Using CIM Commands

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Overview

What is CIM?

WMI versus CIM

Executing commands using CIM

What is CIM?

CIM

Stands for Common Information Model. It is a set of standards that describe how information is structured and represented within a system

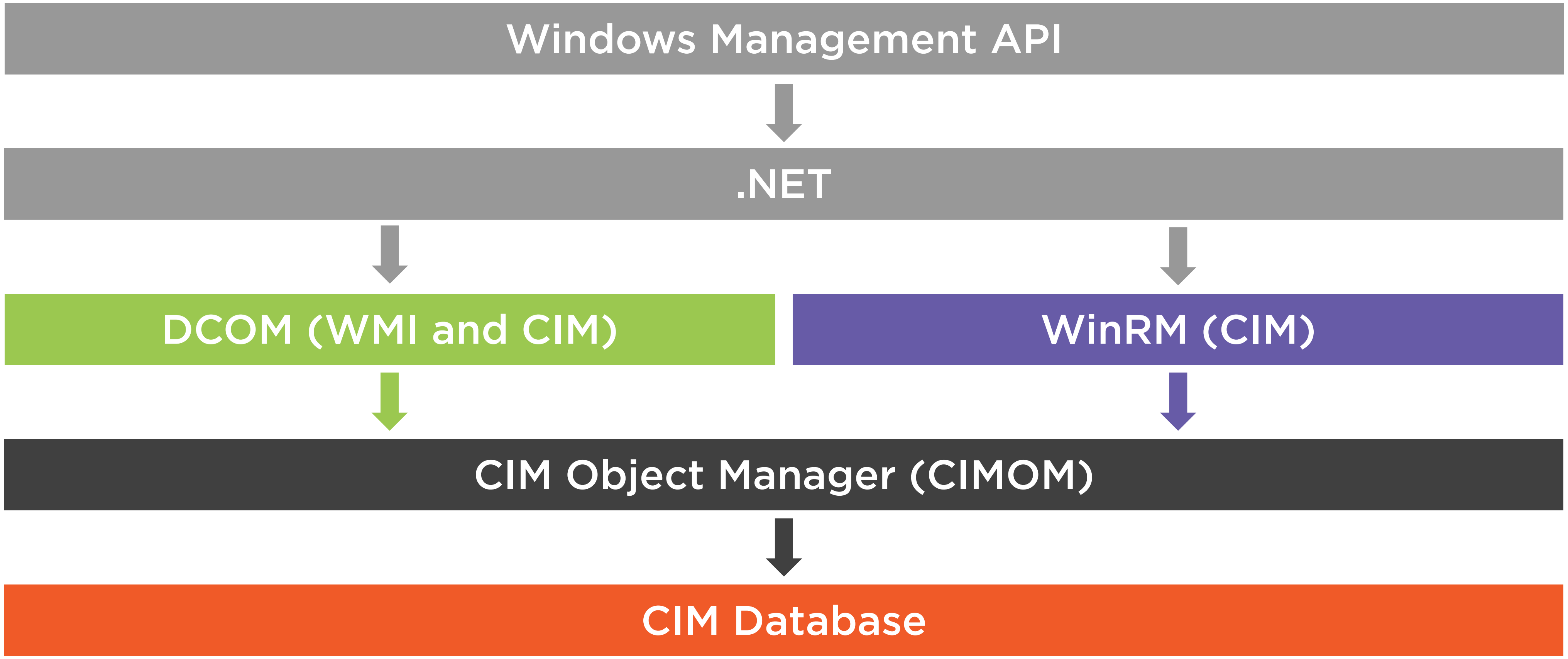
What is CIM?

Introduced in PowerShell 3.0

Available from Windows Server 2012 and Windows 8

Replacement for existing WMI commands

CIM Architecture



WMI Versus CIM

WMI Versus CIM

Deprecated Commands

Not included with PowerShell Core

Uses DCOM for communication

Example: *Get-WmiObject*

New Commands

Included within PowerShell Core

Uses the WSMAN protocol for communication

Example: *Get-CimInstance*

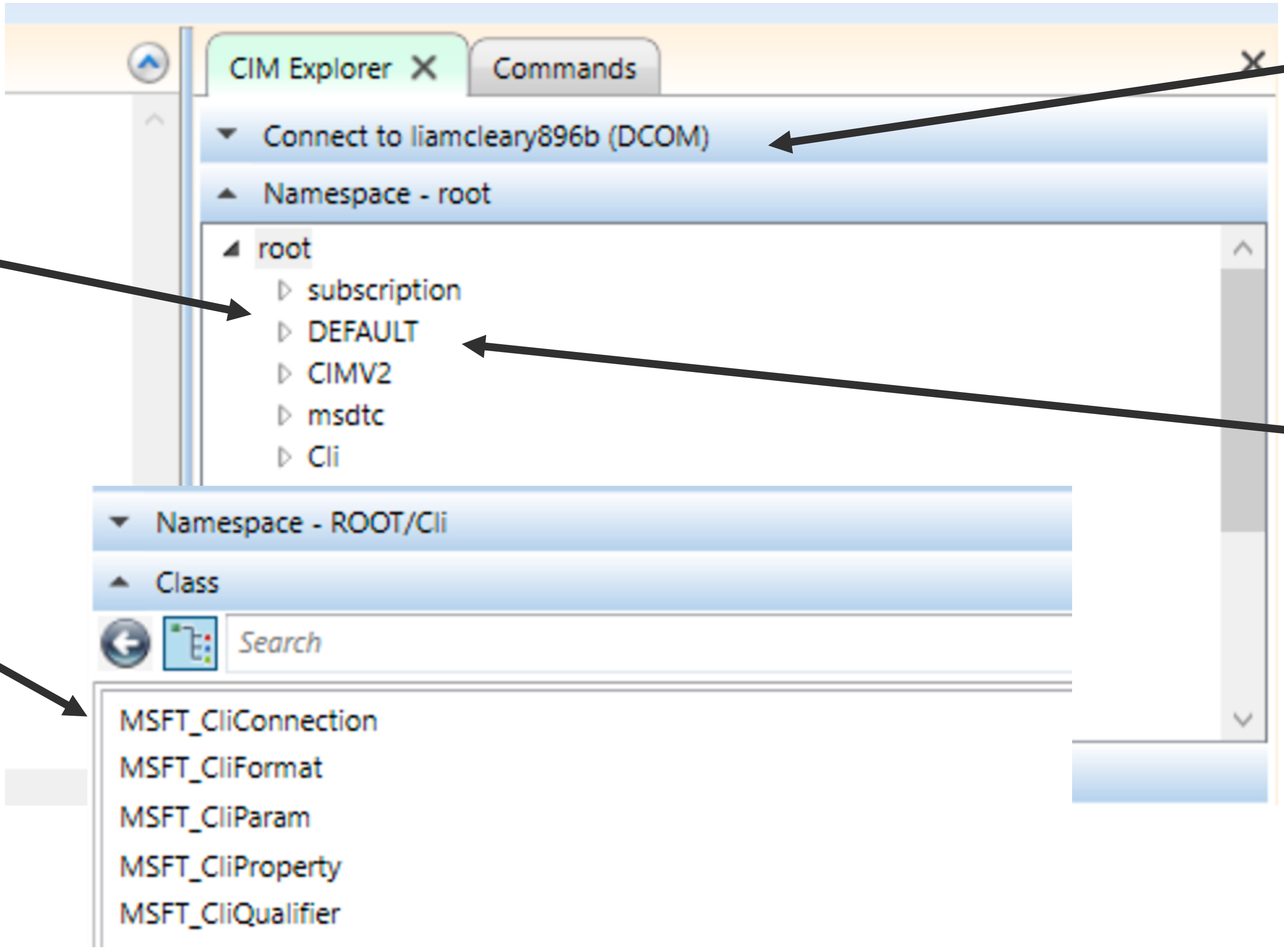
Comparing Commands

```
# Using WMI to Retrieve "Operating System" Details
Get-WmiObject -Class Win32_OperatingSystem


# Using CIM to Retrieve "Operating System" Details
Get-CimInstance -ClassName Win32_OperatingSystem
```

How to Find CIM Classes and Instances

```
# List all CIM Classes
Get-CIMClass

# List all Win32 Disk Related Classes
Get-CimClass Win32*Disk*

# List CIM Class with specific Method Name
Get-CimClass -ClassName Win32* -MethodName Term*

# Get Instances for specific Class
Get-CimInstance -ClassName Win32_Process

# Get CIM Namespaces
Get-CimInstance -Namespace root -ClassName __Namespace
```

Using the CIM Explorer



Connect to Windows Machine

Enumerate Namespaces

Click into Namespace to view Classes

Enumerate Classes

Demo

Enumerate Namespaces and Classes

Using the CIM Class Explorer in PowerShell ISE

Executing commands using CIM

CIM Command Verbs

GET

INVOKE

NEW

REGISTER

REMOVE

SET

Common CIM Commands

Get-CimInstance
Gets the CIM instances of a class from a CIM server

New-CimSession
Creates a CIM session.

Invoke-CimMethod
Invokes a method of a CIM class

Get-CimInstance

```
# Query all the CIM Instances starting with the letter P in class Win32_Process
Get-CimInstance -Query "SELECT * from Win32_Process WHERE name LIKE 'P%'"
Get-CimInstance -ClassName Win32_Process -Filter "Name like 'P%'"
```

```
# Retrieve specific properties for CIM Instance
Get-CimInstance -Class Win32_Process -Property Name, KernelModeTime
Get-CimInstance -Class Win32_Process -Property Name, KernelModeTime | Format-Table
```

New-CimSession

```powershell
# Create a CIM Session with default options
New-CimSession


# Create a CIM Session with a friendly name
New-CimSession -ComputerName localhost -Name Trainer


# Pass credentials to a CIM Session
$creds = Get-Credential
New-CimSession `
    -ComputerName localhost `
    -Credential $creds `
    -Authentication Negotiate
```

Invoke-CimMethod

```
# Terminate a running "Console" process
Invoke-CimMethod `
     -Query 'Select * From Win32_Process Where Name Like "cmd%"' `
     -MethodName "Terminate"



# Create a running "Console" process with "Arguments"
Invoke-CimMethod `
     -ClassName Win32_Process `
     -MethodName "Create" `
     -Arguments @{
          CommandLine = 'cmd.exe'; CurrentDirectory = "C:\windows\system32"
     }
```

Demo

Execute Commands using CIM

Summary

Reviewed what CIM is as well as how it works

Executed commands using CIM locally

Up Next: Managing Computers using CIM Commands