



How to Create A Home  
Lab for Fun and Profit  
Cybersecurity Edition

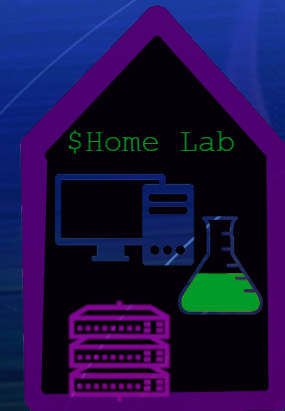
David Quartarolo

# Introduction

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David Quartarolo currently the infrastructure security engineer at Dash Financial.

- More than a decade in the industry.
- Graduate of Wilmington University and the Sans Technology Institute
- Developer of the “SMUDGE” project OS Fingerprinting.





# Overview

This presentation is focused on home labs can help you in your career.

What is a Home Lab?

How Home Labs can jump start your career

How to Get Started

# Starting at the very Beginning

## The Scientific Method

- Make An Observation
- Ask A Question
- Form A Hypothesis
- Run An Experiment
- Analyze the Data and Draw Conclusions
- Share your Results
- Repeat



# What is a Home Lab?

A home lab is a private and often informal setup where IT professionals or students create a controlled environment for experimentation, learning, and practice. The lab can be created to reflect various technologies. Home labs can take various forms, depending on the interests and goals of the person setting it up.





# What is NOT a Home Lab?

- YouTube “glamour” setups.
- Self hosting applications for “semi” production use.
- The unironic use of colored LED lights.
- Illegal or unethical actions that go beyond the perimeter of your network.
- Crypto mining.



# How can all of this help you out?

- A place to develop skills
- An environment to make mistakes
- The network to test

# How do I get started?

Identify your goals.

- Example – “Learn the basics”, “get a job as an analyst”, “test out software”, “become an expert threat hunter”

Understand your constraints.

- Space, Financial, Time, Ability

Inventory your assets.

- Hardware that you own, Contacts that you have

Design an architecture that fits you.

Plan your deployment.

- Budget, Physical Connections, Logical Architecture

Execute.



# Example

Identify your goals. -> Getting your first job.

Understand your constraints. -> Small apartment, Not a ton of \$\$\$, Busy Lifestyle

Inventory your assets. -> Old gaming PC, Contacts from your internship, Creative Thinker

Design an architecture that fits you. -> PC + Laptop - Firewall + IDS + Web application

Plan your deployment. -> Acquire network switch. IP address range. Operating Systems.

Get it done.

# Suggested Operating Systems



debian



ubuntu



CentOS



Windows Server

ORACLE



Red Hat  
Enterprise  
Linux

# Suggested Hypervisors

**X**PROX**X**MOX

**Xen**  
Project

**z**OpenVZ

Linux KVM

All of these are free but ...



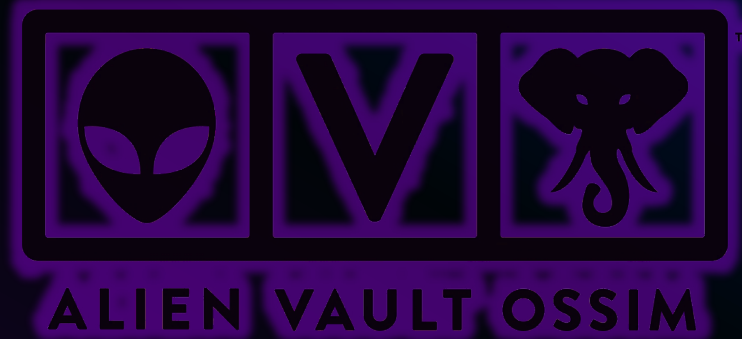
# Suggested Firewalls



ufw



# Suggested Security Tools



# Topologies and Scenarios

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- Threat Hunting
- Penetration Testing
- Malware Development
- Tool Development
- The POC



# Tips?

- Separate Home Network from Lab
- Have a strategy for “the noise” and “the heat”
- Use a lab notebook
- Set a budget for money and time
- Small Goals are better than big ones



# Learning Resources

<https://github.com/but-i-am-dominator/homelab>



# Q and A

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