中華電信研究院
Chunghwa Telecom Laboratories

CE Router Conformance Test Installation Guide

2016/02/22

Configure CE-Router for Testing

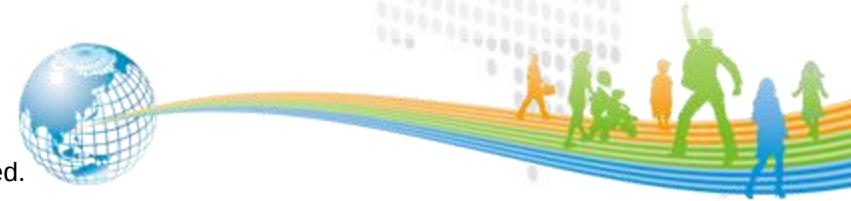
- **WAN**
  - Accept RA
    - Get WAN address from DHCPv6 (or SLAAC)
  - Enable DHCPv6 client
    - At least ask for PD and DNS Server
- **LAN**
  - Router
    - Sending RA with RDNSS and RDNSSL option
  - DHCPv6 Server
    - Stateful or Stateless Server

CE-Router Conformance Tool Installation Guides(1/2)

- **Install v6eval**
  1. **Download v6eval-3.3.3.tar.gz and v6eval_patch_20150430.rar**
     - **Example download path is /home/user/**
  2. **Decompress v6eval-3.3.3.tar.gz and v6eval_patch_20150430.rar**
     - $ *cd /home/user/*
     - $ *tar zxvf v6eval-3.3.3.tar.gz*
     - $ *tar xvf v6eval_patch_20150430.rar*
  3. **Copy all patch files in v6eval_patch_20150430 to v6eval-3.3.3**
     - $ cd */home/user/v6eval_patch_20150430/*
     - $ cp * */home/user/v6eval-3.3.3/lib/Pz/.*
  4. **Compile and install**
     - $ *cd /home/user/v6eval-3.3.3/*
     - $ *make*
     - $ *make install*

CE-Router Conformance Tool Installation Guides(2/2)

- **Install Perl module HMAC**
  - $ *cd /usr/ports/security/p5-Digest-HMAC*
  - $ *make install*
- **Install CE-Router conformance tool**
  1. **Download CE-Router_Self_Test_1_0_X.tar.gz**
     - Example download path is /home/user/
  2. **Decompress CE-Router conformance test package**
     - $ *cd /home/user/*
     - $ *tar zxvf CE-Router_Self_Test_1_0_X.tar.gz*
- **Read the INSTALL.ct in CE-Router_Self_Test_1_0_X to understand**
  1. How to configure【tn.def】、【nut.def 】and【config.pl 】
  2. How to run the tests



CE-Router Conformance Tool Configuration Guides(1/4)

- **Configure【/usr/local/v6eval/etc/tn.def】**
  - **Link0** MUST be EXACT **name of Tester Interface** connect to NUT **WAN** Interface Under Test.
  - **Link1** MUST be EXACT **name of Tester Interface** connect to NUT **LAN** Interface Under Test.

```
#
# Remote Controal Configuration
#
RemoteDevice  cuad0
RemoteDebug 0
RemoteIntDebug  0
RemoteLog 1
RemoteSpeed 0
RemoteLogout  0
RemoteMethod  serial
#filter ipv6

#linkname interface BOGUS ether source address
#   name     of the Tester Interface
Link0    de0    00:00:00:00:01:00
Link1    de1    00:00:00:00:01:01
#Link2    de2    00:00:00:00:01:02
#Link3    de4    00:00:00:00:01:03
```

TNs' interface which connect to CE Router WAN port

TNs' interface which connect to CE Router LAN port

Remove # in front of Link1

CE-Router Conformance Tool Configuration Guides(2/4)

- **Configure【/usr/local/v6eval/etc/nut.def】**
  - **Type** MUST be **router**
  - **Link0** MUST have the **EXACT MAC address** of the CE-Routers' **WAN** Interface
  - **Link1** MUST have the **EXACT MAC address** of the CE-Routers' **LAN** Interface

```
# System type
System    manual

# System information
TargetName  FreeBSD/i386 4.9-RELEASE + kame-

# Name
HostName  target.tahi.org

# Type
#   host, router, special
Type    router

# Super user name and it's password
# if you select manual as "System", you don'
#
User    root
Password  v6eval

#linkname interface The EXACT ether source a
#   name    of the Interface Under Test
Link0   fxp0    00:00:92:a7:6d:f5
Link1   fxp1    00:00:92:a7:6d:f6
#Link2    de0   00:c0:f6:b0:aa:ef
#Link3    de1   00:00:92:a7:6d:f8
#Link4    de2   00:90:27:14:ce:e3
```

Type MUST be router

CERouter_WAN_IFname CERouter_WAN_MAC

CERouter_LAN_IFname CERouter_LAN_MAC

Remove # in front of Link1

CE-Router Conformance Tool Configuration Guides(3/4)

- **Configure【CE-Router_Self_Test_1_0_X/config.pl】**

Basic Function

- DUID type,
- Stateful or Stateless server on CE Router LAN
- Implementation depend condition
- ….

```
# ======================================================== #
# WAN
# ======================================================== #
# Number of RS transmitted when initializing (Needed by CERouter 1.3.8)
#      zero      - only one RS
#      non-zero  - more then one RS
$Init_RS_Num = 1;

#
# Need RA to trigger DHCPv6 Client
#      zero      - DHCPv6 Client sends Solicit packet automatically after initialization
#      non-zero  - Needs RA to trigger DHCPv6 Client sending DHCPv6 Solicit packet
#
$RA_trigger_DHCPv6  = 1;

# DUID configuration (for Clinet)
# It is required to select one DUID type from following.
#      zero      - NUT does not support
#      non-zero  - NUT supports
#
$Support_DUID_LLT = 0;
$Support_DUID_EN  = 0;
$Support_DUID_LL  = 1;
```

```
# ======================================================== #
# LAN
# ======================================================== #
# Support Stateful/Stateless DHCPv6 server on LAN side
#      0 - Only Stateless DHCPv6 server
#      1 - Only Stateful DHCPv6 server
#      2 - Both Stateful and Stateless DHCPv6 server
$Stateful_Server = 2;

#-------------------------------------------------------------------------#
#                                                                         #
# implementation depend condition                                         #
#                                                                         #
#-------------------------------------------------------------------------#

#
# Time between finishing DHCPv6 process on CE Router WAN side and
# CE Router can provide prefix generated from DHCPv6_PD in RA
#
#      default: 6[sec]
#
$wait_lan_ra = 6;

#
# This flag is ONLY needed for LAN RFC 4862
# CE Router initialize LAN interface with concerning WAN interface status or not
# zero - CE Router initialize LAN interface without concerning WAN interface status.
# non-zero - CE Router initialize LAN interface after WAN gets global address.
#
$need_wan_up_first = 0;
```

CE-Router Conformance Tool Configuration Guides(4/4)

- **Configure【CE-Router_Self_Test_1_0_X/config.pl】**

Advanced Function

- Ping, MTU
- WAN interface support global address generated from SLAAC
- …

```
# ================================================== #
# General
# ================================================== #
# Support transmitting echo-request function
#     zero     - not support
#     non-zero - support
$Support_Ping = 0;

# Support mtu configuration
#     zero     - not support
#     non-zero - support
$Support_mtu = 0;

# ================================================== #
# WAN
# ================================================== #
# CE WAN IPv6 addess mode (Needed by WAN_RFC4862 global address test cases)
#     zeo      - WAN global address only generate from DHCPv6 IA_NA
#     non-zeo - WAN global address support SLAAC
$Support_global_addr_SLAAC = 0;

# Support DHCPv6 prefix size from hint
#     zero     - not support
#     non-zero - support
$Support_Hint = 0;
```

```
# Support Confirm Message
#     zero     - not support
#     non-zero - support
$Support_Confirm = 0;

# Support Release Message
#     zero     - not support
#     non-zero - support
$Support_Release = 0;

# Support DNS Search List option on CE WAN side
#     zero     - not support
#     non-zero - support
$Support_DNSSL = 0;

# ================================================== #
# LAN
# ================================================== #
# Support ULA
#     zero     - not support
#     non-zero - support
$Support_ULA = 0;
```

Run CE-Router Conformance Tool

- **Run all tests(example download path is /home/user)**
  - *$cd /home/user/CE-Router_Self_Test_1_0_X/*
  - *$make ipv6ready_p2_ce*
- **Run tests under specified folder (ex : wan_rfc7084)**
  - *$cd /home/user/CE-Router_Self_Test_1_0_X/wan_rfc7084*
  - *$make ipv6ready_p2_ce*
- **Run some tests under specified folder(ex : case 3 to 7 in wan_rfc7084)**
  - *$cd /home/user/CE-Router_Self_Test_1_0_X/wan_rfc7084*
  - *$make AROPT="-s 3 –e 7" ipv6ready_p2_ce*