Vdbench Script Configuration for Emerald

Chuck Paridon

SNIA Emerald™ Training
SNIA Emerald Power Efficiency Measurement Specification, for use in EPA ENERGY STAR®
July 14-17, 2014
Emerald Vdbench Script Configuration

- There are two sets of parameters within the Vdbench Script template that require editing.

- The number of threads to be used for each of the 5 workloads. These determine with IO intensity applied by Vdbench (dependent on the robustness of the storage device).

- The storage target designators that provide the IO path to the actual address space.
Emerald Vdbench Script Configuration

- The thread count for several of the workloads should be the same.
- The prefill threads should = the sequential write threads as they perform the same function.
- The conditioning thread count must = the Hot Band thread count as conditioning is done @ 100 load.
- In all cases, the thread count limit is determined by:
  - The 20 ms. response time ceiling or,
  - The maximum IO rate of MB/s rate below 20 ms RT.
Emerald Vdbench Script Template

# Pre-fill storage workload.
# Replace Change_a1 with the number of streams across the concatenated storage space.
# Hint: Normally Change_a2 equates to Change_a1.

wd=wd_fill, sd=sd*, seekpct=eof, streams=Change_a1

#################################################################
# Pre-fill and Conditioning Test definitions.
#################################################################

# Pre-fill Test.
# Procedure to fill storage.
# Replace Change_y1 with the optimal number of threads that the system under test can handle and fill the storage space quickly.
# The number of threads (Change_y1) for the pre-fill workload shall be a multiple of Change_a1.
# Hint: After tuning Change_y2 below, set Change_y1 = Change_y2.

rd=rd_prefill, wd=wd_fill, iorate=max, rdpct=0, xfersize=256K, elapsed=5000m, interval=60, th=Change_y1

# Conditioning Test.
# Test to condition and stabilize the storage system under test.
# Replace Change_x1 with the optimal number of threads for the system under test. Recommend ~8 per physical drive in system.

# After tuning to determine Change_x2 below, Change_x1 shall be set = Change_x2.
rd=rd_conditioning, wd=HOTwd*, iorate=MAX, warmup=10m, elapsed=12H, interval=60, th=Change_x1
# Active Test Definitions

# Default parameters used for all active run definitions.
rd=default,iorate=MAX,elapsed=31m,interval=60
# Hot Band Test Phase.
# Replace Change_x2 with the optimal number of threads for the system under test. Recommend ~8 per physical drive in system.
rh_hband_final,wd=HOTwd*,th=Change_x2
# Random Write Test Phase.
# Replace Change_x3 with the optimal number of threads for the system under test. Recommend ~4-8 per physical drive in system.
rh_rw_warm,wd=wd_mixed,rdpct=0,xfersize=8k,elapsed=10m,th=Change_x3
# Random Read Test Phase.
# Replace Change_x4 with the optimal number of threads for the system under test. Recommend ~8 per physical drive in system.
rh_rr_warm,wd=wd_mixed,rdpct=100,xfersize=8k,elapsed=10m,th=Change_x4
# Sequential Write Test Phase.
# Replace Change_y2 with the optimal number of threads for the system under test. Recommend 2-3 per physical drive in system.
# The number of threads (Change_y2) for the sequential workload shall be a multiple of Change_a2.
rh_sw_warm,wd=wd_seq,rdpct=0,xfersize=256K,elapsed=10m,th=Change_y2
rh_sw_final,wd=wd_seq,rdpct=0,xfersize=256K,th=Change_y2
Emerald Vdbench Script Template

# Sequential Read Test Phase
# Replace Change_y3 with the optimal number of threads for the system under test. Recommend 2-3 per physical drive in system.
# The number of threads (Change_y3) for the sequential workload shall be a multiple of Change_a2.
rd=rd_sr_warm,wd=wd_seq,rdpct=100,xfersize=256K,elapsed=10m,th=Change_y3
rd=rd_sr_final,wd=wd_seq,rdpct=100,xfersize=256K,th=Change_y3

# For additional information see http://sniaemerald.com

##########################
# END
##########################