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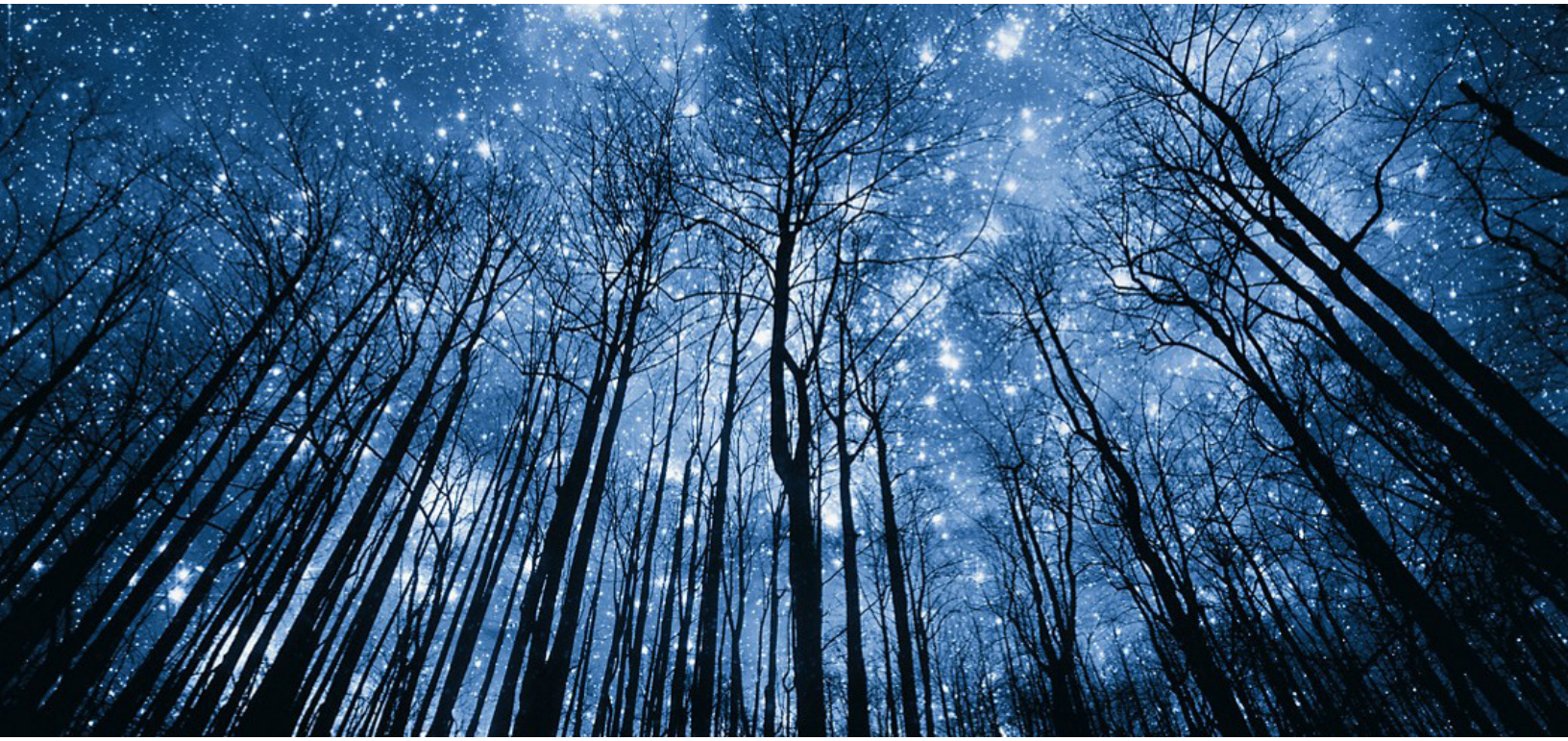
TRACE ESXI HOST IN UCS DOMAIN USING POWERSHELL



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Introduction

Datacenter infrastructure refers to the core physical or hardware-based resources and components which includes all IT infrastructure devices such as compute, network, storage, management equipment, and technologies like virtualization and automation that comprise a data center and enable the delivery of shared applications and data.

Virtualization reduces CapEx / OpEx by efficiently minimizing hardware resources with. This article provides a solution to trace VMware ESXi host physical location in Cisco UCS Domain using host serial number. Cisco Compute (UCSM) and VMware vSphere are used in this KB Abstract.

VMware vSphere

VMware ESXi – Server virtualization is the process of dividing a physical server into multiple unique and isolated virtual servers using a software application known as a "Hypervisor". VMware ESXi effectively partitions hardware to consolidate applications and cut costs. Each virtual server (known as a "Virtual Machine") can run its operating systems independently.

VMware vCenter – VMware vCenter Server is advanced server management software that provides a centralized platform for controlling VMware vSphere environments. This enables automation and delivery of virtual infrastructure to be automated across the hybrid cloud with confidence.

Cisco UCS Manager (UCSM)

Cisco UCS Manager supports the entire Cisco UCS servers (Blade and Rack Server) and Cisco HyperFlex Series hyper-converged infrastructure portfolios. It enables server, fabric, and storage provisioning as well as, device discovery, inventory, configuration, diagnostics, monitoring, fault detection, auditing, and statistics collection.

Use Case

In the modern datacenter, thousands of Cisco UCS Blade/Rack Servers are provisioned across multiple chassis and those servers are added in VMware vCenter across multiple clusters System administrators wishing to determine an ESXi Host's location in UCS Domain **–** i.e. Server Console Access, reviewing Service Profile/Template, vNIC/vHBA, or Boot order validation **–** would find it challenging to trace in a large enterprise data center. A System administrator would need to scan each chassis, a time-consuming effort and not an ideal situation in challenging hours in production.

Pre-requisites

Latest Windows PowerShell with Cisco and VMware PowerShell module

A. **Cisco UCS Power Tool Suite -** Cisco UCS PowerTool Suite is a set of PowerShell modules for Cisco UCS Manager, Cisco IMC, and Cisco UCS Central that helps in configuration and management of Cisco UCS domains and solutions.

   You can install the Cisco UCS PowerTool Suite for all Cisco UCS modules or single module using a unified installer. Install the PowerTool using admin privileges.
   Note: Pease refer to the reference section for detailed information.

B. **VMware PowerCLI -** PowerCLI is the tool millions of customers around the world use to manage and automate their VMware environments.

   # To install PowerCLI just open a PowerShell console and run the command below:
   PS C:\> Install-Module -Name VMware.PowerCLI

Why PowerShell?

As a scripting language, PowerShell is commonly used for automating the management of systems. It is also used to build, test, and deploy solutions, often in CI/CD environments. PowerShell is 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 the output. The PowerShell scripting language includes the following features:

- An Extensible through functions, classes, scripts, and modules
- Extensible formatting system for easy output
- An Extensible type system for creating dynamic types
- Built-in support for common data formats like CSV, JSON, and XML

Solution

There are two ways to find the ESXi host location in UCS Domain; manual and automation.

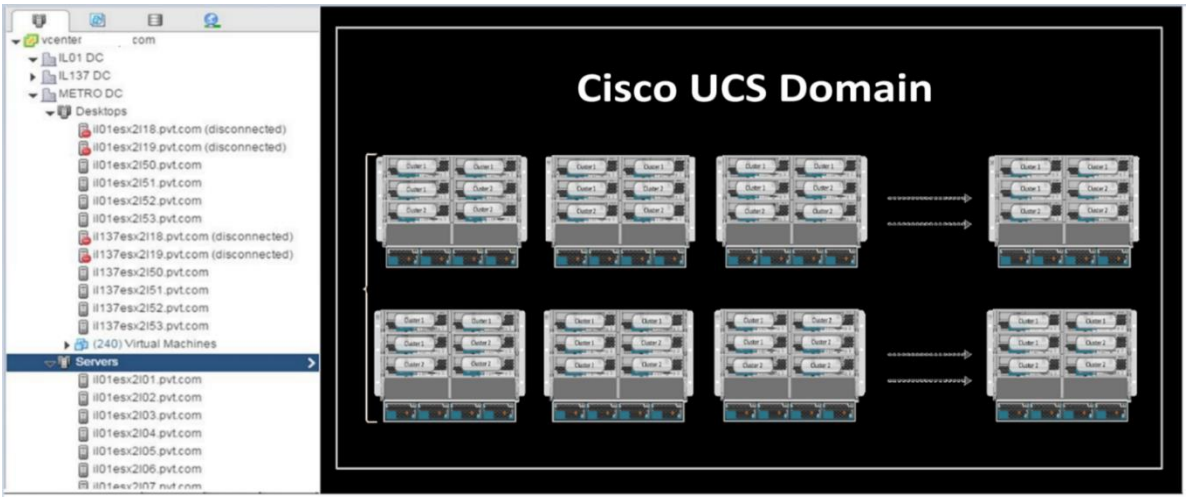
Manual – Traditional way of tracing ESXi Host in UCS Domain

There are several ways to trace. Widely used methods are using the server's vHBA and serial number. Both methods are time-consuming and may take a toll on production.

vCenter Operation	UCSM Operation
Log in to vCenter	Log in to UCSM
Select ESXi Host	Select Chassis
Capture ESXi Host Serial Number	Search for Host Serial Number until exact match found

Automation – Smart way of tracing ESXi Host in UCS Domain

In PowerShell, the script is developed to perform the scan in a loop to match the host serial number across the UCS Domain and identify the exact location of the ESXi host.



Step 1

Download the Power Shell Script file (Trace ESXi Host in UCS Domain Using PowerShell.ps1) on the local Machine like a Jump Server or Bastion Host.

Step 2

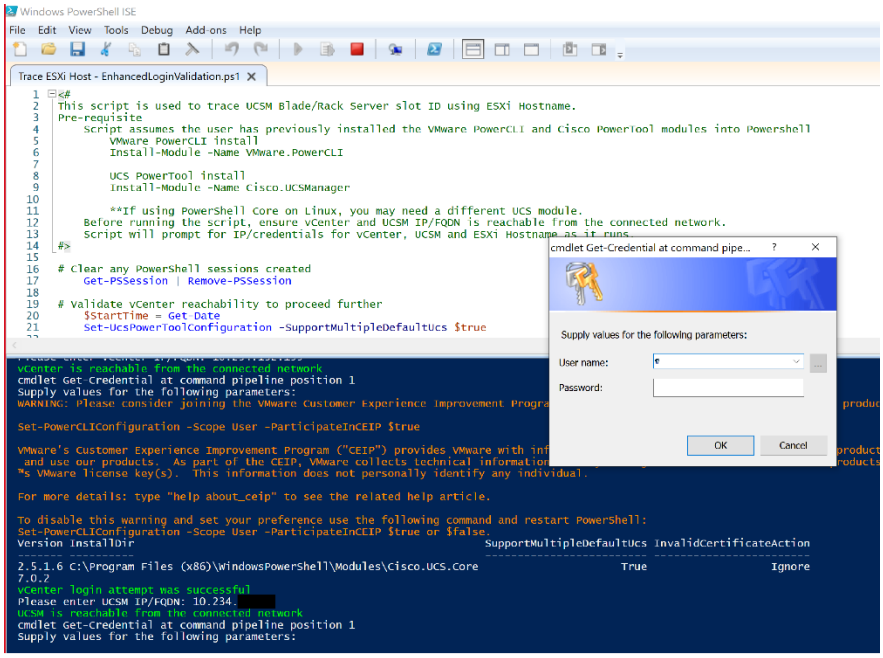
Open an Administrative PowerShell Prompt.

Step 3

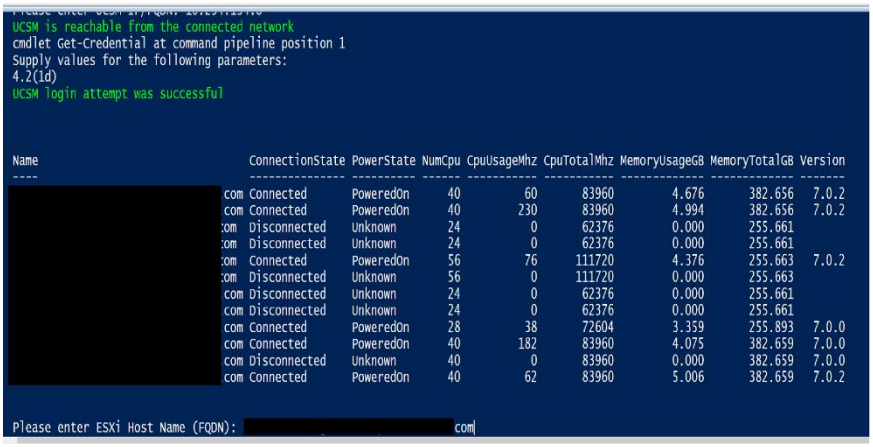
Run the Power Shell script file (Trace ESXi Host in UCS Domain Using PowerShell.ps1) from the path where the script is downloaded.

Step 4

- #Validate vCenter and UCSM reachability before proceeding further
- #Establish connection to vCenter and UCSM



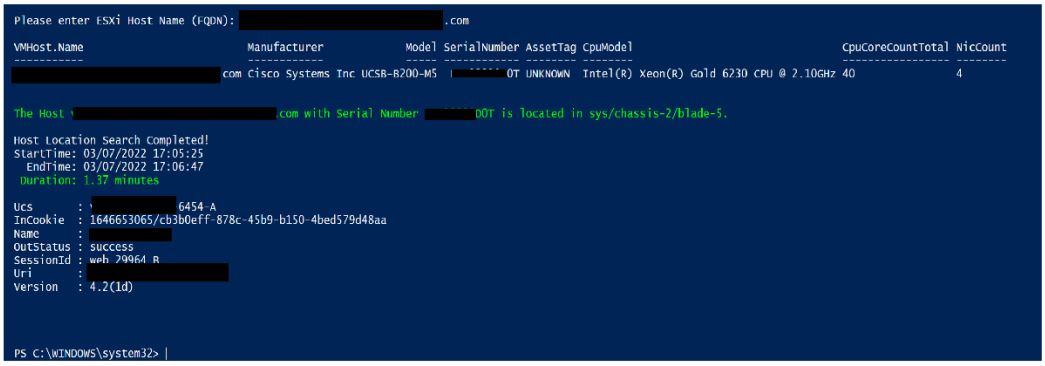
- #Display all available server names from the vCenter
- #Enter server name (FQDN), for example, "esxi-server-name.fqdn.com"



- #Get server serial number and hold in a variable
- #Get all Chassis/Server detail and hold in a variable
- #Run for each loop to trace the Server Location using the server Serial Number

#output example

- The ESXi host esxi-server-name.fqdn.com with Serial Number XXMXX001234 is located in sys/chassis-2/blade-6.



Conclusion

This solution enables a System administrator to identify UCS Server's physical location within a minute or two and take appropriate action. It works as a handy tool and drastically reduces manual efforts and saves time.

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3. **Cisco UCS PowerTool Suite**
4. **VMware vSphere**
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