A syntax for the RADIUS Connect-Info attribute used in Wi-Fi networks

https://datatracker.ietf.org/doc/draft-grayson-connectinfo/

Authors: Mark Grayson (Cisco), Joshua Redmore (Cablelabs), Sri Gundavelli (Cisco), Bruno Tomas (WBA), Michael Sym (Single Digits), Joey Padden (Helium)

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Background

- Presented Draft-00 at IETF 121 – LINK, Draft-01 at IETF 122 – LINK and Draft-05 at IETF 124 LINK
- 2025-09-11 RADEXT WG placed draft in state “Candidate for WG adoption”
- IETF 124 presentation discussed email feedback on Candidate for WG Adoption
- Rough consensus that there was support for the idea of formalizing a connect-info syntax, with appropriate health warnings that original RFC 2869 recommendation and implementations use complex data types.
- Agreement that key-value pairs can be classified into Wi-Fi connection specific, Wi-Fi generic and IP connection generic and that connect-info should focus on the former
- Discussed plan to for dealing with legacy signaling of speed, amendment and channel by referring to these as "legacy"

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Calling out Complex Data Type issue

The examples in Figure 2 and Figure 3 together with the recommendation in [RFC2869] are representations of complex data types, as described in section 3.2.3 of [RFC6158]. Whereas section 3.2.4 of [RFC6158] discourages the use of complex data types where viable alternatives are available, it is argued that the present document does not introduce a new complex data type, rather defines and extends the syntax widely used in existing implementations of the Connect-Info attribute that currently encode information using a complex data type.

Identifying legacy attributes in syntax

```
;-------------------------------------------------------------------
; Connect-Info RADIUS Attribute #77 Syntax for Wi-Fi networks
;-------------------------------------------------------------------

connect-info-77   =  "CONNECT" [legacyAttributes]
                     *( DELIMITER keyValueAttribute )
                     [ DELIMITER legacyChannelNum ]
                     *( DELIMITER keyValueAttribute )

;-------------------------------------------------------------------
; Legacy attributes not linked to a specific connection
;-------------------------------------------------------------------

legacyAttributes  =  1*SP MAXSPEED " Mbps" DELIMITER WIFIAMENDMENT
            ; An optional indication of max achievable data rate
            ; together with Wi-Fi 802.11 amendment information

legacyChannelNum  = "Channel:" *SP CHANNUM
            ; An optional 802.11 channel number
```

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Removing non-connection related key value pairs

```
;-------------------------------------------------------------------
; keyValueAttributes - attributes linked to a specific connection;
;-------------------------------------------------------------------

keyValueAttribute =  "RSSI:" *SP SS ["(" AGGR ")"]
            ; The value of Station RSSI in dBm and optionally the
            ; aggregation technique use for reporting a value derived
            ; from multiple measurements

keyValueAttribute =/ "TxBitRate:" *SP RATE ["(" AGGR ")"]
            ; The AP to device transmission rate in Mbps and
            ; optionally the aggregation technique use for
            ; reporting a value derived from multiple measurements

keyValueAttribute =/ "RxBitRate:" *SP RATE ["(" AGGR ")"]
            ; The device to AP transmission rate in Mbps and
            ; optionally the aggregation technique use for
            ; reporting a value derived from multiple measurements

keyValueAttribute =/ "FrameLoss:" *SP PCT ["(" AGGR ")"]
            ; The AP to device 802.11 frame loss rate experienced,
            ; encoded as an integer percentage and optionally the
            ; aggregation technique use for reporting a value derived
            ; from multiple measurements

keyValueAttribute =/ "FrameRetry:" *SP PCT ["(" AGGR ")"]
            ; The AP to device 802.11 frame retry rate experienced,
            ; encoded as an integer percentage and optionally the
            ; aggregation technique use for reporting a value derived
            ; from multiple measurements
```

Adding new security section related to RSSI

6. Security Considerations

This document describes a syntax that enables a RADIUS client to provide a RADIUS server with information pertaining to the operation of an IEEE 802.11 wireless network, including connection metrics such as RSSI.

While the Connect-Info attribute is intended to convey non-personal information, some metrics, particularly RSSI, can indirectly reveal information about the physical location or movement of an end user relative to the access point. When combined with other data, such as access point locations, RSSI values may enable inference of the user's presence or proximity within a specific area, potentially raising privacy concerns.

Operators SHOULD consider the following when deploying and processing Connect-Info attributes:

* The terms agreed between the operator of the RADIUS client and the operator of the RADIUS server SHOULD include restrictions on the use, storage, and disclosure of connection metrics that may be privacy-sensitive, such as RSSI.

Planning for WG adoption

- Connect-Info one of the topics helping to define new radext charter
- Looking forward to call for WG adoption following completion of re-chartering
- Welcome any further feedback on the latest draft