ATOMIC PURPLE TEAM

APT0020.2

APT Lab Build Demos

Technology Overview
Design Considerations
Build Demos
Links

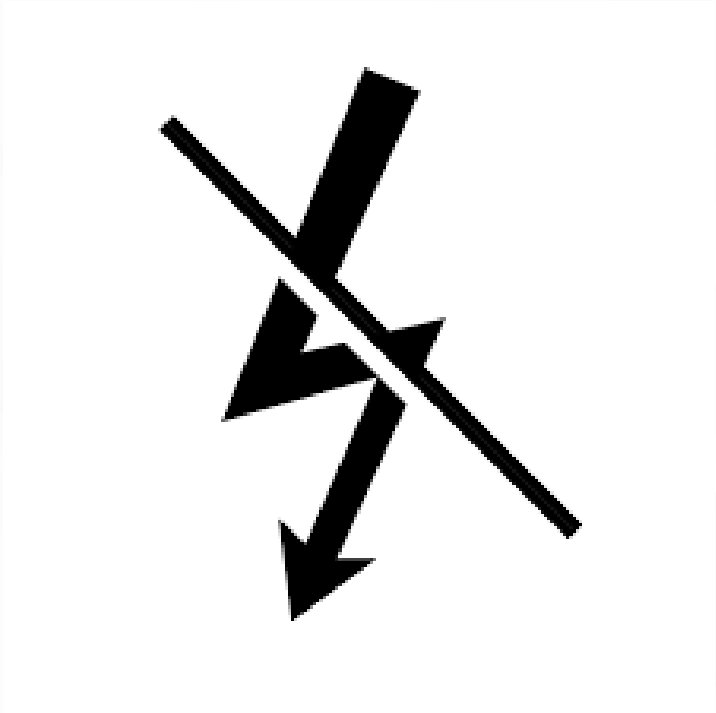
Applied Purple Teaming Lab

- We built environment specifically for this course.
- You can build this this same lab your environment with modifications to ensure that your network specifics are similar.
- Consequently, Lifecycles will be tailored specifically to your environment.

Development is not done in Production

- You can destroy things.
- That would be bad.
- Really bad.
- For all of us.

- So… APT Development Lab



Lifecycles Start In Development

Lifecycles:

- First tested in Lab Environment
- Define necessary changes in Lab Environment
- Deploy changes in lab environment
- Regression Testing? Have there been adverse effects in the Lab Environment?
- Pilot test changes in production (Change Management)
- Deploy changes to production. (Change Management)
- Retest as Fidelity Check. In Lab and Production

Lifecycles End in Production

Lifecycles:

- Lifecycle output is a Change Control application that lists the necessary changes to deploy changes (or no-changes) in production environment.
- Dependency Review
- UAT testing, etc.

APT Lab Infrastructure

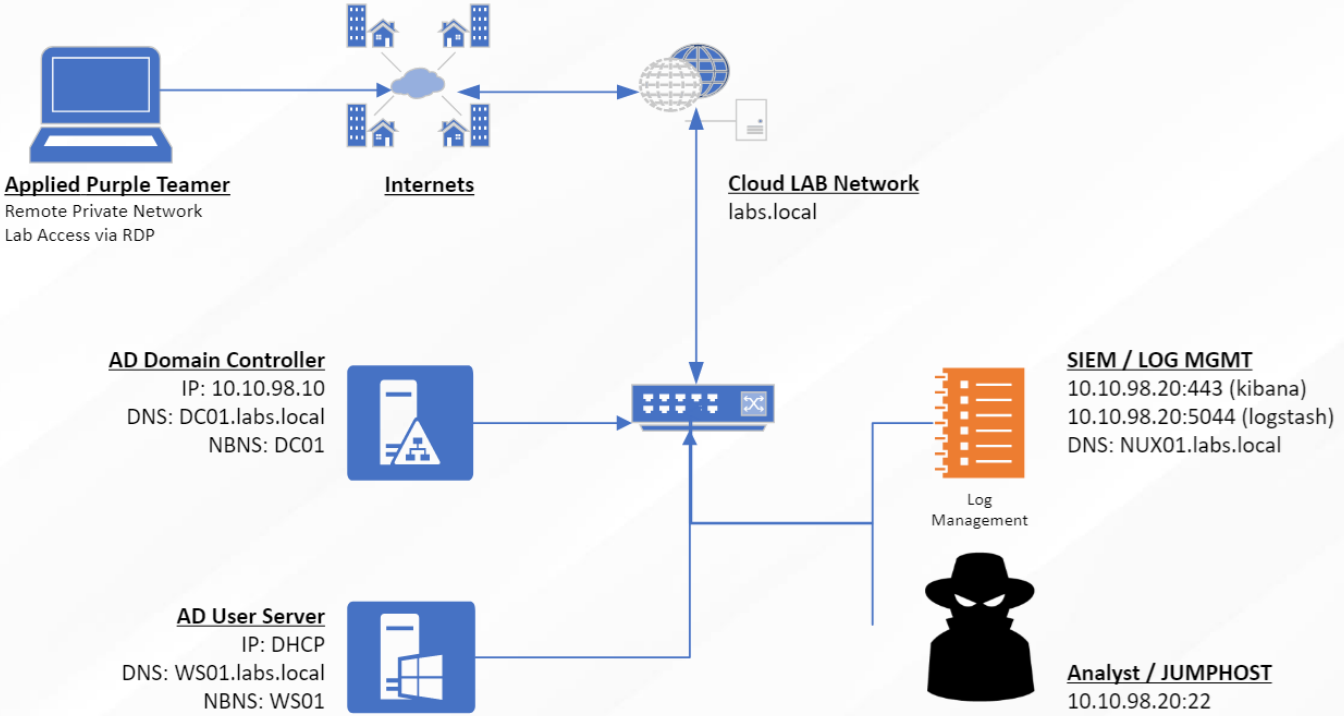
- A smaller network/infrastructure designed similar in nature to your production enterprise networks.

- The environment should use similar network infrastructure, operating system, programming, etc.

Class APT Lab Infrastructure

- Windows 2016 Member Server
- Windows 2016 Domain Controller
- Ubuntu Linux Host
  - HELK SIEM – Kibana, Kafka, Elastic Stack
  - CrackMapExec
  - John The Ripper binaries
  - Impacket toolkit
  - Responder
  - SilentTrinity C2 Framework

APT Lab Infrastructure



Links to Resources

Atomic Purple Team Framework (Lifecycle Methodology)

- https://github.com/DefensiveOrigins/AtomicPurpleTeam

Applied Purple Teaming Threat Optics – Terraform Build

- https://github.com/DefensiveOrigins/APT-Lab-Terraform

Applied Purple Teaming Threat Optics – Fast Optic Configuration

- https://github.com/DefensiveOrigins/APT-Lab-FastOpticsSetup

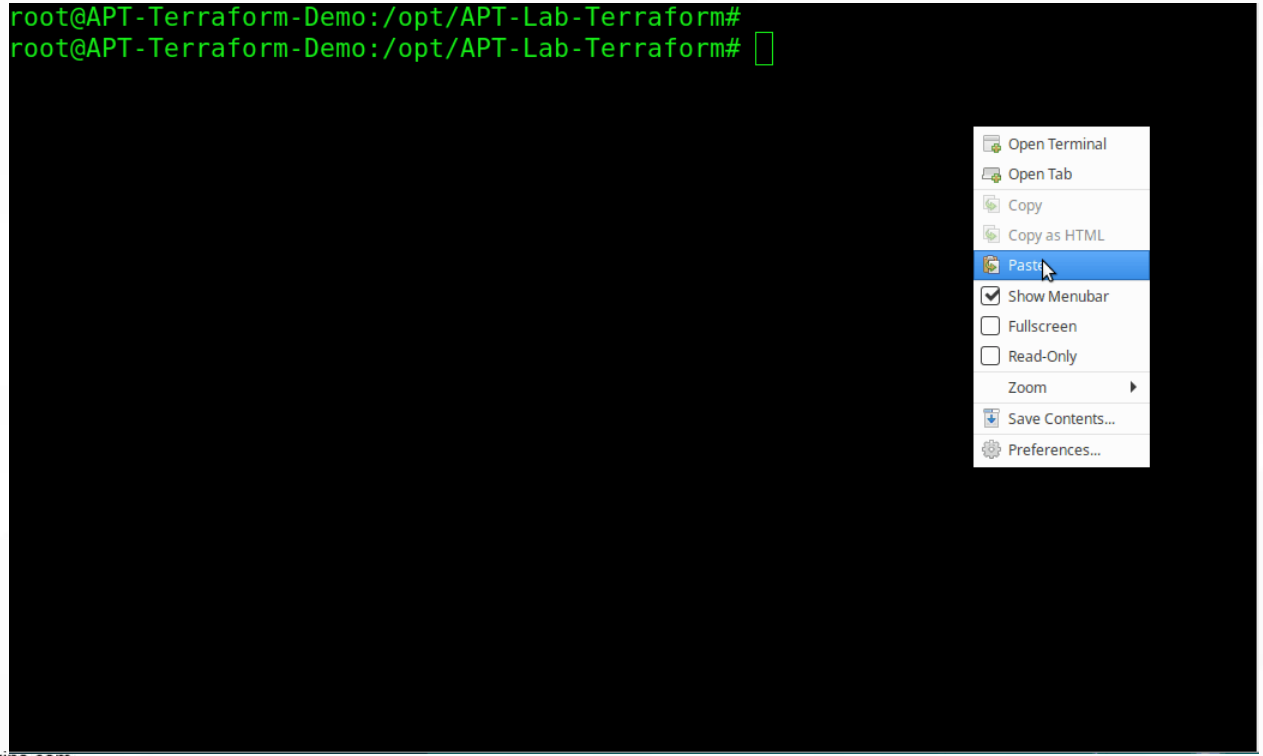
HELK: https://github.com/Cyb3rward0g/HELK.git

Start the clock... or... gif?

- How long does it take to build lab in Azure?
  - Domain setup – 10-12 minutes
  - Member server – 5 minutes
  - Linux (HELK) SIEM – 10-12 minutes
  - Threat optics? (secondary, and post-deployment scripts, one per system) - 6-8 minutes

Demo in gif! Step 1: Launch LabBuilder.py

python3 LabBuilder.py -m <yourPubIP>



Demo in gif! Step 2: Scrolling Rando Text

Create a forest, a Linux box, provision the domain, etc.

```
Still creating... [2m20s elapsed]
module.stu-client.null_resource.wait-for-domain-to-provision: Still creating...
[2m10s elapsed]
module.stu-DC.azurerm_virtual_machine_extension.create-active-directory-forest:
Still creating... [2m10s elapsed]
module.stu-linux.module.run_command.azurerm_virtual_machine_extension.linux[0]:
Still creating... [2m30s elapsed]
module.stu-client.null_resource.wait-for-domain-to-provision: Still creating...
[2m20s elapsed]
module.stu-DC.azurerm_virtual_machine_extension.create-active-directory-forest:
Still creating... [2m20s elapsed]
module.stu-linux.module.run_command.azurerm_virtual_machine_extension.linux[0]:
Still creating... [2m40s elapsed]
module.stu-client.null_resource.wait-for-domain-to-provision: Still creating...
[2m30s elapsed]
module.stu-DC.azurerm_virtual_machine_extension.create-active-directory-forest:
Still creating... [2m30s elapsed]
module.stu-linux.module.run_command.azurerm_virtual_machine_extension.linux[0]:
Still creating... [2m50s elapsed]
module.stu-client.null_resource.wait-for-domain-to-provision: Still creating...
[2m40s elapsed]
module.stu-DC.azurerm_virtual_machine_extension.create-active-directory-forest:
Still creating... [2m40s elapsed]
```

Demo in gif! Step 3: Done, RDP to Azure IP

Wait for the builds. Once done, the script output is your RDP destination IP.

```
Terraform 0.11 and earlier required type constraints to be given in quotes,
but that form is now deprecated and will be removed in a future version of
Terraform. To silence this warning, remove the quotes around "list" and write
list(string) instead to explicitly indicate that the list elements are
strings.


Apply complete! Resources: 19 added, 0 changed, 0 destroyed.

Outputs:
                RDP HERE
stu_Public_IP = 23.99.209.185
root@APT-Terraform-Demo:/opt/APT-Lab-Terraform#
```

Demo in gif! Next up: Lab Optics Configuration

Landing zone: WS01.labs.local (domain member server)

RDP to DC01 and download this thing: https://github.com/DefensiveOrigins/APT-Lab-FastOpticsSetup/blob/master/DC-Configurator.ps1

Execute it!

First step downloads, unpacks:

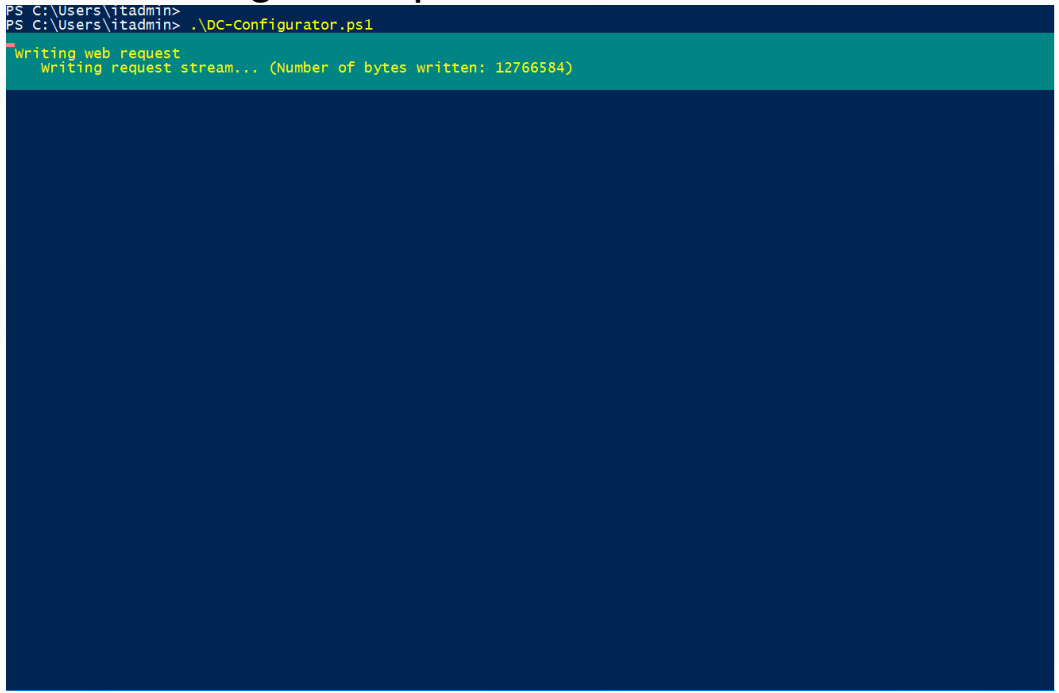
Sysmon + Sysmon Modular

Palantir's WEC/WEF Repo

Winlogbeat

Configs

Group Policies



Demo in gif! Next step: Configuration

Once things are unpacked, the script installs and configures

Sysmon

WinLogBeat

Group Policies

WEC / WEF

Custom Event Channels

```
CreationTime     : 7/31/2020 12:20:11 AM
ModificationTime : 7/31/2020 12:20:11 AM
User             : Microsoft.GroupPolicy.UserConfiguration
Computer         : Microsoft.GroupPolicy.ComputerConfiguration
GpoStatus        : UserSettingsDisabled
WmiFilter        :
Description      :


Id               : 32ad102e-9ce7-46ca-aee1-147bf133162a
DisplayName      : Enable-WinRM-and-RDP
Path             : cn={32AD102E-9CE7-46CA-AEE1-147BF133162A},cn=policies,cn=system,DC=labs,DC=local
Owner            : LABS\Domain Admins
DomainName       : labs.local
CreationTime     : 7/31/2020 12:20:11 AM
ModificationTime : 7/31/2020 12:20:12 AM
User             : Microsoft.GroupPolicy.UserConfiguration
Computer         : Microsoft.GroupPolicy.ComputerConfiguration
GpoStatus        : UserSettingsDisabled
WmiFilter        :
Description      :


DisplayName   : WS-Enhanced-Auditing
GpoId         : cbb5bfbc-83ee-4a58-b2c2-e4c0309296f1
Enabled       : True
Enforced      : False
Order         : 2
Target        : DC=labs,DC=local
GpoDomainName : labs.local


DisplayName   : DC-Enhanced-Auditing
GpoId         : 5e736236-baa6-474e-b404-d02749950a50
Enabled       : True
Enforced      : False
Order         : 2
Target        : OU=Domain Controllers,DC=labs,DC=local
GpoDomainName : labs.local


DisplayName   : Enable-WinRM-and-RDP
GpoId         : 32ad102e-9ce7-46ca-aee1-147bf133162a
Enabled       : True
Enforced      : False
Order         : 3
Target        : DC=labs,DC=local
GpoDomainName : labs.local
```

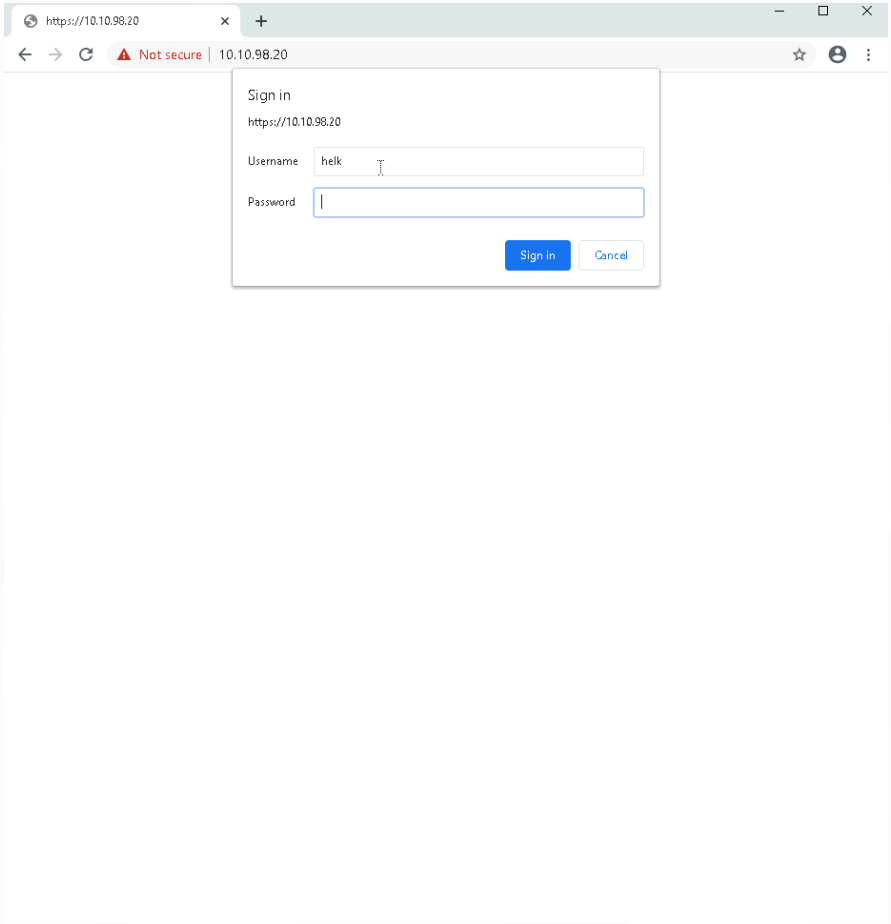
Demo in gif! Next Step: Configure the Workstation

- Install Sysmon
- Check for logs
- Run gpupdate
- Reboot

Demo in gif! Final Step: Confirm Logging

Auth to HELK
Click Discover
Search WS01
Refresh

OPTICS!



APT Lab Deployment Summary

Install Terraform: https://www.terraform.io/

Sign up for Azure account: https://azure.microsoft.com/en-us/free/

Allocate resources:
https://docs.microsoft.com/en-us/azure/cost-management-billing/manage/create-subscription

Run build script: https://github.com/DefensiveOrigins/APT-Lab-Terraform

RDP to landing zone.

Run DC-Configurator:
https://github.com/DefensiveOrigins/APT-Lab-FastOpticsSetup/blob/master/DC-Configurator.ps1

Run WS-Configurator:
https://github.com/DefensiveOrigins/APT-Lab-FastOpticsSetup/blob/master/WS-Configurator.ps1