Mini BKM for testing the 10G network using ilVSS and Linux clients

This document outlines a methodology for testing 10G network cards using ilVSS as a traffic generator and Linux RHEL 7.3 system(s) as network target(s). This will be the preferred method for testing 10G nics, and will replace the use of Windows-based clients, which have historically underperformed.

Requirements

- 1 System Under Test (SUT) with RHEL 7.3 and the latest version of ilVSS installed.
- 1 or more target systems with RHEL 7.3 installed.
- A 10G network switch connecting the SUT and network targets (clients).

***Note**: A single target system with 2 network interfaces should suffice, but more than one system may be used.*

Setting up the SUT

Install RHEL 7.3 operating system and make sure latest 10G network drivers are installed. At the time of this writing the latest drivers are **intel-lan_linuxv22.tar.gz**, located at: http://andante.intel.com/platform/. Select the platform used and look under **NIC** for **RHEL 7.3.**

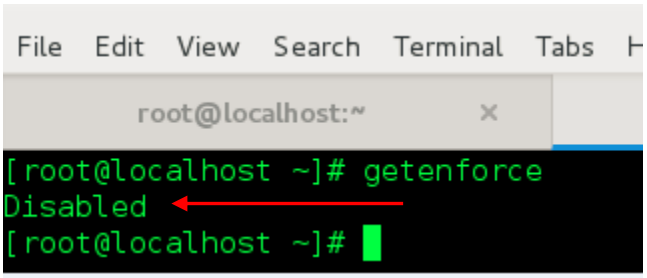
Disable SELinux

Configure SELINUX=disabled in the **/etc/selinux/config** file:

```
[root@localhost ~]# cat /etc/selinux/config

# This file controls the state of SELinux on the system.
# SELINUX= can take one of these three values:
#     enforcing - SELinux security policy is enforced.
#     permissive - SELinux prints warnings instead of enforcing.
#     disabled - No SELinux policy is loaded.
SELINUX=disabled
# SELINUXTYPE= can take one of three two values:
#     targeted - Targeted processes are protected,
#     minimum - Modification of targeted policy. Only selected pr
#     mls - Multi Level Security protection.
SELINUXTYPE=targeted
```

Reboot your system. After reboot, confirm that the **getenforce** command returns **Disabled**:

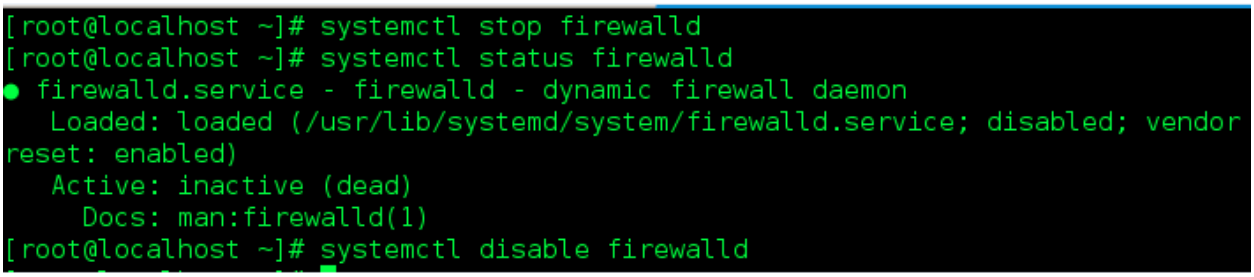


Disable Firewall

Turn off the firewall with command:
systemctl stop firewalld

Verify firewall is stopped with command:
systemctl status firewalld

To permanently disable firewall, use command:
systemctl disable firewalld



Set up IP addresses on SUT

For the 10G interfaces that you will be stressing on the SUT, set up IP addresses to match the subnet of client interfaces. Make sure cables are connected to the switch. After IP addresses are set up on the client side, perform a ping test to ensure connectivity.

***Note**: A minimum of Cat 6 cables should be used when stressing 10G NICs.*

Setting up the network client(s)

Install RHEL 7.3 and latest network drivers the same way you set up the SUT.
Disable SELinux and **disable Firewall** the same way as done on the SUT.

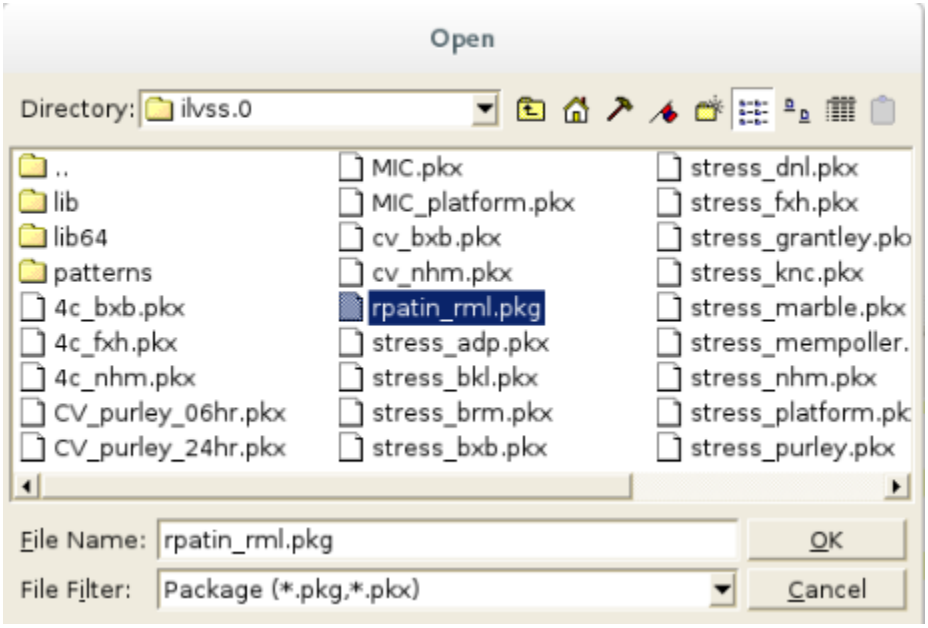
Make sure samba is running with command:
service smb status
If it does not say active (running), start the service:
service smb start

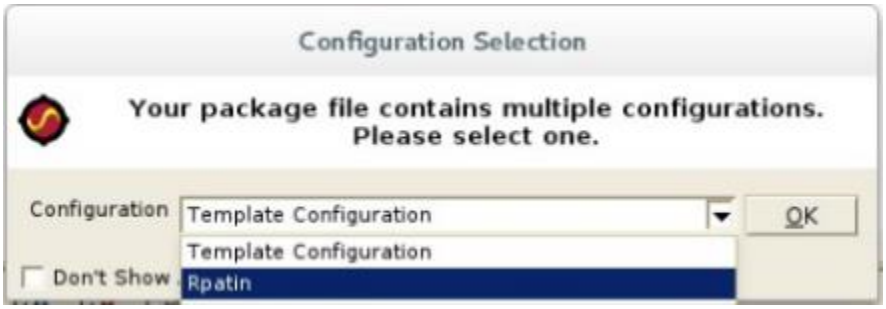
```
[root@localhost ~]# service smb status
Redirecting to /bin/systemctl status  smb.service
● smb.service - Samba SMB Daemon
   Loaded: loaded (/usr/lib/systemd/system/smb.service; enabled; vendor preset: dis
)
   Active: active (running) since Tue 2017-04-11 04:24:25 EDT; 3 weeks 0 days ago
 Main PID: 84639 (smbd)
   Status: "smbd: ready to serve connections..."
   CGroup: /system.slice/smb.service
           ├─61305 /usr/sbin/smbd
```

Install ilVSS on the client(s):

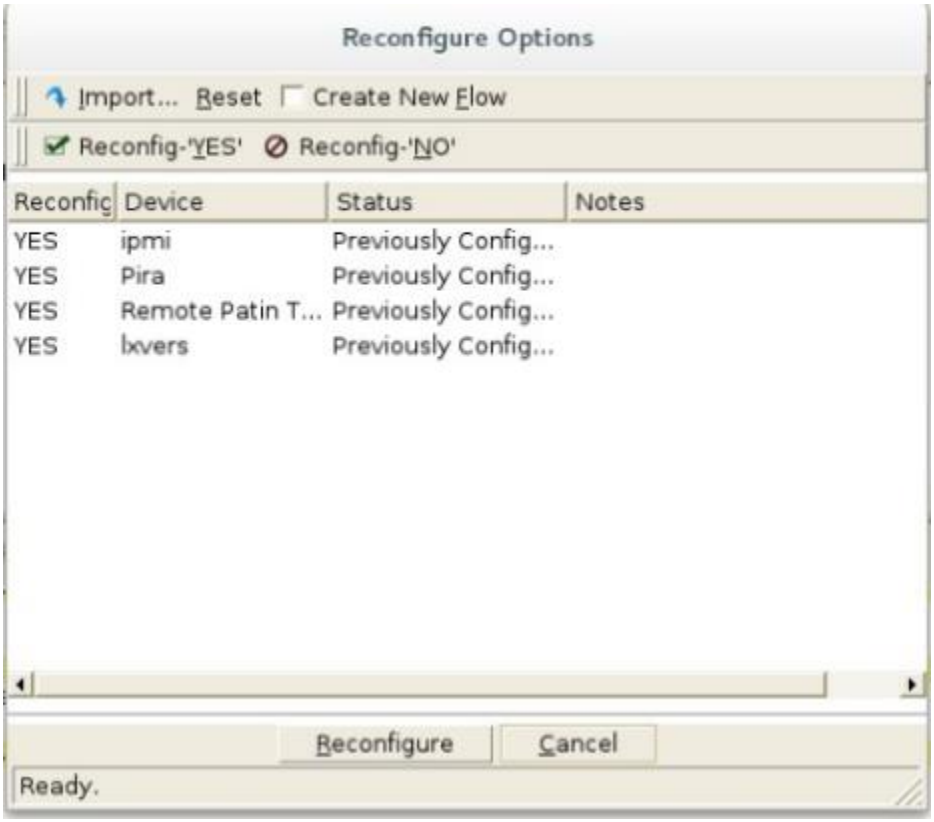
cd /opt/ilvss
./ctc

Open the “rpatin_rml.pkg”,





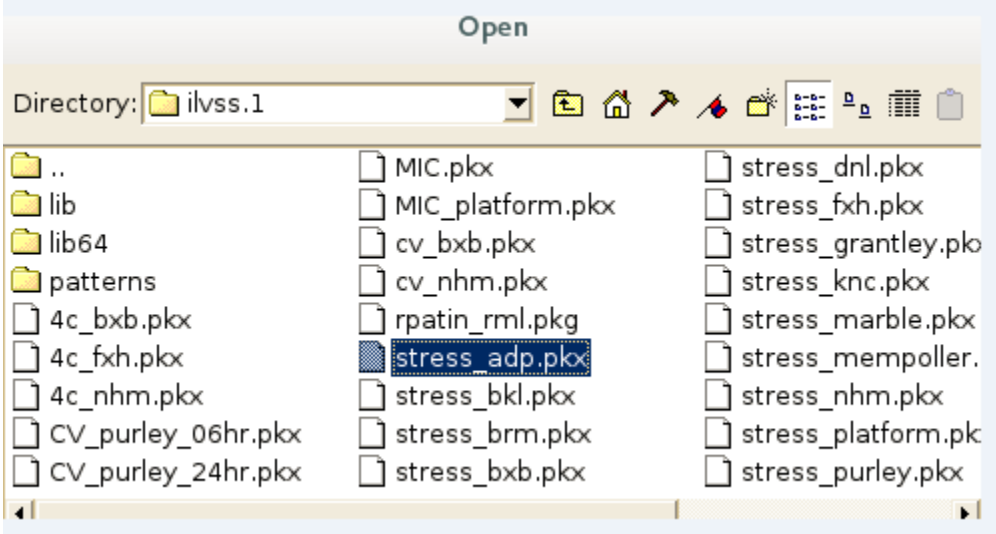
Click “Reconfigure" for rpatin:



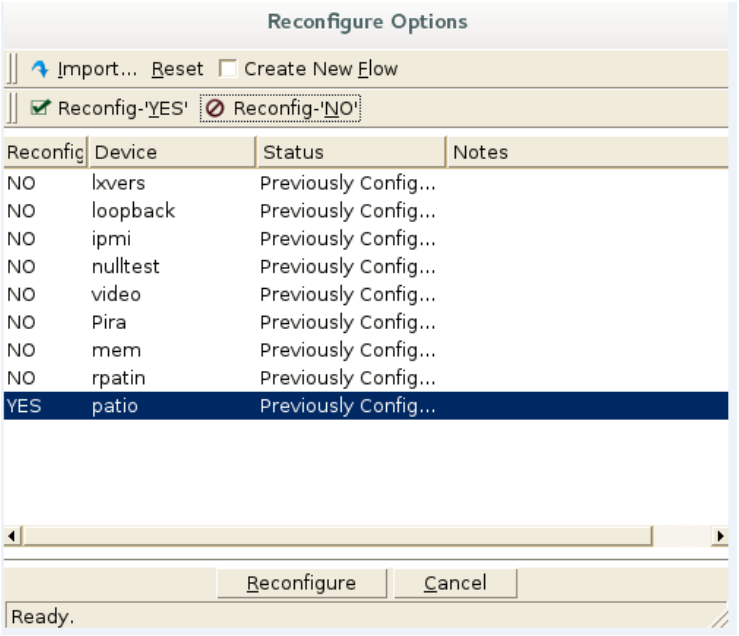
Performing the network stress test

Once the SUT and Client(s) have been set up and connectivity confirmed, open ilVSS on the SUT:
cd /opt/ilvss
./ctc

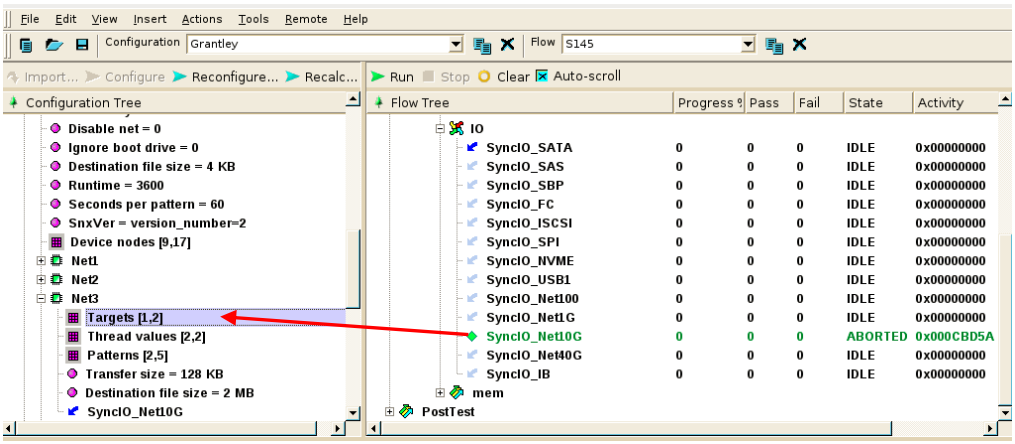
Open the .pkx file appropriate for the SUT platform. (In this example, Adams Pass).

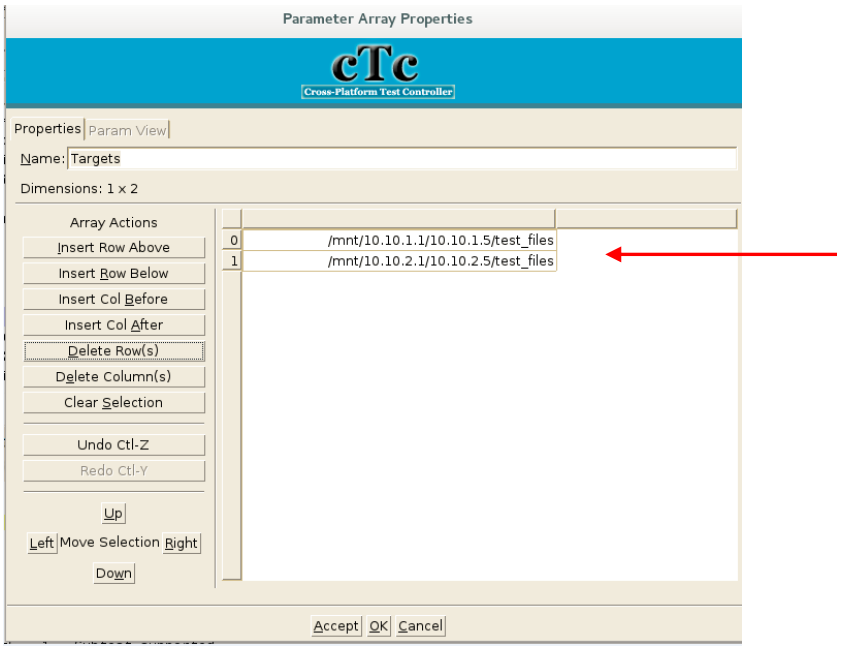


Reconfigure for patio:

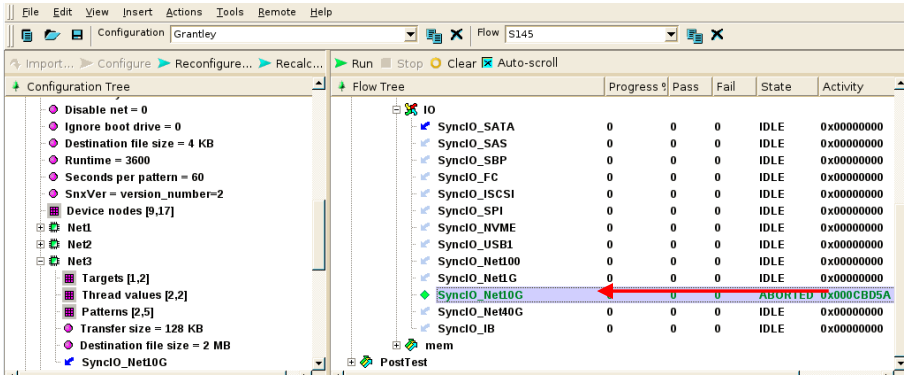


Make sure you see at least two network targets under Parameter Array Properties:

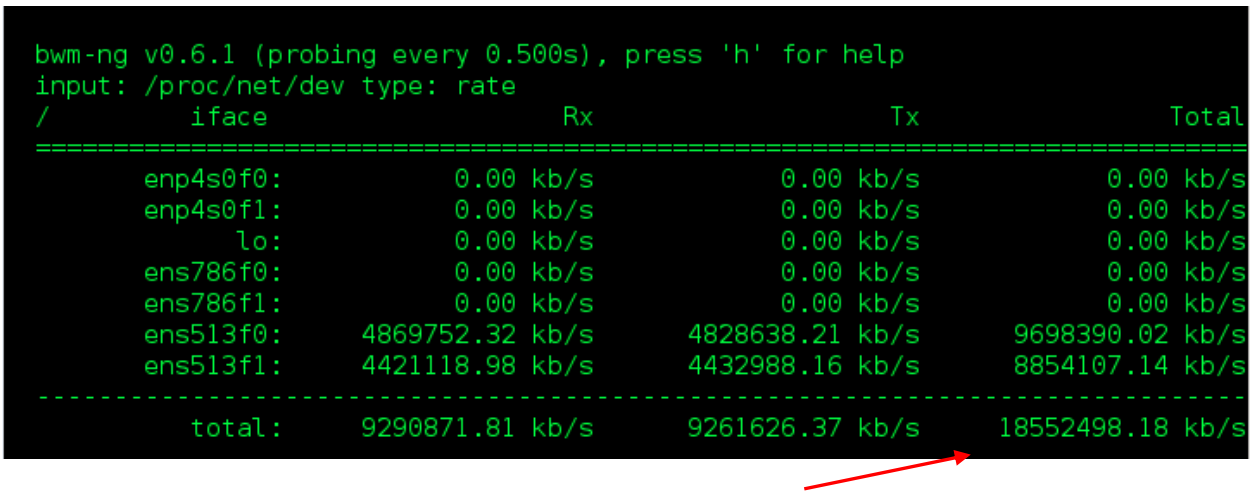




To start the test, right click **SyncIO_Net10G** and select **Run This**.



Using a bandwidth monitor, verify you see average total bandwidth above 80%:



Appendix 1 :
Using Bandwidth Monitor NG to measure throughput

Download Bandwidth Monitor NG from here: https://sourceforge.net/projects/bwmng/ and install as follows:

Open in terminal and run the following commands:

tar –zxvf bwm-ng-0.6.1
cd bwm-ng-0.6.1
chmod 755 *
./configure
make install

To run the tool showing bits per second use this command:
bwm-ng –u bits