CCSP DHCP Snooper Command Syntax Specification

Modification History

Revision	Date	Comments
1	09/30/2014	First Draft

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1 Introduction

The GRE-based Hotspot Architecture requires the support of DHCP snooping and the insertion of various Access Point (AP) parameters into the DNS SRV RR messages (AP-MAC-Address, SSID-Name, and SSID-Type).

The DHCP Snooper command utility is provided as "dhcp_snooperd." This command is used by CCSP Utopia handle_gre.sh script. It was designed to support DHCP snooping process for inserting information about the AP and the SSID on which the DHCP message is received from the client device connected to the public network. Insertion of SSID related information in the circuit-ID and remote-id sub-options can be either enabled or disabled by the MSO.

The DHCP snooper shall be configured to insert the client information as a comma delimited ASCII string as follows:

AP-MAC-ADDRESS, SSID-STRING, SSID-TYPE

AP-MAC-ADDRESS must be a string containing MAC address of the AP, in the format "xx:xx:xx:xx:xx:xx"
SSID-TYPE must be "o" for open SSID, and "s" for secure SSID

DHCP relay agent circuit-ID sub-option.
Enable insertion of Client MAC address in DHCP relay agent Remote-ID sub-option.

For example, if AP-MAC-ADDRESS is "00:10:A4:23:B6:C0", SSID is "xfinitywifi", and SSID-type is secure, then the value of circuit-id would be the string "00:10:A4:23:B6:C0, xfinitywifi, s"
The DHCP snooper shall use a Berkeley Packet Filter to detect DHCP client broadcasts. Specifically the snooper shall filter on DHCPDISCOVER messages from UDP port 68 to UDP port 67. Option 82 insertion shall only be performed on DHCPDISCOVER messages originating from the XWG public network.

The MSO shall be able to enable or disable the DHCP snooper. The snooper shall be implemented as a process 'daemon' which responds to enable/disable signals. The snooper will start execution on system startup and reside in memory at all times. It will be configured at runtime with command line parameters.

2 Design Considerations

The DHCP snooper uses the following tokens to interface with Utopia SYSEVENT:

```
#define kSnooper_events                 "snooper-update"

#define kSnooper_enable                 "snooper-enable"
#define kSnooper_circuit_enable          "snooper-circuit-enable"
#define kSnooper_remote_enable           "snooper-remote-enable"
#define kSnooper_debug_enable            "snooper-debug-enable"
#define kSnooper_log_enable             "snooper-log-enable"
#define kSnooper_max_clients             "snooper-max-clients"

#define kSnooper_circuit_id0            "snooper-queue0-circuitID"
#define kSnooper_circuit_id1            "snooper-queue1-circuitID"
#define kSnooper_circuit_id2            "snooper-queue2-circuitID"
#define kSnooper_circuit_id3            "snooper-queue3-circuitID"
#define kSnooper_circuit_id4            "snooper-queue4-circuitID"

#define kSnooper_ssid_index0             "snooper-ssid0-index"
#define kSnooper_ssid_index1             "snooper-ssid1-index"
#define kSnooper_ssid_index2             "snooper-ssid2-index"
#define kSnooper_ssid_index3             "snooper-ssid3-index"
#define kSnooper_ssid_index4             "snooper-ssid4-index"

#define kSnooper_circuit_id_len          30
#define kSnooper_MaxClients              30

#define kSnooper_MaxRemoteLen   20
#define kSnooper_MaxMacAddrLen  18
#define kSnooper_MaxHostNameLen 64
#define kSnooper_MaxStatusLen   10
#define kSnooper_MaxIpAddrLen   20
#define kSnooper_MaxCircuitLen  80
```

3 Command Syntax

3.1 General

The command syntax is:

Usage: dhcp_snooperd [-e <enable>] [-f <run in foreground>] [-d <debug>] [-q <start queue>]

[-n <number of queues>]

[-e <enable>]
* to enable dhcp snooping or not
  0 – disable dhcp snooping
  1 – enable dhcp snooping

[-f <run in foreground>]
* to run in foreground

[-d <debug>]
* to enable debug print or not
  0 – disable debug print
  1 – enable debug print

[-q <start queue>]
* start or first queue number

[-n <number of queues>]
* Number of queues. These must be consecutive with the first queue number.
  Example: if first queue number = 2 and number of queues = 2
  then there would be two queues with the first queue starting
  at 2 e.g. the first queue = 2 and the second queue =3

4 References

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