



Capacity Optimization Methods Data Generator

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SNIA Emerald™ Training

*SNIA Emerald™ Power Efficiency
Measurement Specification*

Version 3.0

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Outline

- Acknowledgements
- Reminder of the Capacity Optimization Methods test by SNIA Emerald™
- The need of a Data Set Generator
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- Running the data generator



Acknowledgements

- Mr. Don Capps
- Dr. Alan Yoder
- Mr. Chuck Paridon



Reminder of the Capacity Optimization Methods (COMs) test by SNIA Emerald™

- Thin Provisioning
- Read-only Delta Snapshots
- Writeable Delta Snapshots
- Data Deduplication
- Compression

Note: RAID is not required for SNIA Emerald™ V 3.0

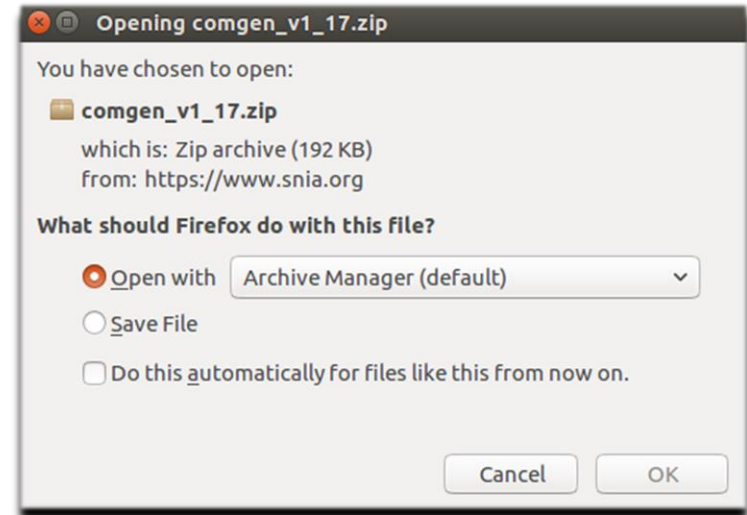
The need of a Data Set Generator

- Maintains **neutrality**.
 - ◆ Do not forget data storage is constantly evolving, same goes for the COMs.
 - ◆ What today works efficiently, tomorrow may not be consider efficient.
- Developed by SNIA members for SNIA Emerald™ Program and the industry
- Must be used with SNIA Emerald™ to claim COMs proper functionality and presence

How to get the COM Test Data Set Generator software

- Go the web page for the materials for testing with SNIA Emerald™ Specification Version 3.0 (shown below)
 - ◆ https://www.snia.org/emerald/download/Spec_v3.0
- Scroll Down to the subtitle “COM Test Data Set Generator”
 - ◆ Click on the link by the same name. You should see a download window like the one shown:

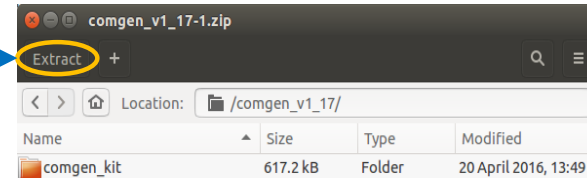
Note: Shown is the Linux version. For Windows the process is very similar.



How to get the COM Test Data Set Generator software

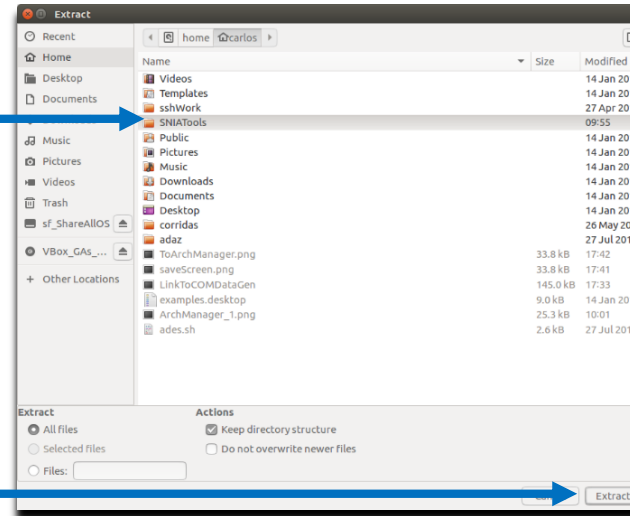
➤ After clicking OK you should see the next screen

- ◆ Click on Extract



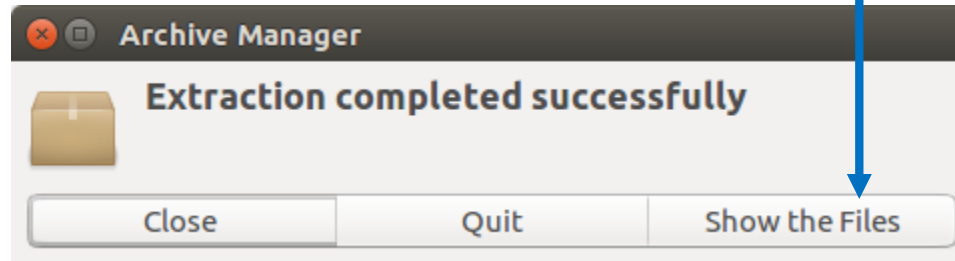
➤ Select the destination directory (folder).

- ◆ Click on Extract



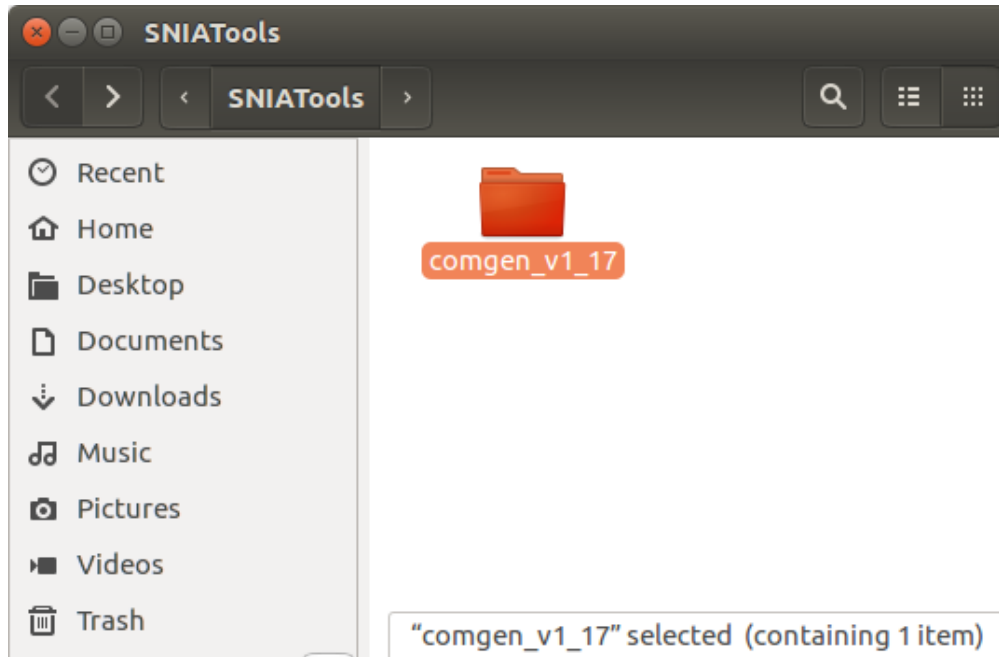
How to get the COM Test Data Set Generator software

- ▶ After clicking extract you should see the next screen
 - ◆ To visually verify that all files are there click on “Show the files”



How to get the COM Test Data Set Generator software

- ▶ The extracted directory will show in a window similar to this.



How to get the COM Test Data Set Generator software

- On a Linux terminal window the files should show something like this

```
carlos@caminante: ~/SNIATools/comgen_v1_17/comgen_kit
carlos@caminante:~/SNIATools/comgen_v1_17/comgen_kit$ ll
total 72
drwxrwxr-x 6 carlos carlos 4096 Apr 20 2016 ./
drwxrwxr-x 3 carlos carlos 4096 Apr 20 2016 ../
drwxrwxr-x 3 carlos carlos 4096 Apr 20 2016 binaries/
-rw-rw-r-- 1 carlos carlos 26831 Apr 13 2016 comgen.c
drwxrwxr-x 2 carlos carlos 4096 Apr 20 2016 comgen_proj/
-rw-rw-r-- 1 carlos carlos 10519 Apr 13 2016 comgen.sln
drwxrwxr-x 2 carlos carlos 4096 Apr 20 2016 docs/
-rw-rw-r-- 1 carlos carlos 1649 Apr 13 2016 makefile
-rw-rw-r-- 1 carlos carlos 1452 Apr 13 2016 README
drwxrwxr-x 2 carlos carlos 4096 Apr 20 2016 win32lib/
carlos@caminante:~/SNIATools/comgen_v1_17/comgen_kit$
```

Running the data generator

- After extracting the files the COM data generator needs to be built.
 - ◆ Following the instructions included with the file a simple make command will trigger the build.
 - ◆ For Windows please follow EXACTLY the steps indicated on the README file.

Running the data generator

- After extracting the files the COM data generator needs to be built.
 - ◆ Following the instructions included with the file a simple make command will trigger the build.
 - ◆ For Windows please follow EXACTLY the steps indicated on the README file.
 - ◆ Additionally there is a guide included in a word file under the docs directory.

Running the data generator

- After the build (make using Linux) you should see a new file as shown below

```
carlos@caminante: ~/SNIATools/comgen_v1_17/comgen_kit
carlos@caminante:~/SNIATools/comgen_v1_17/comgen_kit$ ll
total 120
drwxrwxr-x 6 carlos carlos 4096 Mar 19 16:36 ./
drwxrwxr-x 3 carlos carlos 4096 Apr 20 2016 ../
drwxrwxr-x 3 carlos carlos 4096 Apr 20 2016 binaries/
-rwxrwxr-x 1 carlos carlos 23056 Mar 19 16:36 comgen*
-rw-rw-r-- 1 carlos carlos 26831 Apr 13 2016 comgen.c
-rw-rw-r-- 1 carlos carlos 23688 Mar 19 16:36 comgen_linux.o
drwxrwxr-x 2 carlos carlos 4096 Apr 20 2016 comgen_proj/
-rw-rw-r-- 1 carlos carlos 10519 Apr 13 2016 comgen.sln
drwxrwxr-x 2 carlos carlos 4096 Apr 20 2016 docs/
-rw-rw-r-- 1 carlos carlos 1649 Apr 13 2016 makefile
-rw-rw-r-- 1 carlos carlos 1452 Apr 13 2016 README
drwxrwxr-x 2 carlos carlos 4096 Apr 20 2016 win32lib/
carlos@caminante:~/SNIATools/comgen_v1_17/comgen_kit$
```

comgen is the program that generates the data.



Running the data generator

- When run without parameters the options for generating data will appear.

```
carlos@caminante: ~/SNIATools/comgen_v1_17/comgen_kit
carlos@caminante:~/SNIATools/comgen_v1_17/comgen_kit$ ./comgen

Emerald COM data generator      Version 1.17  RCS  $Revision: 1.7 $
Usage: ./comgen
  -d <dir>
  [-s] <salt>
  [-n number of files] Defaults to 4.
  [-b blocksizes] (in KiB) Enables pattern generation.
  [-C] Selective pattern generation for Compression no dedupe files.
  [-D] Selective pattern generation for Dedupe no compression files.
  [-B] Selective pattern generation for Dedupe and compression files.
  [-I] Selective pattern generation for irreducible files.
  [-f filesize] (in GiB) Enables pattern generation.
  [-r devicename] Use this raw block device.
  [-O] Use 0_DIRECT. ( If it works on your box )
  [-v] Print version number.

Warning: ./comgen writes a minimum of 4GB of files to the directory
specified in <dir>
carlos@caminante:~/SNIATools/comgen_v1_17/comgen_kit$
```

It is recommended to read the guide included with the kit to fully understand what each option does.



Running the data generator

➤ Want to see a running example?



Q&A

Thank You for Your Attention

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