence	Policy	Additional Details
13	Responding STA does not support the specified authentication algorithm.	Per occurrence	None	
17	Association denied because AP is unable to handle additional associated STAs.	Per occurrence	None	

Status Code	Meaning	Occurrence	Policy	Additional Details
34	Association denied due to excessive frame loss rates and/or poor conditions on current operating channel.	Per occurrence	None	

C.1.3 Requirements for Event X001.4

This section details the conditions to generate an event to report exceeding Authentication failures.

The Wi-Fi GW SHOULD generate events of type X001.4 for the reason codes and conditions listed in Table 31.

Table 31 - Requirements for Event X001.4

Reason Code	Meaning	Occurrence	Policy	Additional Details
14	Message integrity code (MIC) failure	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
15	4-Way Handshake timeout	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
16	Group Key Handshake timeout	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
17	Information element in 4-Way Handshake different from (Re)Association Request/Probe Response/Beacon frame	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
18	Invalid group cipher	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
19	Invalid pairwise cipher	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
20	Invalid AKMP	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
21	Unsupported RSN information element version	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
22	Invalid RSN information element capabilities	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
24	Cipher suite rejected because of the security policy	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
39	Requested from peer STA due to timeout	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
45	Peer STA does not support the requested cipher suite	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
14	Received an Authentication frame with authentication transaction sequence number out of expected sequence	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	

Reason Code	Meaning	Occurrence	Policy	Additional Details
15	Authentication rejected because of challenge failure	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
16	Authentication rejected due to timeout waiting for next frame in sequence	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
41	Invalid group cipher	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
42	Invalid pairwise cipher	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
43	Invalid AKMP	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
44	Unsupported RSN information element version	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
45	Invalid RSN information element capabilities	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	
46	Cipher suite rejected because of security policy	Count towards reaching Threshold	Threshold defined by AuthenticationFailures attribute from A.2.3.20	

C.1.4 Requirements for Event X001.5

This section details the conditions to generate an event to report exceeding Association failures.

The Wi-Fi GTW SHOULD generate events of type X001.5 for the reason codes and conditions listed in Table 32.

Table 32 - Requirements for Event X001.5

Status Code	Meaning	Occurrence	Policy	Additional Details
18	Association denied due to requesting STA not supporting all of the data rates in the BSSBasicRateSet parameter.	Count towards reaching Threshold	Threshold defined by AssociationFailures attribute from A.2.3.20	
19	Association denied due to requesting STA not supporting the short preamble option	Count towards reaching Threshold	Threshold defined by AssociationFailures attribute from A.2.3.20	
20	Association denied due to requesting STA not supporting the PBCC modulation option	Count towards reaching Threshold	Threshold defined by AssociationFailures attribute from A.2.3.20	
21	Association denied due to requesting STA not supporting the Channel Agility option	Count towards reaching Threshold	Threshold defined by AssociationFailures attribute from A.2.3.20	
22	Association request rejected because Spectrum Management capability is required	Count towards reaching Threshold	Threshold defined by AssociationFailures attribute from A.2.3.20	
23	Association request rejected because the information in the Power Capability element is unacceptable	Count towards reaching Threshold	Threshold defined by AssociationFailures attribute from A.2.3.20	
24	Association request rejected because the information in the Supported Channels element is unacceptable	Count towards reaching Threshold	Threshold defined by AssociationFailures attribute from A.2.3.20	

Status Code	Meaning	Occurrence	Policy	Additional Details
25	Association denied due to requesting STA not supporting the Short Slot Time option	Count towards reaching Threshold	Threshold defined by AssociationFailures attribute from A.2.3.20	
26	Association denied due to requesting STA not supporting the DSSS-OFDM option	Count towards reaching Threshold	Threshold defined by AssociationFailures attribute from A.2.3.20	

C.1.5 Requirements for Event X001.6

This section details the conditions to generate an event to report exceeding request from non-authenticated or non-associated station.

The Wi-Fi GTW SHOULD generate events of type X001.6 for the reason codes and conditions listed in Table 33.

Table 33 - Requirements for Event X001.6

Reason Code	Meaning	Occurrence	Policy	Additional Details
6	Class 2 frame received from nonauthenticated STA	Count towards reaching Threshold	Threshold defined by NonAuthenticatedTraffic from A.2.3.20	
7	Class 3 frame received from nonassociated STA	Count towards reaching Threshold	Threshold defined by NonAuthenticatedTraffic from A.2.3.20	
9	STA requesting (re)association is not authenticated with responding STA	Count towards reaching Threshold	Threshold defined by NonAuthenticatedTraffic from A.2.3.20	

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