



Using WSL2 for the database development platform



Carlos Lopez

Microsoft MVP MCP Data Platform



/carlos-lopez-taks



@CarlosLopezDBA



carlosarturo.lopeztaks



caltls@gmail.com

Experience

Microsoft Certified Professional 2012/2014,
2016-2017

More 10 years of experience

Multi-platform DBA

Community

Guatemala SQL Server User Group – board
member

Blogger, Speaker

Fields of Experience

RDBMS: MS SQL Server, MySQL

Oracle 10-11g, NoSQL: Mongo

Linux Distros





Agenda

WSL2 Insights

What is it? – Features

Performance Facts & History

Benchmarking Tests made - Docker on Windows History

Preparing your Environment

Setting WSL2 , Requirements for Containers,
Preparing your SQL, IDE's and Environment.

Demo

Hovering Containers – DB - OS

01

02

03

04

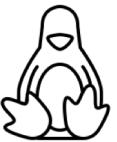


WSL2 Insights

What is it? – Features

What is WSL2?

Windows Subsystem for Linux v2



Complete GNU subsystem over windows

1. GNU/Linux distros in Microsoft Store

2. Executes Bash shell scripts **transparently**

3. Full Software install within subsystem GNU/Linux

4. Executes RPM packages from GNU/Linux on Windows



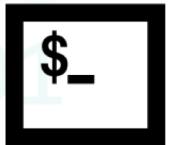
What is WSL2?

Windows Subsystem for Linux v2



Executes Linux binaries on Windows

Performance improvement on File System.



Full compatibility on windows kernel operative system

WSL1 vs WSL2

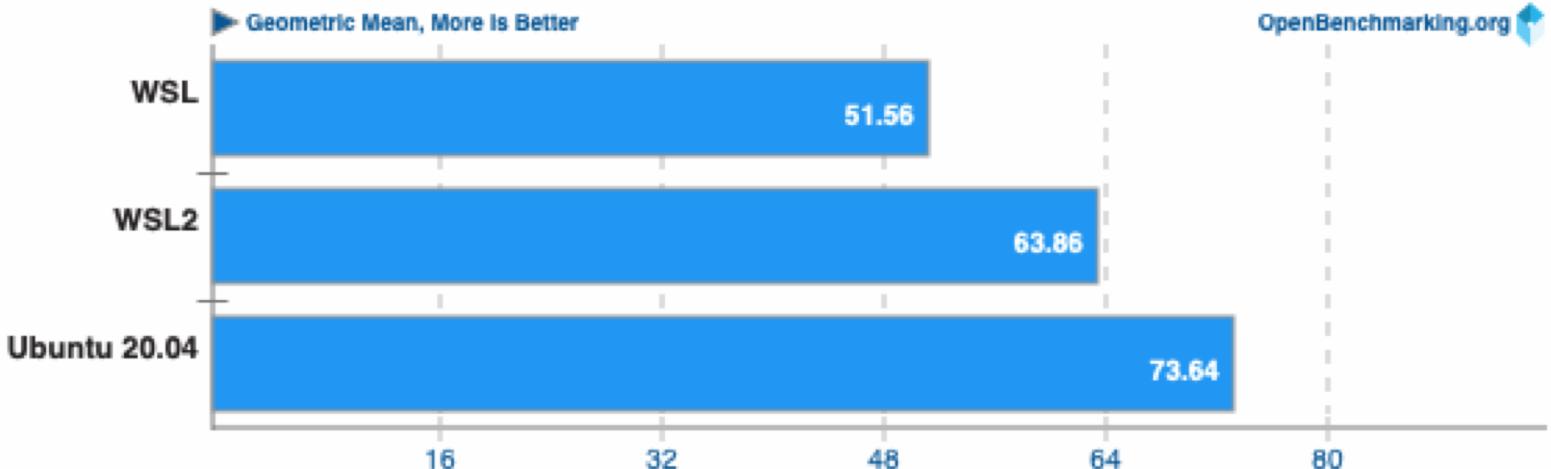
Feature	WSL 1	WSL 2
Integration between Windows and Linux		
Fast boot times		
Small resource foot print		
Managed VM		
Full Linux Kernel		
Full system call compatibility		
Runs with current versions of VM Ware and VirtualBox		
<u>Performance across OS file systems</u>		

Performance Benchmark Tests

Overall tests

Geometric Mean Of All Test Results

Result Composite



OpenBenchmarking.org

Performance Facts & History

Benchmarking Tests made - Docker on Windows Story So Far...

Performance Benchmark Tests

RDBMS Test

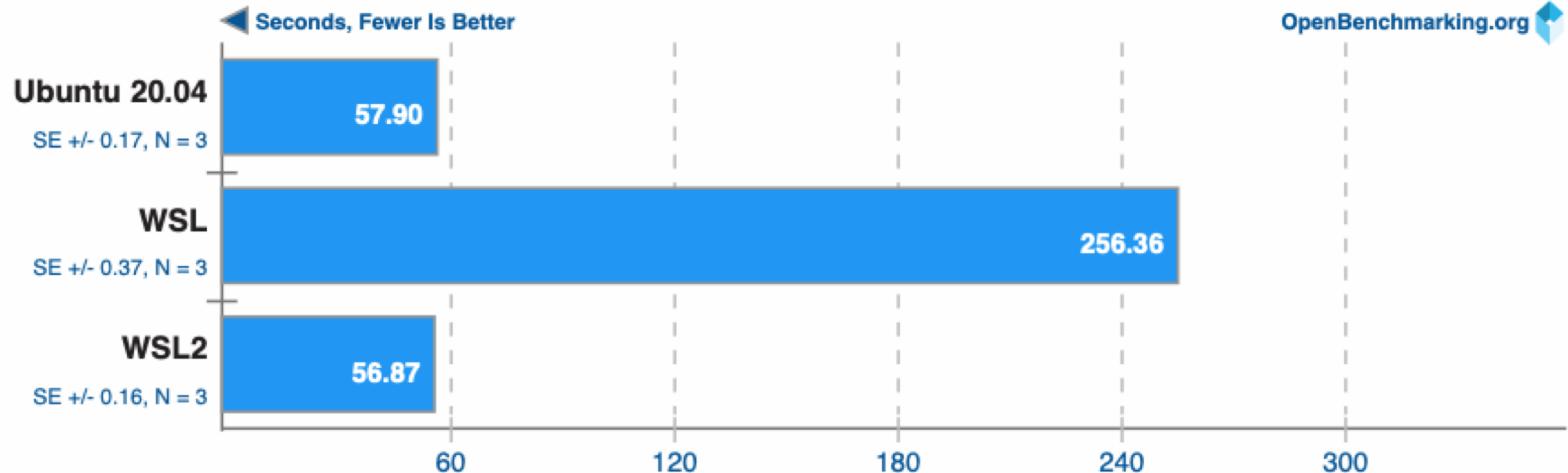
SQLite Speedtest

SQLite Speedtest v3.30

Timed Time - Size 1,000



OpenBenchmarking.org



Performance Benchmark Tests

NoSQL Tests

Redis

Redis v5.0.5

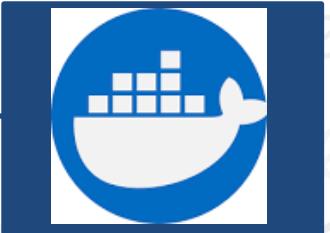
Test: SADD



Docker on Windows

The Story So Far..

2016 2017 2018 2019



Docker CE 2.0.0.3

Kubernetes 1.10.11, Linux Kernel 4.9.93, Hyper-V

Docker CE 2.0.0.0

K8s Support, Docker Compose,

Docker CE 17.09.1

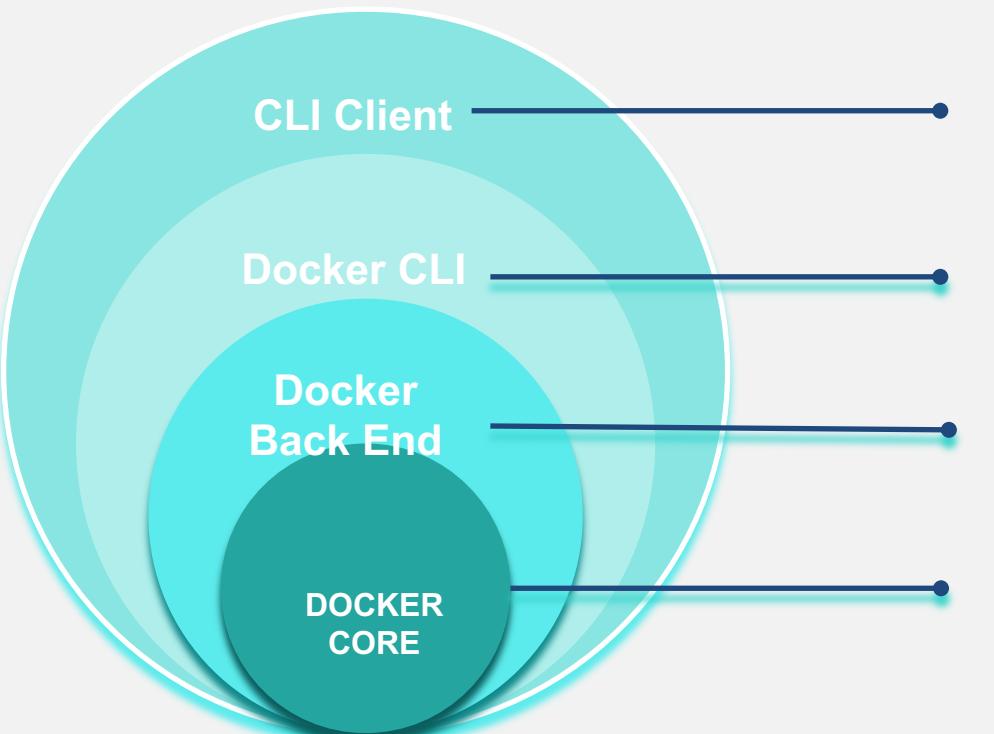
VPNKit Bridge, Fast Boot 2min

Docker for Windows 1.12.0

Docker Machine 0.8.0
Docker Compose 1.8.0

Docker on Windows

Communication Layers



CLI Client

Command Line Interface PowerShell, Terminal

Docker CLI

Docker Interpreter interface for Command Line Interface through PowerShell console

Docker Back End

Set of resources to control the machine and container hub

Docker Core

Layer that handles the service and the service container itself.

Steps to Enable WSL2

Requirement

Windows 10 ver. 2004 Build 19041 or above

1. From PowerShell CLI enable Feature

```
dism.exe /online /enable-feature /featurename:Microsoft-Windows-Subsystem-Linux /all /norestart
```

2. Install Docker Desktop

3. Set WSL mode into 2

```
wsl -l -v
```

Upgrade V2:

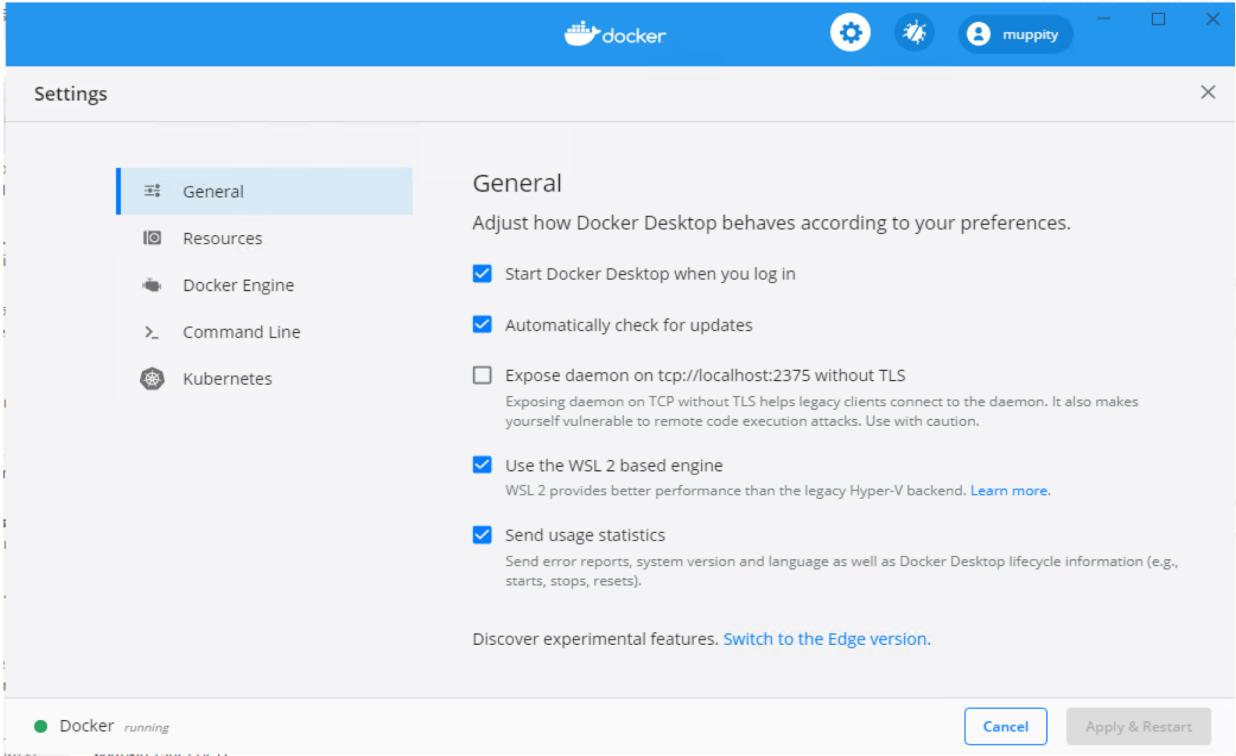
```
wsl --set-version (distro name) 2
```

```
wsl --set-default-version 2
```

Preparing your Environment

Setting WSL2 , Requirements for Containers, Preparing your SQL, IDE's and Environment

Preparing your environment



Preparing your environment

The screenshot shows the Docker Settings window with the title "Settings". The left sidebar has a tree view with "General" expanded, showing "Resources" selected. Other options include "PROXIES", "NETWORK", "WSL INTEGRATION" (which is currently selected), "Docker Engine", "Command Line", and "Kubernetes". The main pane is titled "Resources WSL Integration" and contains the sub-section "Configure which WSL 2 distros you want to access Docker from". It features a checked checkbox for "Enable integration with my default WSL distro" and an unchecked checkbox for "Enable integration with additional distros". Below these is a toggle switch set to "Ubuntu-20.04". A "Refresh" button is located at the bottom of this section. At the very bottom of the window, there are status indicators: "Docker running" (green dot) and buttons for "Cancel" and "Apply & Restart".

Settings

General

Resources

PROXIES

NETWORK

WSL INTEGRATION

Docker Engine

Command Line

Kubernetes

Resources WSL Integration

Configure which WSL 2 distros you want to access Docker from

Enable integration with my default WSL distro

Enable integration with additional distros:

Ubuntu-20.04

Refresh

Docker running

Cancel

Apply & Restart

Preparing your SQL environment

Define your SQL Container on a Dockerfile

Create Volumes dedicated for SQL container for your data.

Build and test your Docker Container SQL Image

Configure your Git Repository

Run your image as a container

Use ACI feature pull your container into your repository

Tools and IDE's Environment



Visual Studio Code WSL2 Extension



SQL Server VSC Extension



Azure CLI Tools



Docker VSC Extension



Azure Data Studio



SSMS



Demo

Hovering the tool

Important Notes

WSL2 is a better way to handle Docker SQL Containers on Windows

WSL2 filesystem I/O is better to handle your SQL Containers

Always create dedicated volumes to store your SQL Containers

Q / A

Questions?



Material



Github

<https://github.com/Muppity/Presentations-Material>

Docker, Kubernetes Resources

https://hub.docker.com/_/microsoft-mssql-server

[Ubuntu on WSL2](#)

[Microsoft WSL2 Guide](#)

[WSL2 Complete Benchmark Report](#)

[phoronix.com Performance for WSL vs WSL2](#)



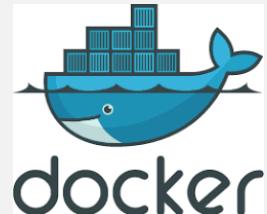
Social Networks



/carlos-lopez-taks



@CarlosLopezDBA



Next Conference I'll be speaking at.



microWSLConf 2020

Sep 9, 9:00PM to Sep 10, 1:00PM EDT



Join us September 9th/10th to celebrate the Windows Subsystem for Linux during the worldwide microWSLConf 2020.

Thank you!