# DHT-1

# Defensive Host Training: Host Interrogation


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USAF Weapons School • Nellis AFB

# So What?

- Shake off the rust
- *Do you wanna pass TA phase???*

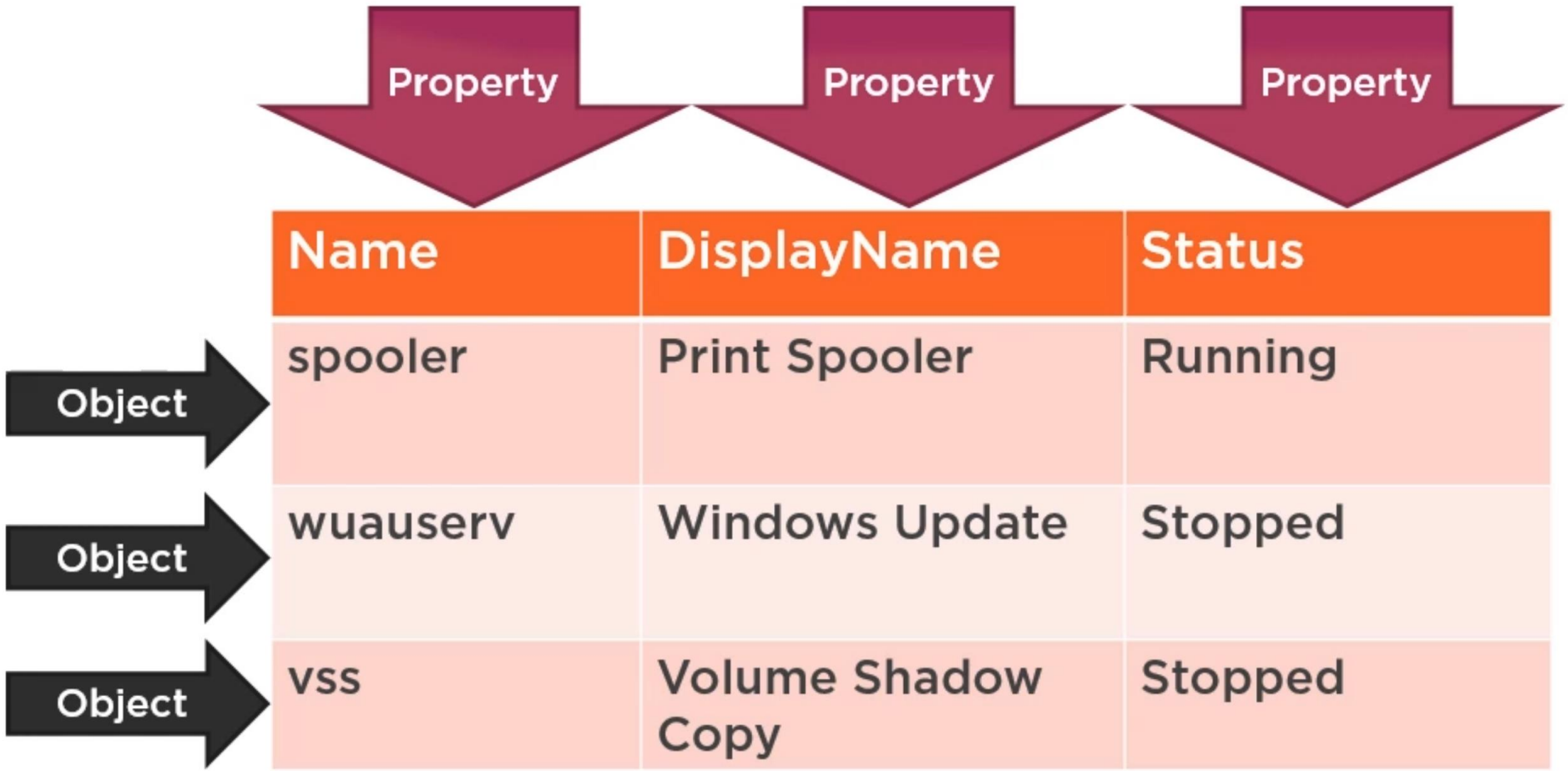

# Overview

- *PowerShell*
- Metasponse
- Sysinternals
- FRED


# PowerShell

- Modern command shell that includes best features of other popular shells
  - Command-line history
  - Supports Tab completion and command prediction
  - Pipeline for chaining commands
  - In-console help system
- Commonly used to build, test, and deploy solutions
- Built on the .NET Common Language Runtime (CLR)
  - All inputs and outputs are .NET objects
    - *No need to parse text output to extract information from output*
  - Built-in support for common data formats like CSV, JSON, XML

# PowerShell Treats Data as Objects




# 3 Important Commands

- Get-Command
  - Used to search for installed commands
- Get-Help
  - Displays how-to information for commands
- Get-Member
  - Displays properties and methods of objects


# Documentation

- Get-History
  - Gets a list of the commands executed
    - *Invoke-history –id #*
    - Out-File to text
- Start-Transcript
  - Creates a record of all or part of a PowerShell into a text file
    - *Start-Transcript –path {PATH} -append*


# Slice & Dice

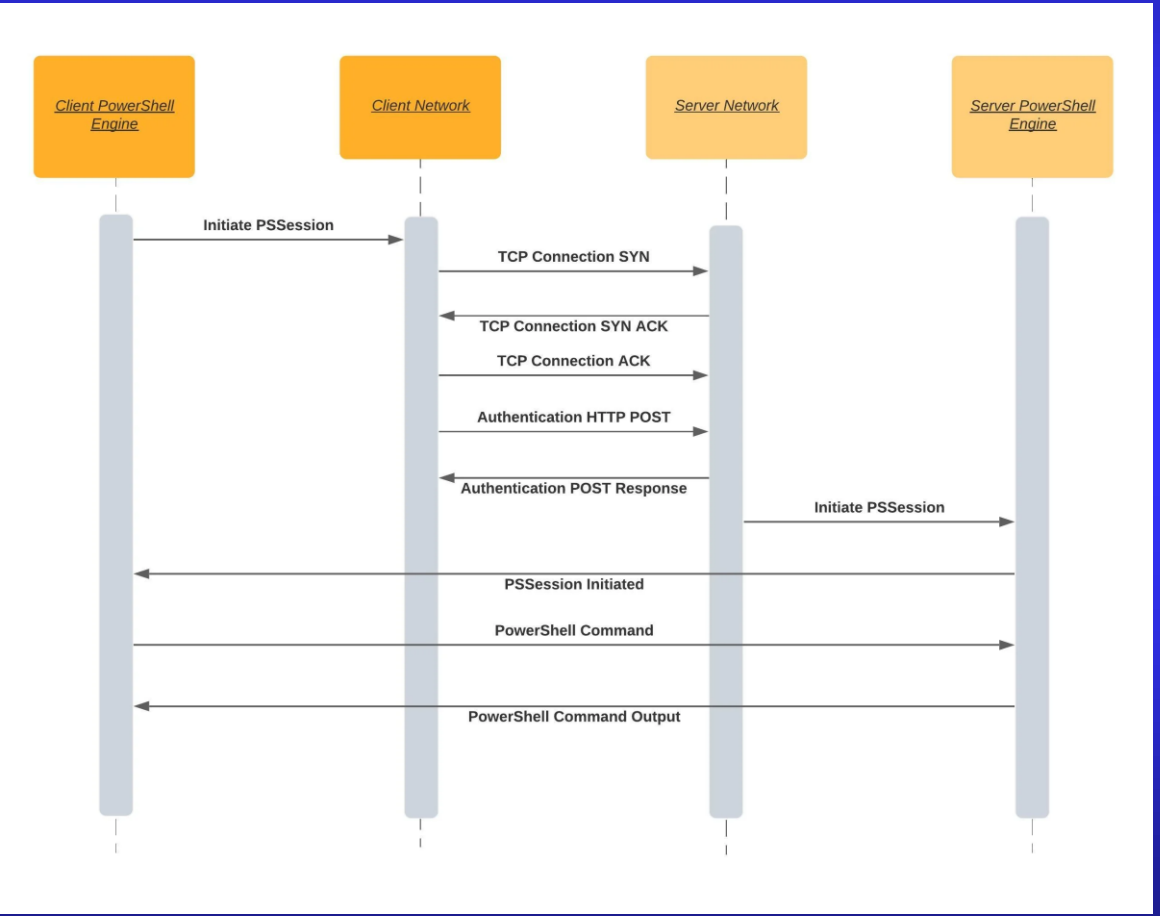
- Where-Object
  - Selects objects from a collection based on their property values
- Select-Object
  - Select objects or object properties
- Sort-Object
  - Sorts objects by property value

# DEMO

- Find a cmdlet to display all the services on your ops station
- Using that same cmdlet slice & dice the output to only show running services
- Sort your services by Status and select 3 properties of your choosing and then save it to a CSV

# PSRemoting

- Enables you to run commands on remote computers
- Client connects to destination on a WinRM listener
- Client connects over HTTP or HTTPs and authenticates
- Once complete a session is established




# PSRemoting Dependencies

- Trusted Hosts
  - Set-Item WSMan:\localhost\Client\TrustedHosts –Value *
    - Basic Authentication not secure
- Creds
  - Get-Credential
    - Gets a credential object based on a user name and password
      - Stored as a Secure String
- WinRM
  - Windows Remote Management
    - Must be running and allowed through the firewall
      - *Winrm qc*


# How Do We Make a Connection

- New-PSSession
  - Creates a persistent connection to a local or remote computer
- Enter-PSSession
  - Starts an interactive session with a remote computer
  - Can utilize session id's to enter a persistent connection
- $cred = Get-Credential
- $Session = New-PSSession –ComputerName [IP] –Credential $cred
- Enter-PSSession –id #


# File Traversal in PSSession

- Copy-item
  - cmdlet copies an item from one location to another location in the same namespace
- Copying an item to a Remote System
  - $Session = New-PSSession -ComputerName [IP] -Credential $cred
  - Copy-Item "D:\Folder004\scriptingexample.ps1" -Destination "C:\Folder004_Copy\scriptingexample_copy.ps1" -ToSession $Session
- Copying an item from a Remote System
  - $Session = New-PSSession -ComputerName [IP] -Credential $cred
  - Copy-Item "C:\MyRemoteData\test.log" -Destination "D:\MyLocalData\" -FromSession $Session


# DEMO

- Create a session on Workstation 1 using PSRemoting
- Copy any item on your ops station to Workstation 1 and then validate using Get-ChildItem
- On the remote system get the list of running services, export it to CSV and copy from the session to your ops station
- Using GCM find a cmdlet to invoke commands on the remote computer using your session
  - Hint: help [cmdlet] –Examples
  - Use –ScriptBlock to determine the PSVersion of Workstation 1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# MetaWhat? MetaWho?

- Cyber-Operations mission distribution framework that enables incident responders and network defense personnel to collect, normalize, and analyze defensive and IR data
- Agentless Solution
- GUI and command-line based capability
- Pre-built collectors perform data retrieval
- Multiple built-in remediation options (Windows)
  - Delete file, service removal, driver uninstallation
  - Windows Firewall rule modification
  - Forcefully disconnect user or shutdown system
- Outputs in Table View and JSON View, Elasticsearch, or Splunk


# Metasponse Dependencies

- Supported OS:
  - Windows Server 2000/2003/2008/2012
  - Windows XP, Vista, 7, 8, 8.1, 10, 11
  - Linux, Solaris (Limited Collectors)
- Will not run with FIPS compliance enabled
- Domain Admin/SSH Credentials
- Each Transport has its own dependency/requirement


# Collectors Vs Transport

- Collectors
  - Plugin that executes on the remote system
  - Native PowerShell scripts, native executables, Python scripts, WMI scripts, .NET binaries, or Batch scripts
  - Reliant on Metasponse Transports
- Transports
  - Plugin that provides communication methods to remote system
  - Configuration changes may be required
  - Certain Collectors require specific transports


# Common Collectors

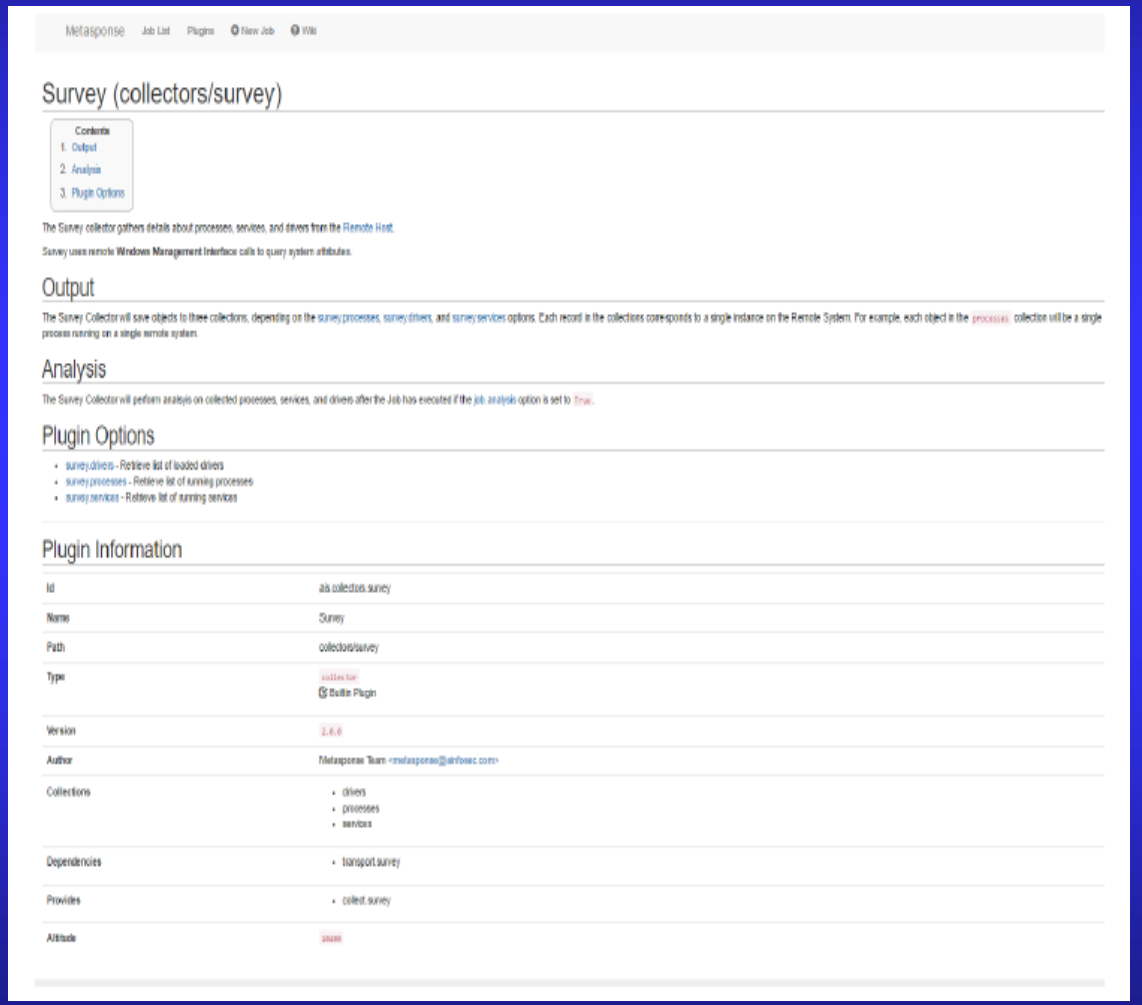
- Accounts
- Autoruns
- Logins
- USB Drive
- SysInfo
- NetStat
- Survey


# Rapid Analysis For Incident Response (RAIR) Collector

- Collector enumerates the memory of each process and loaded module
- Uses the process's Virtual Address Descriptor (VAD) tree enumerate allocated memory
- Performs deep inspection to detect generic indicators of:
  - Hidden and injected modules
  - Code modifications
  - Weak or modified memory region protection
  - Hidden processes
  - Function hooks
  - Dynamically allocated code
  - Packed Code
- Output only readable in JSON

# Help

- All pre-installed plugins have READMEs
  - Included in Metasponse Folder
- Web UI host a Wikipage




# If You Can't Get A Job Create One!

- Show collectors
  - Displays all the collectors available (optional if you know which one you want)
- Use collectors/accounts
- Use transports/mswmi
- Use transports/smb
- Set job.rhost [IP]
  - Can be a subnet, list (set job.rhost < ip.txt), or a single command separated by a white space
- Set job.domain [domain name]
- Set job.user [username]
- Set job.password

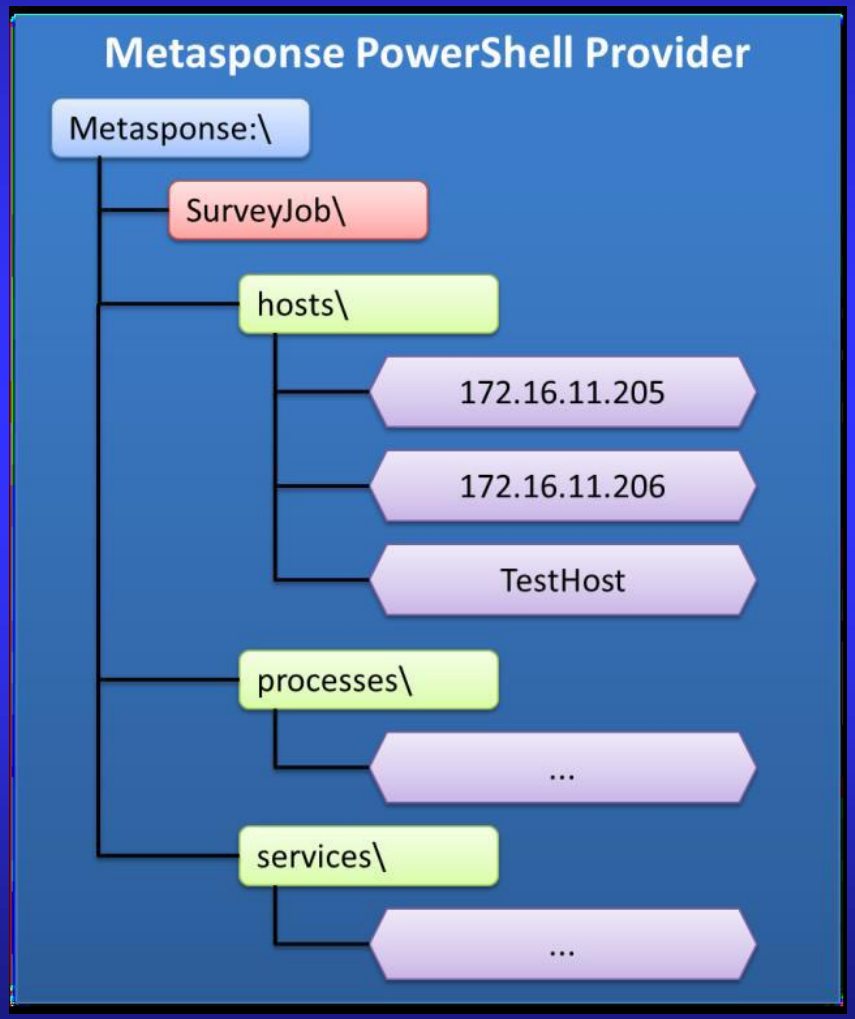

# If You Can't Get A Job Create One!

- Set job.log.level debug
- Job rename [name]
  - Must be unique
- Check deps
- Show options
- Schedule now
  - Jobs are set for auto pickup completion time varies per collector


# Where Dat Data At?

- Data that is collected during Job execution is enumerated, normalized, and saved to the Metasponse Datastore.
- The  Metasponse Provider is the official method of interacting with the Metasponse Datastore.
  - Hint: If you can use PowerShell you can use the Provider
- Existing PowerShell cmdlets work within the Provider
  - Execution Policy must be set or the Provider will fail to launch
- The Metasponse Provider, which transparently wraps the Datastore collected objects and structures as PowerShell objects and provides a physical filesystem interface

# Metasponse Provider File Structure



# Demo

- Execute the Accounts Collector against Workstation 1
  - In the Provider Slice & Dice your output to show you only the local admin account
- Execute the Survey Collector against Workstation 1
  - In the Provider Slice & Dice your output to show only 5 services, PID, Path, and HostIP then export your results into a CSV


# You Wanna Get Fancy Lets Get Fancy

- Metasponse Macros are a quick way of automating a list of steps by typing a single command
- Macros will allow the use of macro arguments and variables
- Macros are built similar to jobs
  - macro autoruns
  - use collectors/autoruns
  - use transports/mswmi
  - use transports/smb
  - job rename $1
  - set job.rhost [IP] or $hosts
  - End
- Var host = “host-1 192.168.0.100”
  - Optional not required


# You Wanna Get Fancy Lets Get Fancy

- To Run your Macro
  - [Macro Name] [Macro Argument 1] …
  - Schedule now
- Automate your execution by saving your Macros in a script file
  - Path: C:\Program Files\Metasponse\Core
  - Extension: .rc
  - In the console type:
    - Include [macro script name]
- Check to ensure your macros are loaded
  - Macro –s [macro name]
    - Gives a description
  - Macro –l
    - List all macros


# Demo

- Build a Macro using any collector and execute it against Workstation 1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# SysInternals Demo

- Copy the SysInternals Suite Folder onto Workstation 1
  - Execute Strings against a file on the workstation
- Execute autoruns via the command line on Workstation 1
- Delete SysInternals Suite Folder on Workstation 1


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# FRED Demo

- Copy FRED 3.3 onto Workstation 1
- Execute FRED on Workstation 1
- Familiarize yourself with its output


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# Questions?


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