Version 1.26

Installation Guide for On-Premise Uila Deployment – Hyper-V

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Introduction

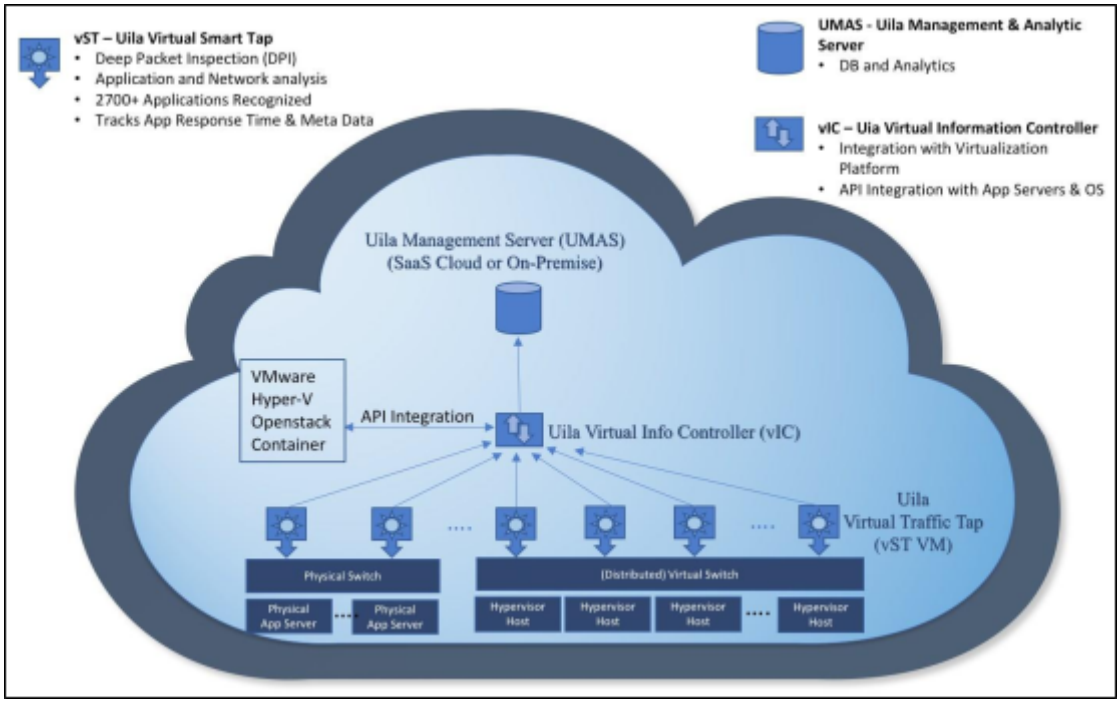
Scope and Purpose

This document describes the system requirements, installation and configuration steps for the Uila management and Analytics System (UMAS), Uila Virtual Information Controller(vIC), and Virtual Smart Tap(vST).

It is assumed that the reader has already installed Hyper-V manager and is familiar with the configurations and operations of Hyper-V.

Architecture Overview

The diagram below shows the Uila Management and Analytics System architecture(UMAS) and its relationship to Virtual Information Controller(vIC) and Uila Virtual Smart Taps(vST).



Virtual Architecture

The Uila Management and Analytics system(UMAS) is a big data store and analytics engine that is designed to monitor up to thousands of servers. The UMAS can record data in minute resolutions while maintaining real time responsiveness. The built-in redundancy offers high availability, removes downtime and reduces maintenance overhead.

The Virtual Information Controller (vIC) integrates to the Hyper-V manager. The vIC is deployed as a guest VM where it collects network, storage and compute performance metrics that are maintained by the Hyper-V. This is then combined with the data from the Virtual Smart Taps(vST) and transmitted to the UMAS.

Virtual Smart Taps (vST) are also deployed in the host as an efficiently designed small foot-print guest VM with embedded Deep Packet Inspection (DPI) technology to identify unique applications and their attributes. vST's measure application response time and collect network performance data. The vST does not examine or store the packets, thus eliminating the risk of exposing sensitive data.

Getting Started

System Requirements

- UMAS can be installed as a Virtual Machine directly on a server that has Hyper-V host installed. The table below shows the minimum specifications required to install UMAS.

Scope	# of VM Monitored	vCPU	Virtual Memory	Local or Direct Storage
Small	**0 ~ 250 VM**	**2**	**8 GB**	**400 GB**
Medium	**250 ~ 500 VM**	**4**	**16 GB**	**800 GB**
Large	**500 ~ 1000 VM**	**8**	**32 GB**	**1.6 TB**

- Internet Browser for your monitoring console:
  - Firefox, Chrome on Windows platform
  - Safari, Firefox, Chrome on OS X platform
  - Firefox, Chrome on CentOS, Ubuntu Linux platform

- Hyper-V version requirements:
  - Hyper-V version 6.3 or higher

- System requirements:
  - Windows Server 2012 R2, or later server
  - Optional: Windows Server 2012 R2, or later Active Directory (AD) and Domain Controller (DC)
  - Optional: Windows Server 2012 R2, or later Cluster Failover.

- Uila Virtual Smart Tap(vST) requirements:
  - Each of the hosts monitored requires one vST installed as a guest VM
  - Min 2Gb memory required during installation and 1 Gb in run time
  - 4Gb disk space required during installation and 2 Gb in run time

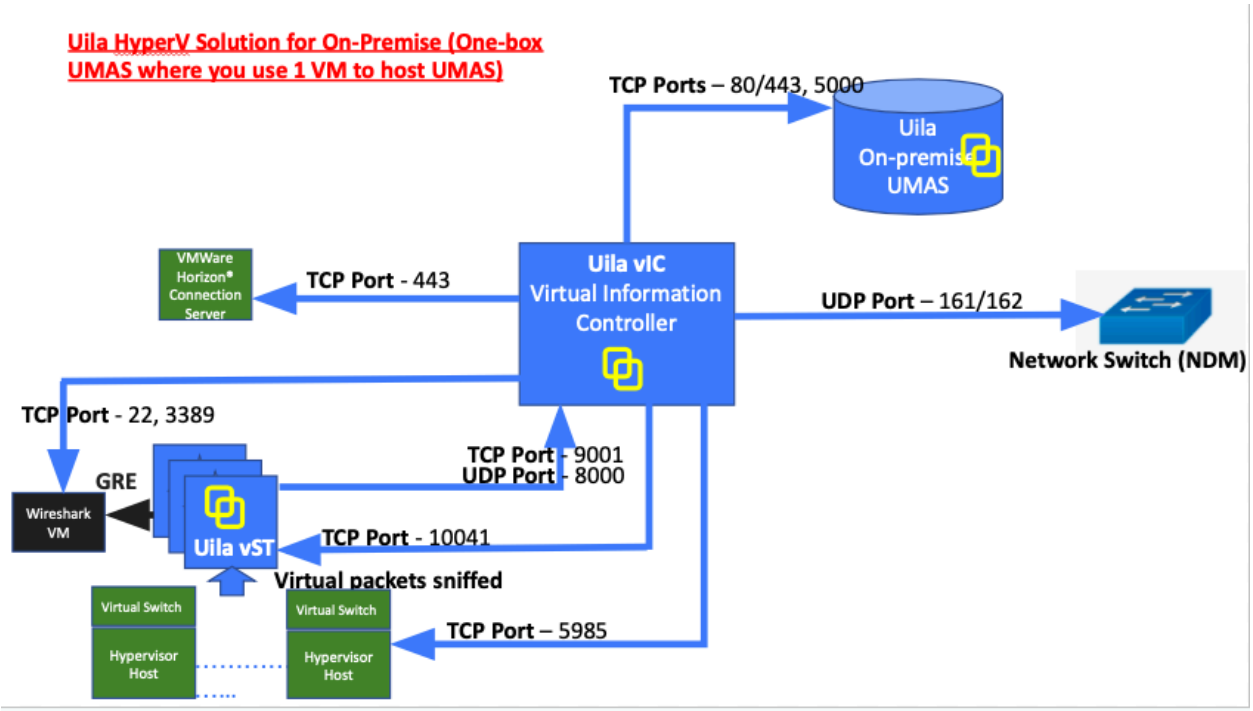
- Uila Virtual Information Controller (vIC) requirements:
  - Installed as a guest VM with single vCPU average usage of 275 MHz and Monitor Port Group average of 400 kbps network bandwidth

- vIC's minimum system requirement allocation is listed in Table below:

# of VM Monitored	vCPU	Virtual Memory	Local Storage
0 ~ 500 VM	**2**	**24 GB**	**24 GB**

- Proper Hyper-V access rights are required for vIC to collect information such as CPU, memory and storage metrics from Hyper-V. The access rights must be able to make configuration changes, deploy and setup Uila vST VM.

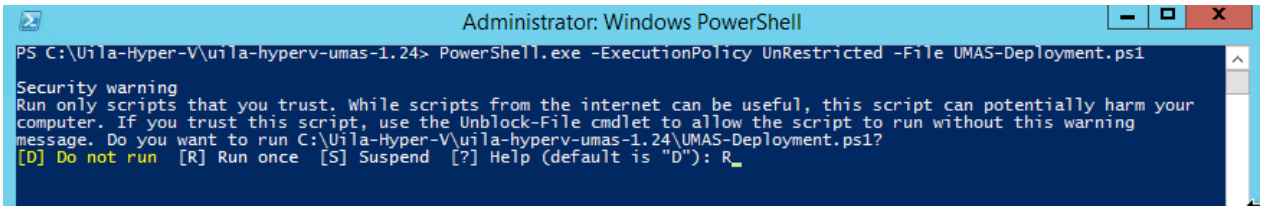
- Network requirement
  - Allocate one IP address for each of the vST's. This can be either a static IP address or assigned via DHCP, prior to the deployment.
  - Allocate one static IP address for the vIC prior to deployment.
  - Allocate one static IP address for the UMAS deployment
  - Open TCP and UDP ports to allow communications between Uila sub-systems as illustrated in the chart below.
    - Unblock TCP ports 80, 5000 and 443 between vIC and the UMAS.
    - Unblock TCP ports 5985 between vIC and Hypervisor hosts
    - Unblock UDP port 8000, TCP port 9001 from vST to vIC



Deploy Uila Management and Analytics System

This section describes the step-by-step instruction to install and activate UMAS.

1. An email with instructions to download UMAS will be provided by a Uila Support staff. There will a zip file that consists of 2 files –
    - UMAS-Deployment.ps1: Uila Hyper-V Powershell installation script.
    - umas-template.vhdx: Uila Hyper-V UMAS virtual machine template.
2. Open cmd as administrator and run UMAS-Deployment.ps1 script as follows –



3. Rename UMAS to the desired name on Hyper-V manager –

```
Please enter UMAS Virtual Machine Configurations. Press "ENTER" to accept default setting.

UMAS Name (uila-umas): uila-umas
```

4. Select deployment scale as mentioned –

```
Depending on the number ofHyper-V hosts and VMs environment.
Please select the correct deployment type configuration.
  Small Uila Deployment: For Datacenter enviroment with less than 500 VMs.  Require 2 vCPUs and maximum of 8 GB memory.
  Medium Uila Deployment: For Datacenter environment with 500-1000 VMs. Require 4 vCPUs and maximum of 16 GB memory.
  Large Uila Deployment: For Datacenter environment with more than 1000 VMs. Require 8 vCPUs and maximum 32 GB memory.

Deployment Options:
  1. Small Uila Deployment
  2. Medium Uila Deployment
  3. Large Uila Deployment
Select Deployment Option (1): _
```

5. Select the storage for UMAS. Make sure the storage has enough space to accommodate the UMAS deployment scale.

```
List of destination disk drive to deploy UMAS on Hyper-V "HYPERV-03":
  1. C: [LOCAL STORAGE] - Free Space: 662 GB.
  2. D: [LOCAL STORAGE] - Free Space: 712 GB.
Select destination storage drive index to install UMAS: _
```

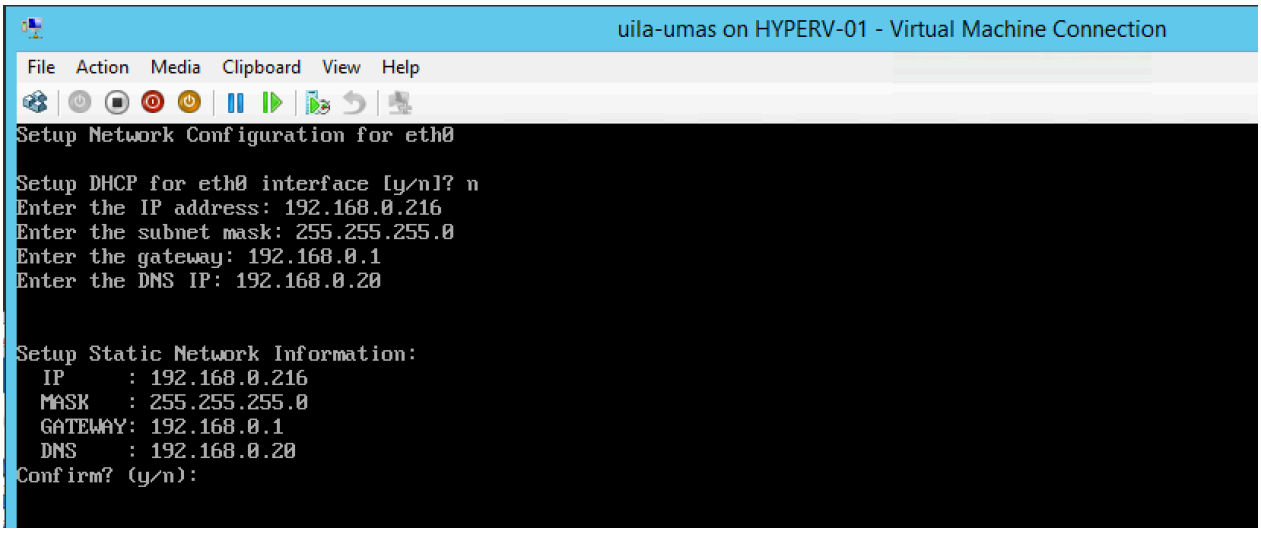
6. Select the vSwitch for the management port communication

```
List of available vSwitch on Hyper-V "HYPERV-03":
  1. Intranet-10
  2. VSwitchWith#Sign
  3. Virtual Switch
Select UMAS vSwitch Index connection: _
```

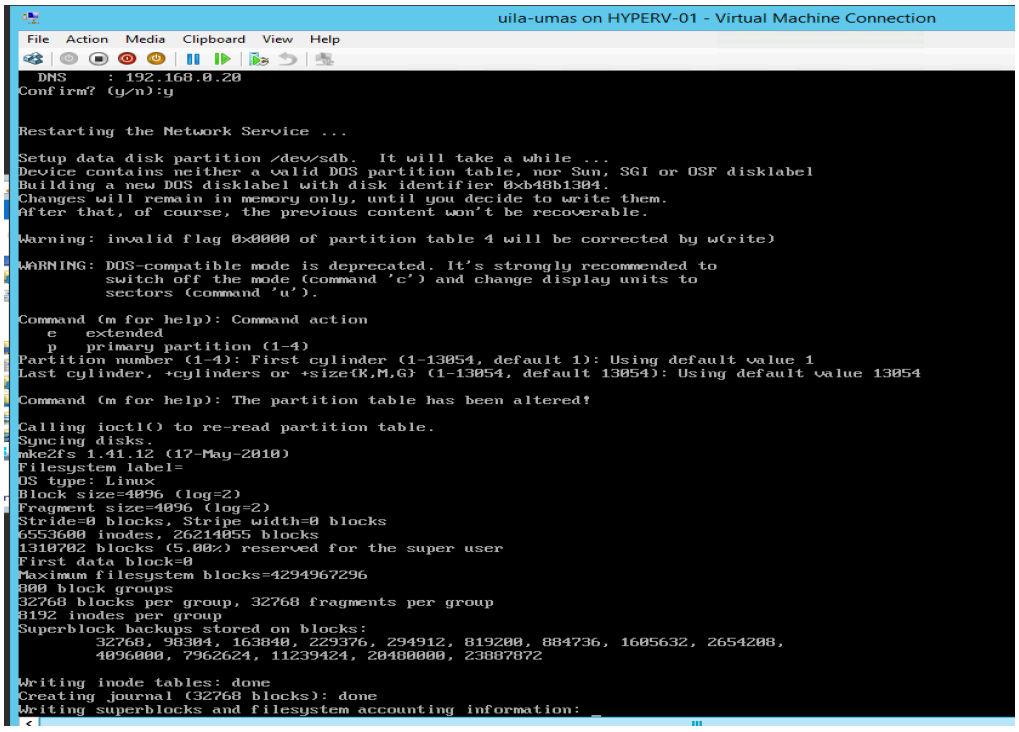
7. Setup VLAN's for UMAS if required, otherwise press No.

```
Setup VLAN id for UMAS Network Interface? [Y/N]: Y
Enter VLAN ID (1 - 4095): 400
```

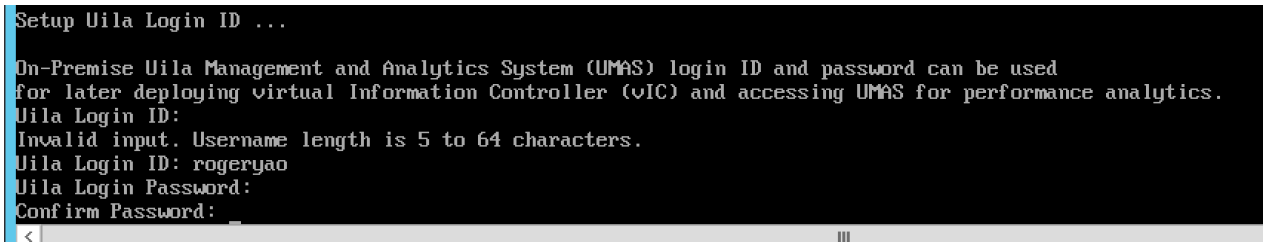
8. Once UMAS VM is created successfully, Hyper-V will open UMAS console window to configure networking properties.



9. UMAS appliance will take approximately 10-20 mins to deploy.



10. Once the deployment is complete, UMAS will request the user to input the desired username and password. The system will reboot to apply the configurations



11. Open browser and login to Uila portal using the IP assigned in step 8. Login using the username and password created in step 10.

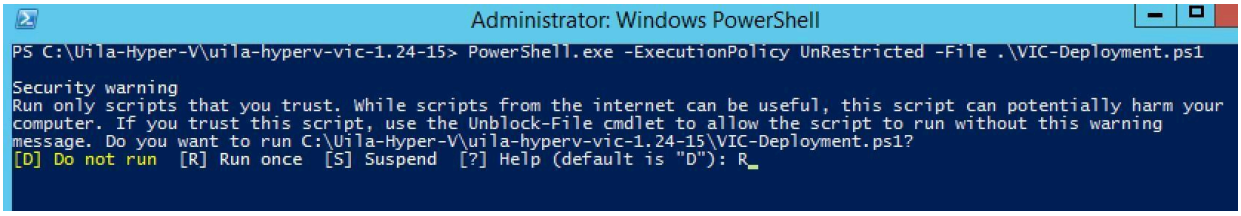
Deploy Virtual Information Controller (vIC)

This section describes the step-by-step instruction to download, install and activate vIC.

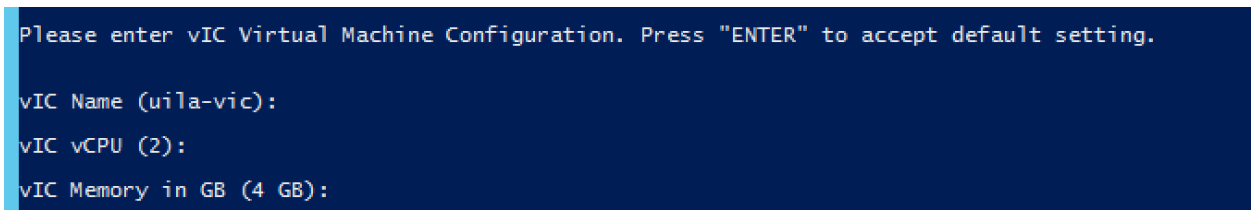
1. An email with instructions to download vIC will be provided by a Uila Support staff. There will a zip file that consists of 3 files –
   - VIC-Deployment.ps1: Uila Hyper-V Powershell installation script.
   - vic-template.vhdx: Uila Hyper-V vIC virtual machine template.
   - uila-hyperv-vst.zip: Uila Hyper-V vST virtual machine template.

2. Open cmd as administrator and run the VIC-Deployment.ps1 installation script –

   PowerShell.exe –ExecutionPolicy UnRestricted –File .\VIC-Deployment.ps1



3. Enter vIC virtual machine configuration -
   - vIC name
   - vCPU
   - Memory



4. Select storage –

```
List of destination disk drive to deploy vIC on Hyper-V "HYPERV-03":
  1. C: [LOCAL STORAGE] - Free Space: 655 GB.
  2. D: [LOCAL STORAGE] - Free Space: 712 GB.
Select destination storage drive index to install vIC:: _
```

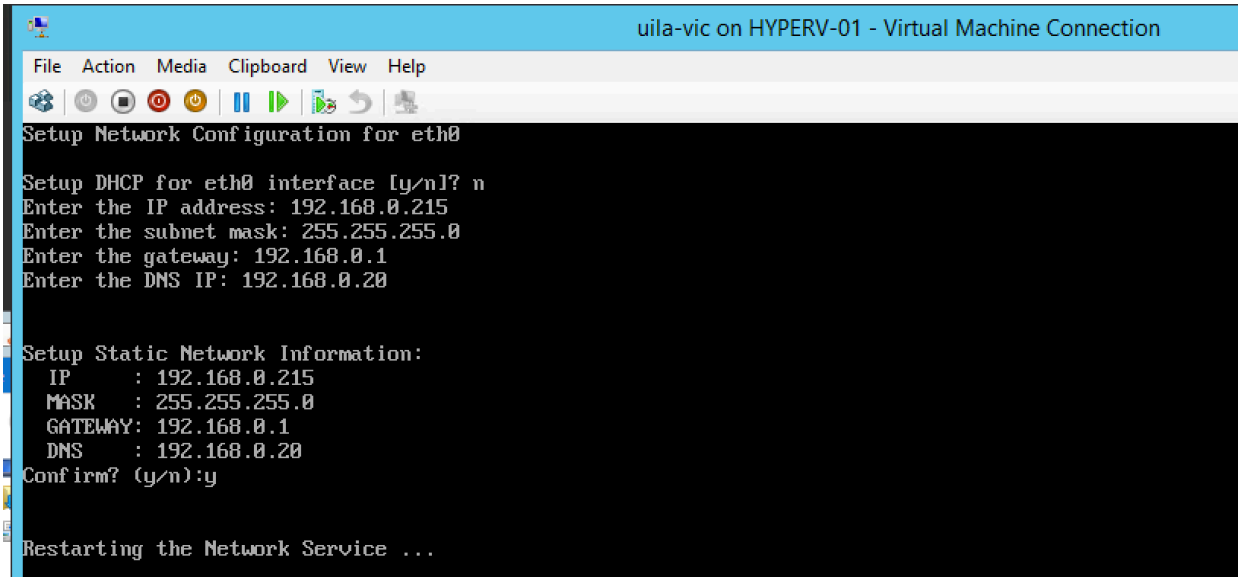
5. Select vSwitch for management communication –

```
List of destination disk drive to deploy vIC on Hyper-V "HYPERV-03":
  1. C: [LOCAL STORAGE] - Free Space: 655 GB.
  2. D: [LOCAL STORAGE] - Free Space: 712 GB.
Select destination storage drive index to install vIC:: _
```

6. Select vLAN option for vIC. If yes, a VLAN id must be specified.

```
Setup VLAN id for vIC Network Interface? [Y/N]: _
```

7. Once vIC VM is deployed successfully, Hyper-V will open vIC console window for you to configure networking properties.



8. Configure vIC properties such as UMAS IP, Uila login ID and password. In case of on-premise installation press ‘n’.

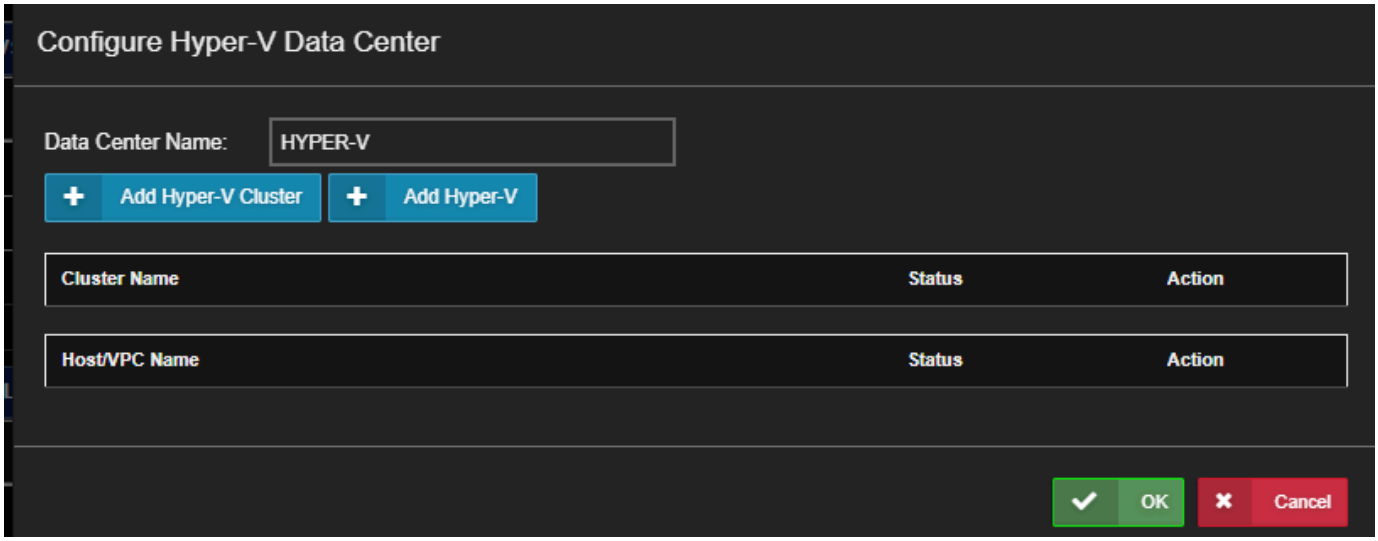
```
Setup Uila Software Packages ...

Setup Uila software configuration ...
vIC using Uila Cloud Service? [y/n] n
Enter Uila Management Analytics System (UMAS) IP Address: 192.168.0.216
Please enter the Login ID and password during setup of UMAS
Uila Login ID: rogeryao
Uila Password:
Confirm Password:
```

9. vIC reboots to apply the new configuration. Login using the vIC credentials provided in step 8.

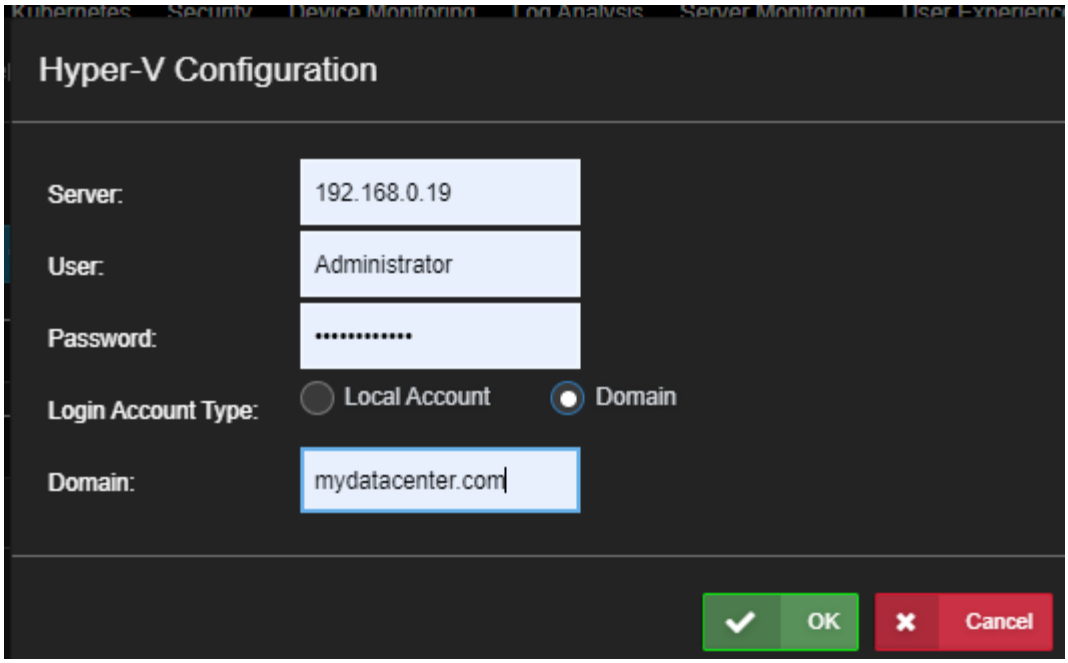
Add HyperV server to monitor

Login to Uila using your admin account.

Navigate to Settings → vST → Configure Hyper-V Data Center to add a new Hyper-V server.



Depending on Data Center configuration, you want to add your Cluster or individual Hyper-V server to Uila monitor. Add the login information:



After clicking OK the VIC will attempt to login to the server and get the list of available switches.

If login status fails, the account information may be incorrect or the account does not have permissions or the WMI services are not running on the server. Also try to specify the domain name in upper case.

If login is successful, there is no need to enable permissions, skip to the Deploy Virtual Smart Tap in the next section.

Configure the Hyper-V server to enable account permissions.

Run the 'Uila-wmi-Configuration-v1.x.ps1' script on the Hyper-V server to enable account permissions:

- Get the latest copy of the script from Uila and copy the Uila-wmi-Configuration-v1.x.ps1 script to the Hyper-V server.
- Start Powershell console and run command:
  ex. PS C:\>.\Uila-wmi-Configuration-v1.7.ps1
- The script will prompt you to enter a Local or Domain account that is to have the permissions.

```
PS C:\Users\Administrator\Downloads> .\Uila-wmi-Configuration-v1.5.ps1

cmdlet Uila-wmi-Configuration-v1.5.ps1 at command pipeline position 1
Supply values for the following parameters:
(Type !? for Help.)
login: Administrator

Check Hyper-V Server version ... passed.
[Microsoft Windows Server 2012 R2 Datacenter]
Query User Login Info.
Query User SID.
User sid: S-1-5-21-625097177-1267811478-971515149-500
GetSecurityDescriptor is not valid for this operating system.
Please add user Administrator to namespaces manually.
Setup ACE Namespace Root failed
[Performance Monitor Users] The specified account name is already a member of the group.

[Performance Log Users] The specified account name is already a member of the group.

[Event Log Readers] The specified account name is already a member of the group.

[Distributed COM Users] The specified account name is already a member of the group.

[WinRMRemoteWMIUsers__] The specified account name is already a member of the group.
```

- To enable a Domain Account, enter the FQDN of the user login: (in this example '**Administrator@mydatacenter.com**')

```
PS C:\Users\Administrator\Downloads> .\Uila-wmi-Configuration-v1.5.ps1
cmdlet Uila-wmi-Configuration-v1.5.ps1 at command pipeline position 1
Supply values for the following parameters:
(Type !? for Help.)
login: Administrator@mydatacenter.com

Check Hyper-V Server version ... failed.
[Microsoft Windows Server 2012 R2 Datacenter (6.2)]
Not support OS. Abort!
Query User Login Info.
Query User SID.
User sid: S-1-5-21-1966727378-2695026448-3200258666-500
GetSecurityDescriptor is not valid for this operating system.
Please add user Administrator to namespaces manually.
Setup ACE Namespace Root failed
[Performance Monitor Users] The specified account name is already a member of the group.

[Performance Log Users] The specified account name is already a member of the group.

[Event Log Readers] The specified account name is already a member of the group.

[Distributed COM Users] The specified account name is already a member of the group.

[WinRMRemoteWMIUsers__] The specified account name is already a member of the group.
```

- If permissions prevent the script from running, prepend the execution policy change:
  PS C:\>Set-ExecutionPolicy -ExecutionPolicy Bypass -scope Process -force;
  .\Uila-wmi-Configuration-v1.5.ps1

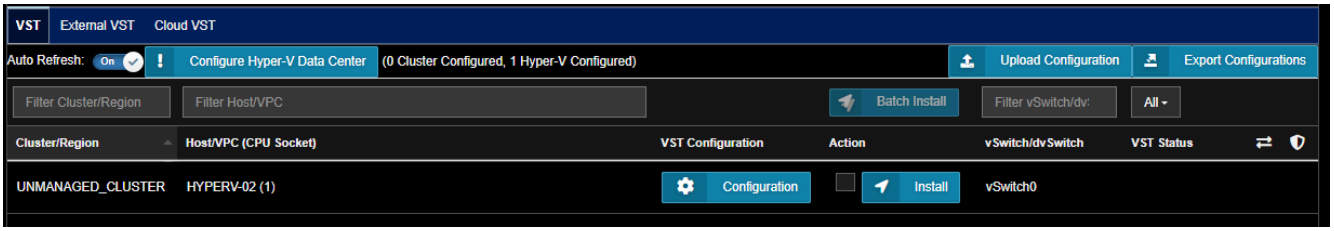
```
Set-ExecutionPolicy -ExecutionPolicy Bypass -scope Process -force; .\Uila-wmi-Configuration-v1.5.ps1
```

- Verify the status of Hyper-V server login in "Configure Hyper-V Data Center" again.

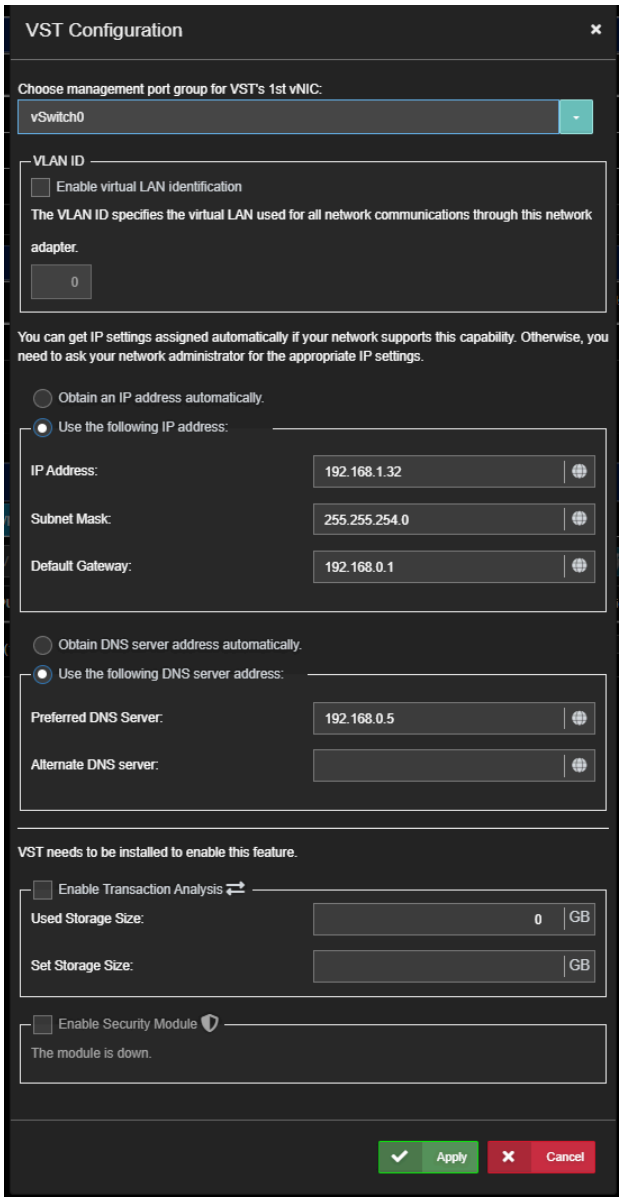
Deploy Virtual Smart Tap (vST)

This section describes a step-by-step instruction to deploy vST.

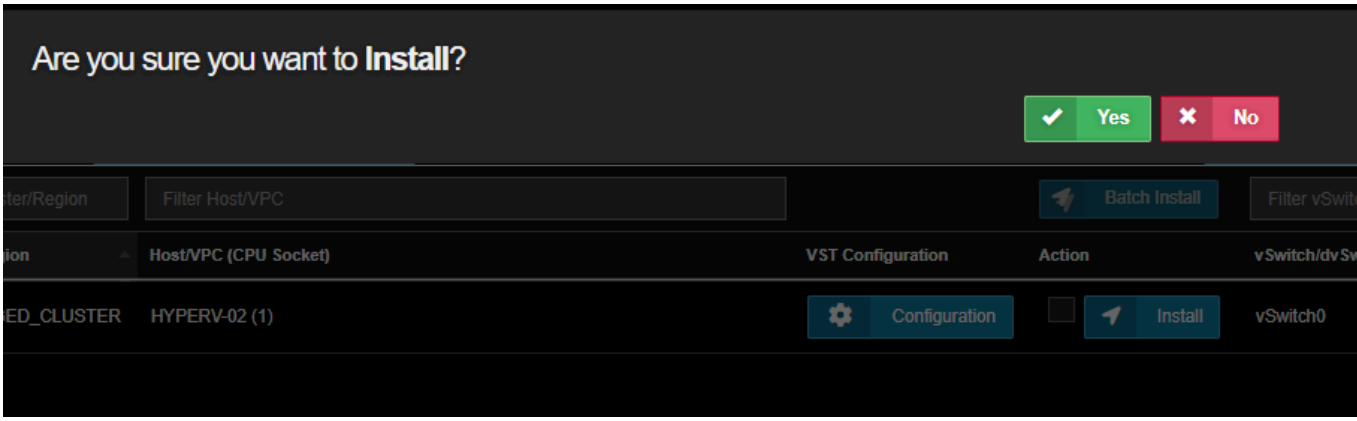
1. Login to Uila portal. The portal can be accessed by entering the IP address/hostname of the UMAS server on the web browser.
2. Navigate to Settings → vST page. Verify the Hyper-V and vSwitch display on vST Setting Page. To begin vST deployment on Hyper-V and vSwitch, click on the Configuration



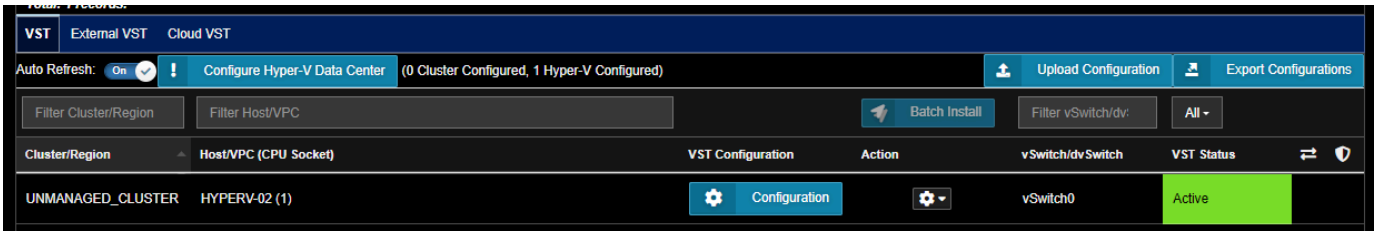
3. Enter the configuration required to deploy vST: Hyper-V vSwitch, VLAN Id (optional), and network information.



4. Click on the Install button to initiate the deployment of the new vST. The deployment process could take up to 5 minutes.



5. The vST will completely deploy and will show a green 'Active' status in vST Settings page.



6. Repeat for the other switches that you want to install additional cVST to monitor traffic

Contact Uila Support

Uila software solutions are designed with ease of installation and simplified maintenance in mind. The Uila team is dedicated to exceeding your expectations, and knows that any downtime is too much in today's competitive world. Our goal is to keep your applications running 24 X 7. We offer a simple and effective support program to meet your needs. Customers who purchased Uila products and under support contract will receive the following benefits:

- Unlimited support via email or phone call
- Free software minor release update
- Free software major release upgrade

Email: support@uila.com
Phone: (408) 400-3076

About Uila

Uila gives IT infrastructure teams x-ray vision for their data center operations and end user experience. Designed for Private, Public and Hybrid Cloud environments, Uila's Application-Centric Data Center Infrastructure Monitoring and Analytics provide instant visibility into hotspots and bottlenecks in any data center. Uila provides service dependency mapping, full stack correlation with 1-click root cause analysis and patented deep packet inspection technology that understands over 2,700 application protocols for transactional meta data analysis. Businesses use Uila to align themselves with their IT Operations team and cut time to resolution from days to minutes, keep their application at peak performance at all time and ensure end-user satisfaction to the fullest.