### PPPoE Tag - Circuit ID and Remote ID

**The Access-Node MUST encode and send the Circuit ID and Remote ID as a TAG in PPPoE discovery**

Packet in the format described below:

+--------------+--------------+--------------+--------------+

| 0x01 | LENGTH | (63)Byte(Char)Circuit ID |

+--------------+--------------+--------------+--------------+

| Circuit ID value (con’t) |

+--------------+--------------+--------------+--------------+

| 0x02 | LENGTH | (63)Byte(Char)Agent Remote ID|

+--------------+--------------+--------------+--------------+

| Remote ID value (con’t) |

+--------------+--------------+--------------+--------------+

**According to TR101, we append the capability of setting PPPoEIA sub-tags as following.**PPPoEIA Circuit-id string length to 57
PPPoEIA Remote-id string to 63

At the max length setting string with Circuit-id, the sub-tag of the packet will be
Type: 01

Length: 3f (63)

Value: node id (1 byte minimum) + “ eth “(occupy 5 bytes) + string (57 bytes remain)

At the max length setting string with Remote-id, the sub-tag of the packet will be

Type: 02

Length: 3f (63)

Value: string (63 bytes remain)

### 2.0 Relay Agent Information Option

 This document defines a new DHCP Option called the Relay Agent Information Option. It is a "container" option for specific agent-supplied sub-options. The format of the Relay Agent Information option is:

 Code Len Agent Information Field

 +------+------+------+------+------+------+--...-+------+

 | 82 | N | i1 | i2 | i3 | i4 | | iN |

 +------+------+------+------+------+------+--...-+------+

 The length N gives the total number of octets in the Agent Information Field. The Agent Information field consists of a sequence of SubOpt/Length/Value tuples for each sub-option, encoded in the following manner:

 SubOpt Len Sub-option Value

 +------+------+------+------+------+------+--...-+------+

 | 1 | N | s1 | s2 | s3 | s4 | | sN |

 +------+------+------+------+------+------+--...-+------+

 SubOpt Len Sub-option Value

 +------+------+------+------+------+------+--...-+------+

 | 2 | N | i1 | i2 | i3 | i4 | | iN |

 +------+------+------+------+------+------+--...-+------+

 No "pad" sub-option is defined, and the Information field shall NOT be terminated with a 255 sub-option. The length N of the DHCP Agent Information Option shall include all bytes of the sub-option code/length/value tuples. Since at least one sub-option must be defined, the minimum Relay Agent Information length is two (2). The length N of the sub-options shall be the number of octets in only that sub-option's value field. A sub-option length may be zero. The sub-options need not appear in sub-option code order.

 The initial assignment of DHCP Relay Agent Sub-options is as follows:

 DHCP Agent Sub-Option Description

 Sub-option Code

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 1 Agent Circuit ID Sub-option

 2 Agent Remote ID Sub-option

**According to RFC3046 and TR101, we append the capability of setting DHCPSNP option82 as following.**DHCPSNP option82 Circuit-id string length to 246.
DHCPSNP option82 Remote-id string to 246.

**Note: DHCPSNP option82 total length is 255 bytes, both Circuit-id and Remote-id share this space.**

At the max length setting string with Circuit-id while the Remote-id manually configured 1 byte string. The space for Circuit-id string is 255-4-4-1=246 bytes.

Type: 01 (sub-option 1 circuit-id)

Length: f8 (248)

Type: 01 (string)

Length: f6 (246)

Value: string (246 bytes remain)

At the max length setting string with Remote-id while the Circuit-id manually configured 1 byte string. The space for Remote-id string is 255-4-4-1=246 bytes

Type: 02 (sub-option 2 remote-id)

Length: f8 (248)

Type: 04 (string)

Length: f6 (246)

Value: string (246 bytes remain)

**Note: When DHCPSNP option82 function enabled on an Edge-Core switch, the default setting of Circuit-id and Remote-id will have a format as following.**

Circuit-id

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Type | Length | Type | Length | Vlan-id(2 byts) | module | Port-num |

01 06 00 04

Remote-id

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type | Length | Type | Length | Mac address(6 bytes) |

02 08 00 06

So, at default settings, the Circuit-id will have 8 bytes length, and the Remote-id will have 10 bytes length. In order to reach the maximum setting of 246 bytes string, users must manually configure either Circuit-id or Remote-id with 1 byte string.

### Conclusion

|  |  |
| --- | --- |
| Agent settings | Length for string |
| PPPoEIA Circuit-id | 57 characters |
| PPPoEIA Remote-id | 63 characters |
| DHCPSNP option82 Circuit-id | 246 characters \*1 |
| DHCPSNP option82 Remote-id | 246 characters \*2 |

\*1 In order to set circuit-id to maximum length 246 characters, you have to configure remote-id to 1 character string.
 If you want to keep the default setting of DHCPSNP option82 Remote-id with Mac-address information (10 bytes = 4+6). The maximum length of Circuit-id you can configure is 241 characters (255-10-4)

\*2 In order to set remote-id to maximum length 246 characters, you have to configure circuit-id to 1 character string.

If you want to keep the default setting of DHCPSNP option82 Circuit-id with Vlan-id, module, port number information (8 bytes = 4+2+1+1). The maximum length of Remote-id you can configure is 243 characters (255-8-4)