# Syslib Transport Test

This document covers in detail the various scenarios that are covered as part of Syslib transport testing.

## Test procedure

1. Each test case in the Syslib Transport testing spreadsheet identifies by the name a test setup instance. Locate the test setup name.

2. All IPSec related configuration files and scripts to setup the network environment for a given test setup instance is located in a folder identified by the test setup name. For example, `SYSLIB_TRANSP_OFFLOAD_1` test case requires the test setup from `conf/syslib_duc_lte_trust_5`. All related test configuration scripts for this setup can be located under `conf/syslib_duc_lte_trust_5` folder.

3. To run any given test case, run the `conf/<test_setup_name>/evm/do_setup` on EVM and `conf/<test_setup_name>/secgw_1/do_setup on` the a Linux PC serving as a Security Gateway/Fast path endpoint host (PDN G/w). Some of the test cases require multiple security gateways, in which case the test setup files can be found under `conf/<test_setup_name>/secgw_2`.

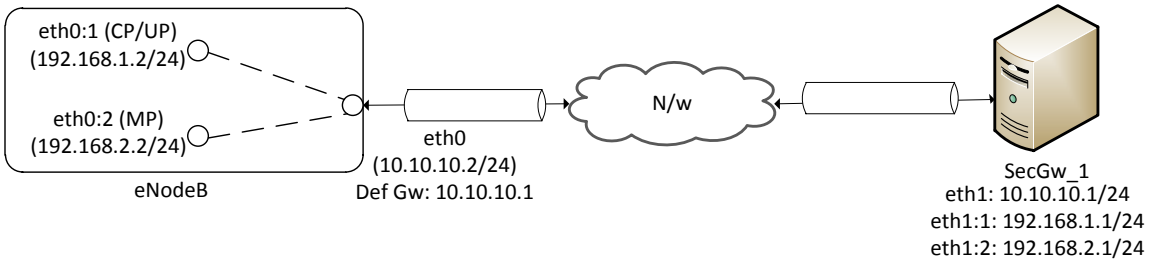
4. To save the test setup details such as the interface IP addresses, routing tables, policy setup, etc, run `conf/dump_setup` script. The script takes the test name to save the logs under as input. It creates a folder called `test_logs/<test_case_name>/` and dumps all relevant setup info in that directory.

   For example, to save logs when running test case `SYSLIB_TRANSP_OFFLOAD_1`, run the `conf/dump_setup` script as follows: `./conf/dump_setup syslib_trans_offload_1`. This would create a folder called `test_logs/syslib_trans_offload_1` where all setup related info is saved.

## Test setup illustrations

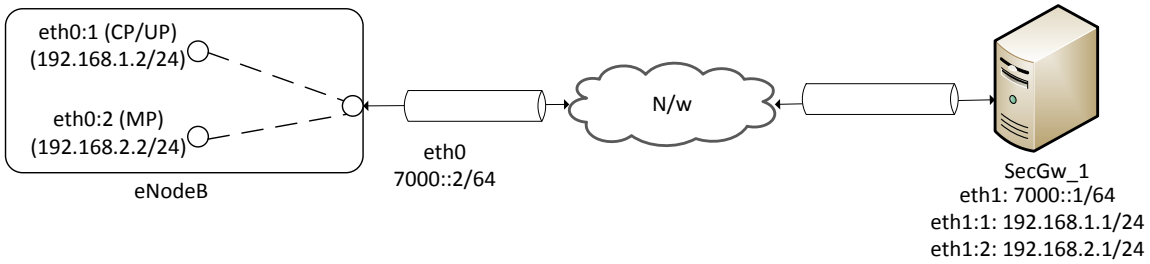
1. syslib_duc_lte_untrust_1:

   Management Plane (MP) assigned one private IPv4/v6 address. Control Plane (CP), User Plane (UP) sharing one private IPv4/v6 address. MP, CP/UP interfaces are of ETH type (bonded over backhaul). Backhaul interface is ETH type. MP, CP, UP use separate CHILD SAs. All child SA going to same Security Gateway (SecGw).



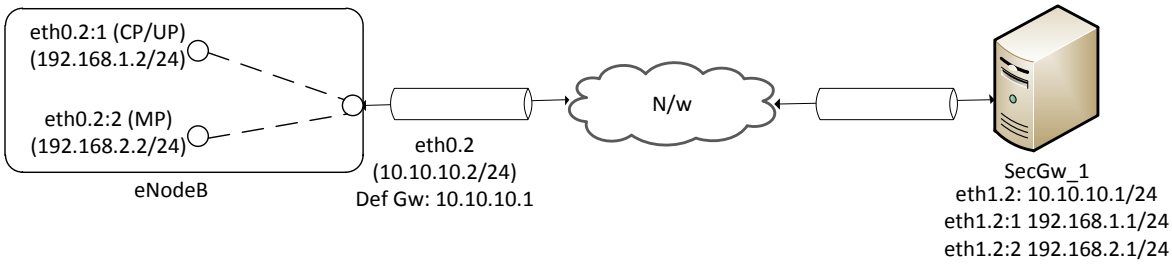

2. syslib_duc_lte_untrust_1_ipv6:

   Management Plane (MP) assigned one private IPv4 address. Control Plane (CP), User Plane (UP) sharing one private IPv4 address. MP, CP/UP interfaces are of ETH type (bonded over backhaul). Backhaul interface is ETH type. MP, CP, UP use separate CHILD SAs. All child SA going to same Security Gateway (SecGw). The Public Outer IP addresses used for IPSec negotiation are IPv6 addresses.



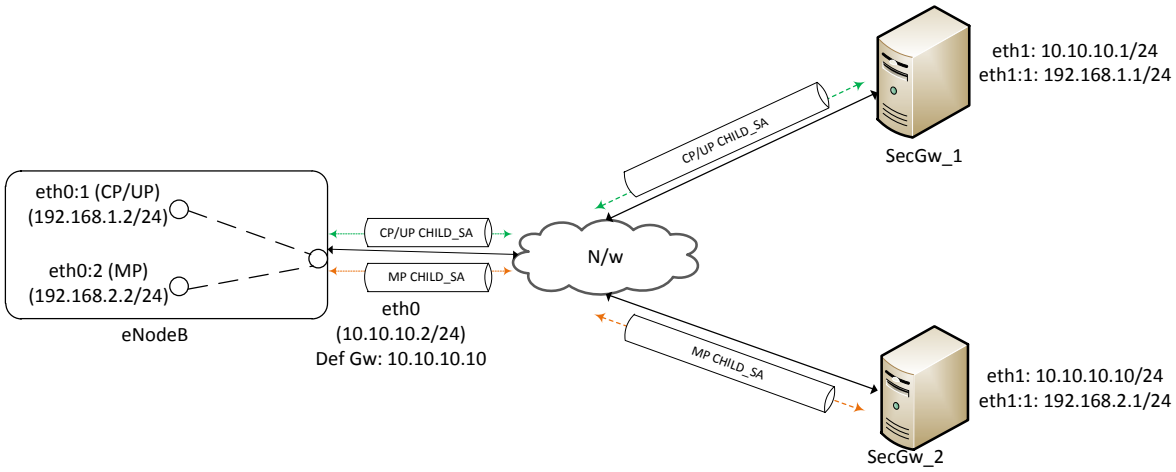

3. syslib_duc_lte_untrust_2:

   MP assigned one private IPv4/v6 address. CP, UP sharing one private IPv4 address. MP, CP/UP interfaces are of ETH type (bonded over backhaul). Backhaul interface is VLAN type. MP, CP, UP use separate CHILD Sas. All child SA going to same SecGw.



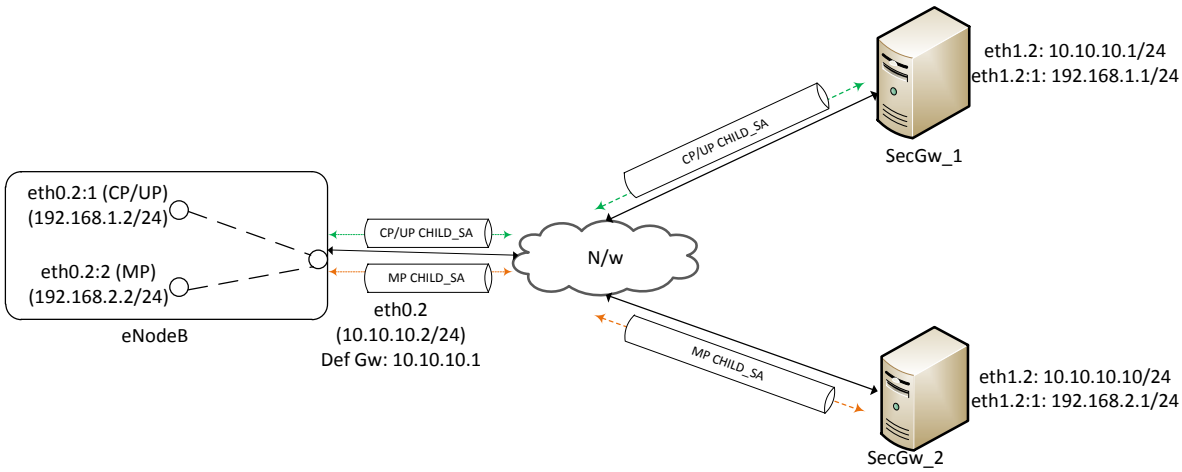

4. syslib_duc_lte_untrust_3:

   MP assigned one private IPv4/v6 address. CP, UP sharing one private IPv4/v6 address. MP, CP/UP interfaces are of ETH type (bonded over backhaul). Backhaul interface is ETH type. MP, CP, UP use separate CHILD SAs. MP CHILD SA using SecGw#1. CP, UP CHILD SA using SecGw#2



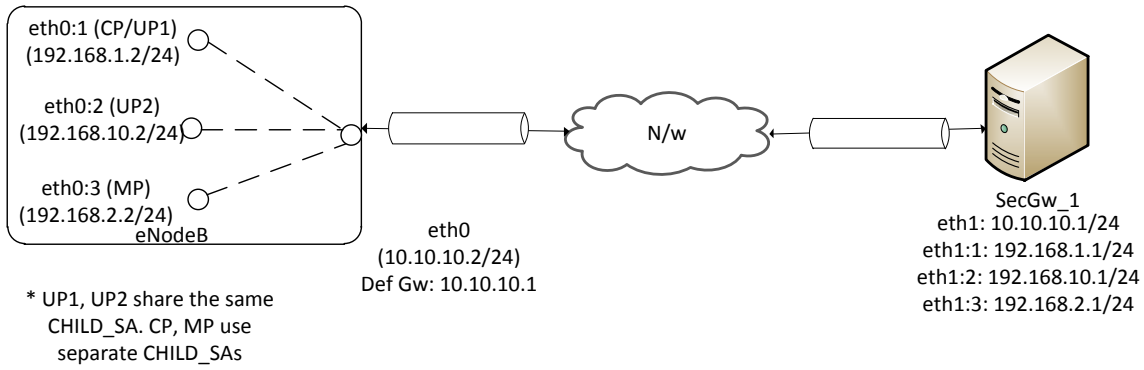

5. syslib_duc_lte_untrust_4:

   MP assigned one private IPv4/v6 address. CP, UP sharing one private IPv4/v6 address. MP, CP/UP interfaces are of ETH type (bonded over backhaul). Backhaul interface is VLAN type. MP, CP, UP use separate CHILD SAs. MP CHILD SA using SecGw#1. CP, UP CHILD SA using SecGw#2



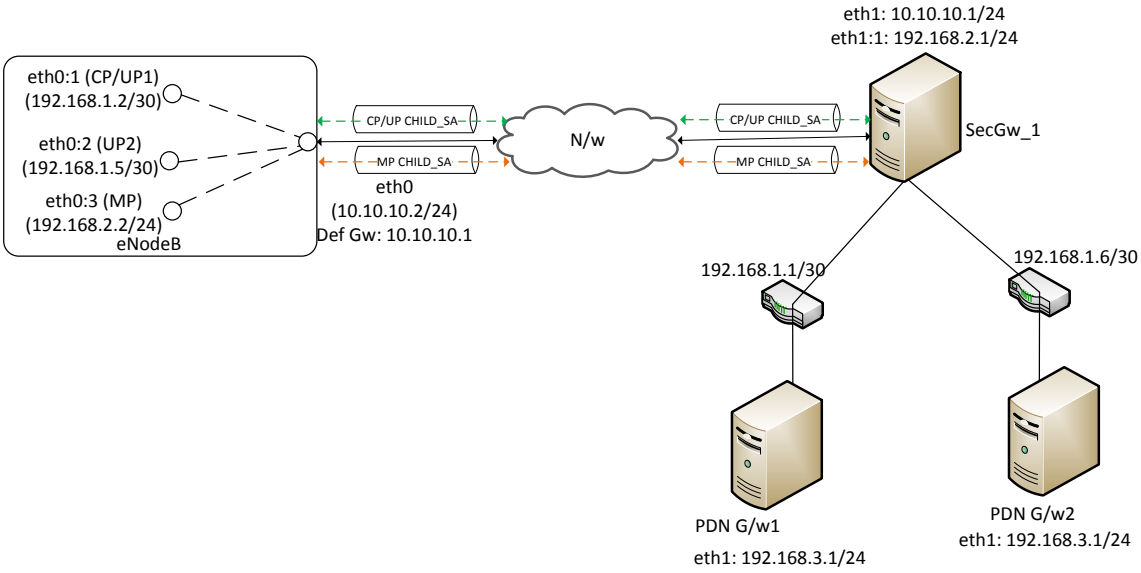

6. syslib_duc_lte_untrust_8:

   MP assigned one private IPv4/v6 address. CP, UP sharing one private IPv4/v6 address. MP, CP/UP interfaces are of ETH type (bonded over backhaul). Backhaul interface is ETH type. MP, CP, UP use separate CHILD SAs. All child SA going to same SecGw. Two or more policies are using same UP CHILD SA



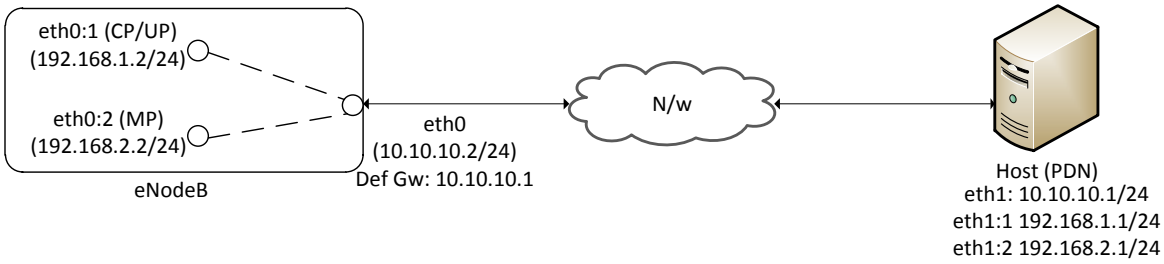

7. syslib_duc_lte_untrust_9:

   Management Plane (MP) assigned one private IPv4/v6 address. Control Plane (CP), User Plane (UP1) sharing one private IPv4/v6 address. An additional private IPv4 address is assigned for UP2. MP, CP/UP interfaces are of ETH type (bonded over backhaul). Backhaul interface is ETH type. MP, CP, UP use separate CHILD SAs. All child SA going to same Security Gateway (SecGw). Using Linux Policy routing, setup Source IP address based routing rules for PDN G/w, i.e., Based on UP inner/private IPv4 address, a different routing table is setup for the a given PDN G/w endpoint.



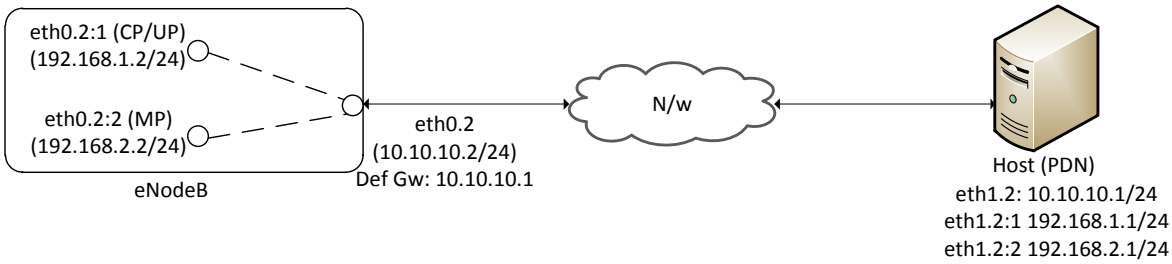

8. syslib_duc_lte_trust_5:

   MP assigned one private IPv4/v6 address. CP, UP sharing one private IPv4/v6 address. MP, CP/UP interfaces are of ETH type (bonded over backhaul)



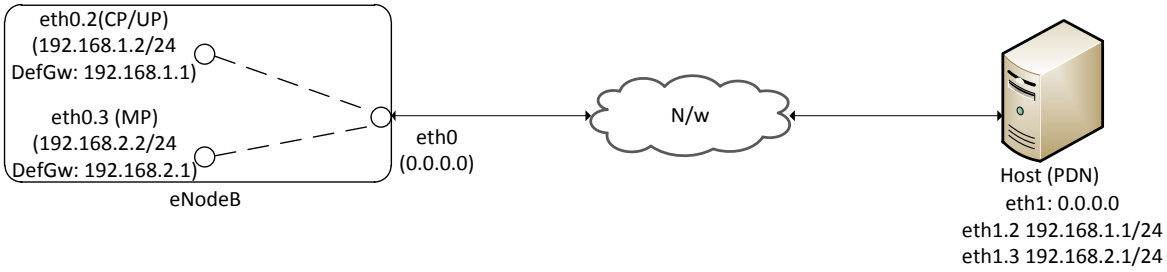

9. syslib_duc_lte_trust_6:

   MP assigned one private IPv4/v6 address. CP, UP sharing one private IPv4/v6 address. MP, CP/UP interfaces are of VLAN type. MP, CP/UP are bonded interfaces using same VLAN Id.



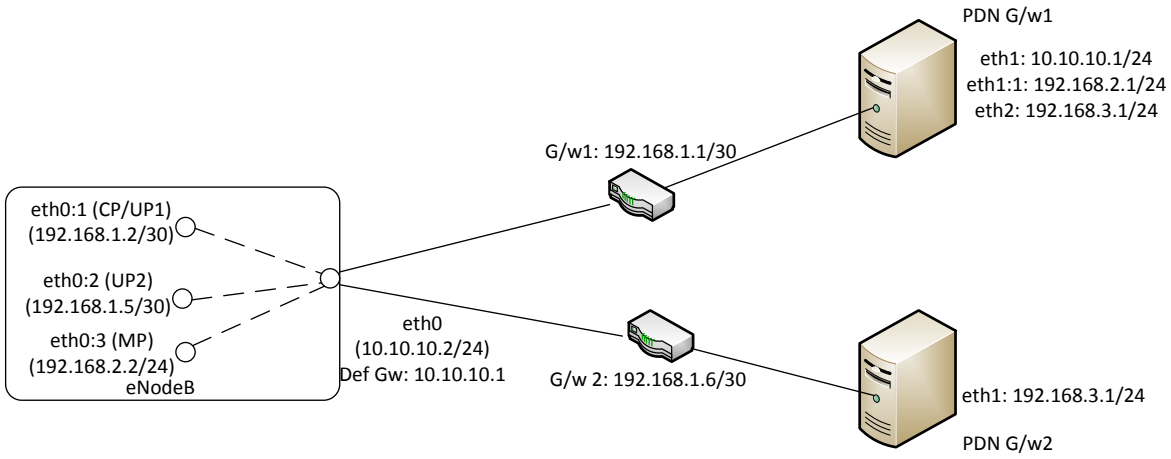

10. syslib_duc_lte_trust_7:

    MP assigned one private IPv4/v6 address. CP, UP sharing one private IPv4/v6 address. MP, CP/UP interfaces are of VLAN type. MP, CP/UP interfaces using different VLAN Ids.



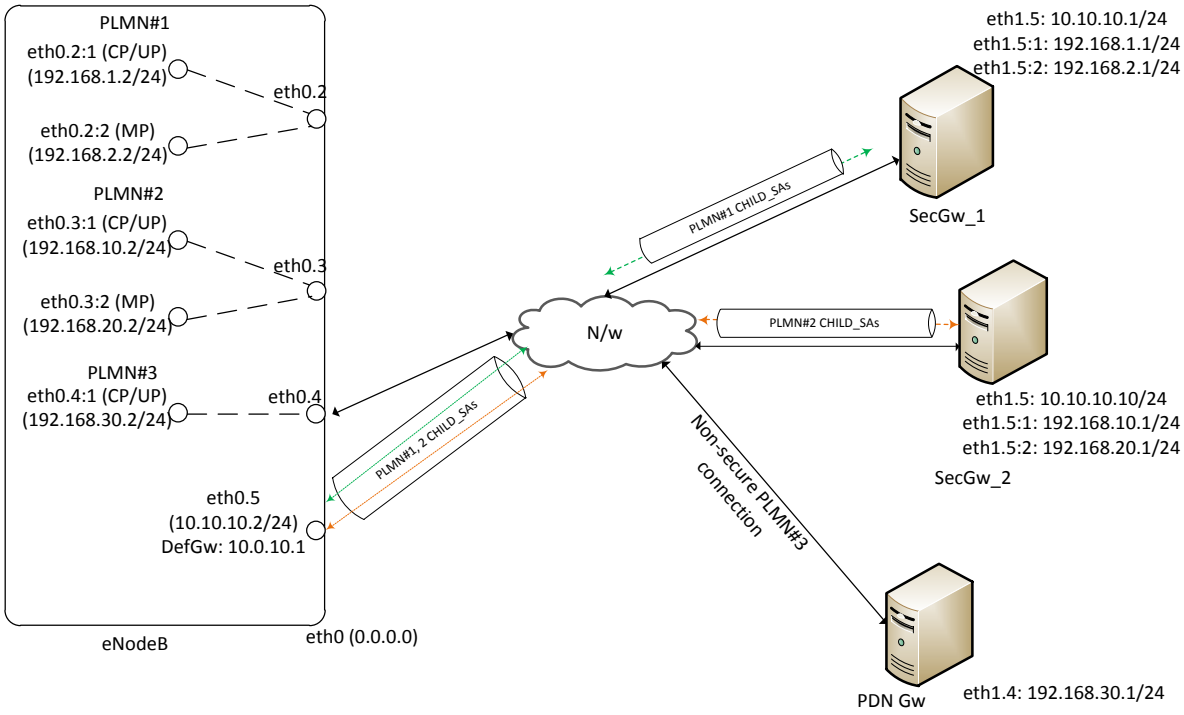

11. syslib_duc_lte_trust_10:

    Management Plane (MP) assigned one private IPv4/v6 address. Control Plane (CP), User Plane (UP1) sharing one private IPv4/v6 address. An additional private IPv4 address is assigned for UP2. MP, CP/UP interfaces are of ETH type (bonded over backhaul). Backhaul interface is ETH type. Using Linux Policy routing, setup Source IP address based routing rules for PDN G/w, i.e., Based on UP inner/private IPv4 address, a different routing table is setup for the a given PDN G/w endpoint.




12. syslib_duc_lte_mix_1:

MP1 assigned one private IPv4 address. CP1, UP1 sharing one private IPv4 address. MP1, CP1/UP1 interfaces are of VLAN type. MP1, CP1/UP1 are bonded interfaces using same VLAN Id eth0.1. MP2 assigned one private IPv4 address. CP2, UP2 sharing one private IPv4 address. MP2, CP2/UP2 interfaces are of VLAN type. MP2, CP2/UP2 are bonded interfaces using same VLAN Id eth0.2. MP3, CP3, UP3 using a separate VLAN eth0.3 interface and are all non-secure.



13. syslib_trans_frag_reass_secure:

    Management Plane (MP) assigned one private IPv4/v6 address. Control Plane (CP), User Plane (UP) sharing one private IPv4/v6 address. MP, CP/UP interfaces are of ETH type (bonded over backhaul). Backhaul interface is ETH type. MP, CP, UP use separate CHILD SAs. All child SA going to same Security Gateway (SecGw). Run data tests of sizes 1-9K to/from PDN G/w.