



**Version 2.7**  
**Installation Guide for Cloud VST/IST**  
**9/18/2024**

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## Introduction

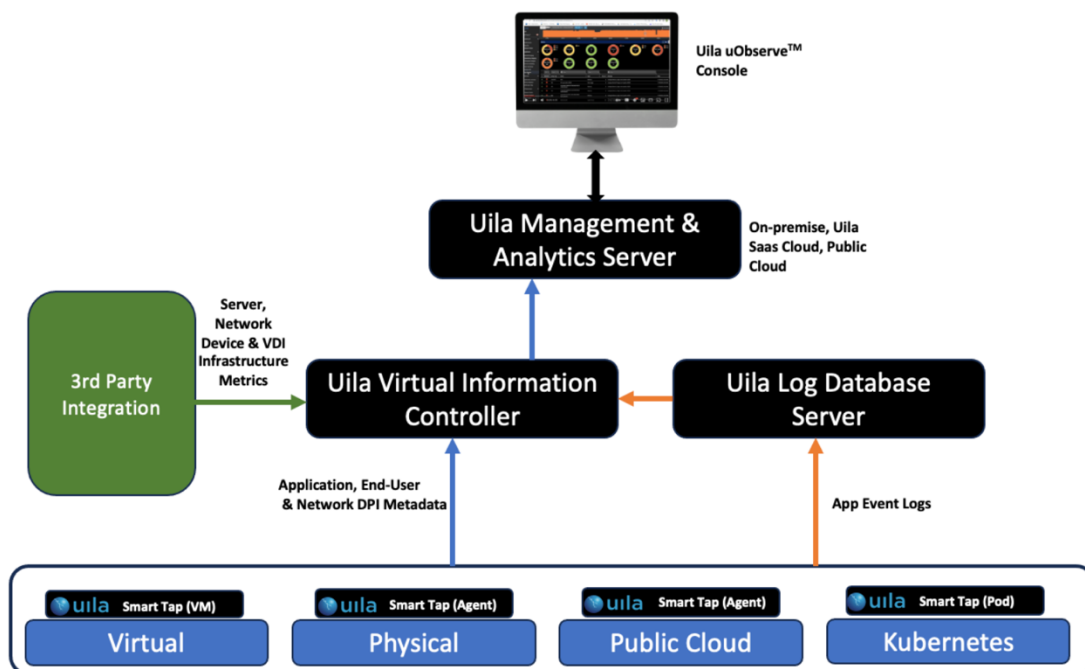
### Scope and Purpose

This document describes the system requirements, installation and configuration steps for the Cloud Virtual Smart Tap(cVST) and Instance Smart Tap(iST) on the Public Cloud, Physical Server, or Desktop.

**Pre-requisite: It is assumed that the reader has already installed the Uila Virtual Information Controller (VIC) and the Uila Management and Analytics Server (UMAS).**

### Architecture Overview

The diagram below shows the Uila Management and Analytics System architecture (UMAS) and its relationship to Private and Public cloud environment.



### Uila Architecture

Uila consists of three major components –

- *Management and Analytics system(UMAS)* – UMAS is a big data store and analytics engine that was designed to accommodate a large data center deployment with thousands of servers. UMAS can store data for up to 35 days and record data in minute resolution, while maintaining real time responsiveness. UMAS’s built-in redundancy offers high availability, removes downtime and reduces maintenance overhead.

The UMAS can be used to provide a single pane of glass view for end-to-end visibility into performance, capacity and resource usage/allotments across all on-premise and cloud-hosted services (VMware, Microsoft Hyper-V, Amazon Web Services, Microsoft Azure, Google Cloud and other cloud provider deployments).

- *Virtual Information Controller(vIC)* - vIC is installed as a virtual appliance on-premise or on cloud datacenter. The vIC retrieves the infrastructure configuration and collects network, storage and compute performance metrics. This is then combined with the data from the vST and transmitted to the UMAS.
- *Virtual Smart Tap(vST)* – Virtual Smart Tap (vST) is deployed in a distributed manner across the Data Center or the Public Cloud. The vST installs in the host (Private Cloud) or VM/instance (Public Cloud) or Kubernetes Node as an efficiently designed guest Virtual Machine or Pod where it promiscuously listens to all traffic from the virtual switch or getting traffic from Uila’s Instance Smart Tap (iST) that traverses the virtual networks (North-South and East-West). Using embedded Deep Packet Inspection (DPI) technology, the vST identifies unique applications and their attributes.

In a cloud deployment, the VST (a.k.a cVST), also collects the network and performance metrics from the IST and utilizes the Deep Packet inspection technology to identify applications.

- *Instance Smart Tap (IST)* – The Uila Instance Smart Tap (iST) is deployed as a plug-in in a distributed manner across the Public Cloud on the VMs or Instances running the application workload. It collects traffic as well as VM and Instance level Compute statistics and sends it to the vST for Deep Packet Inspection.

## Getting Started

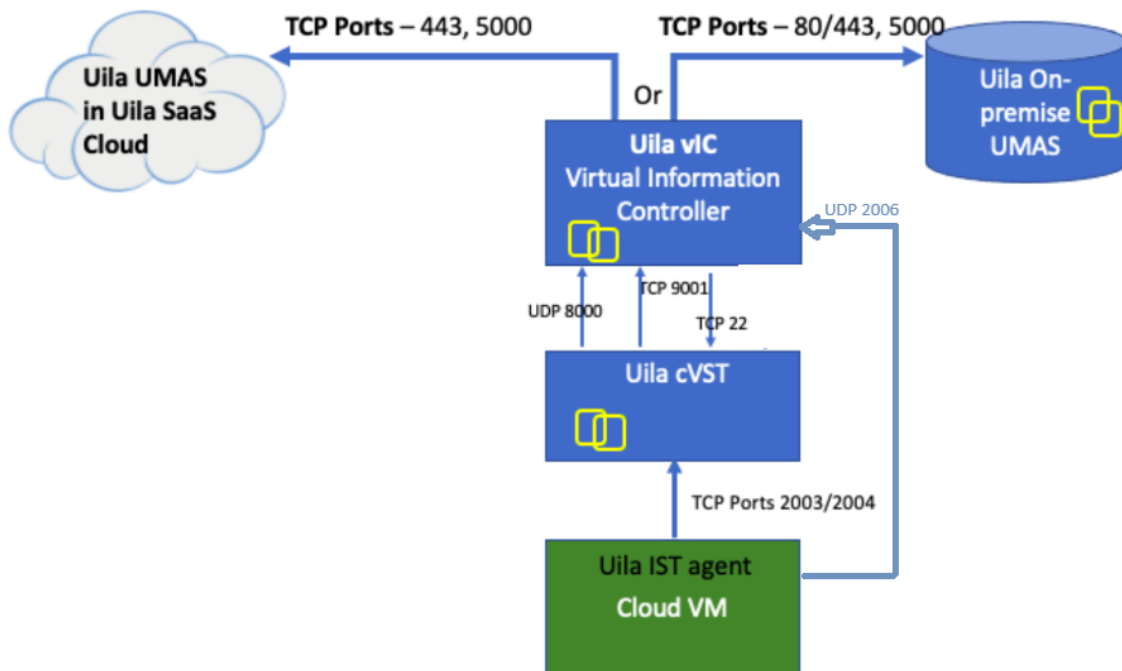
### System Requirements for cVST/IST

User must provision and setup a Ubuntu appliance from marketplace and setup the following network requirements before installing Uila.

- Uila Virtual Smart Tap (vST) requirements -
  - **cVST for Public Cloud –**
    - t2.large for AWS
    - D2s v3 for Azure
    - 4Gb minimum disk space required
    - 1G RAM + 512M x each IST (i.e. 5 iST = 3.5G RAM)
    - Ubuntu (Recommended Ubuntu 20.04)
    - Create an account with sudo permissions

- Network requirement
  - Allocate one IP address for each of the cVST's. This can be either a static IP address or assigned via DHCP, prior to the deployment.
  - The IST's will be installed as an agent inside the guest OS. It will use the IP address assigned to the guest OS.
- Port Requirements: VERY IMPORTANT to verify the following Ports are opened to allow Uila software to communicate.
- cVST must be able to initiate traffic to the VIC IP

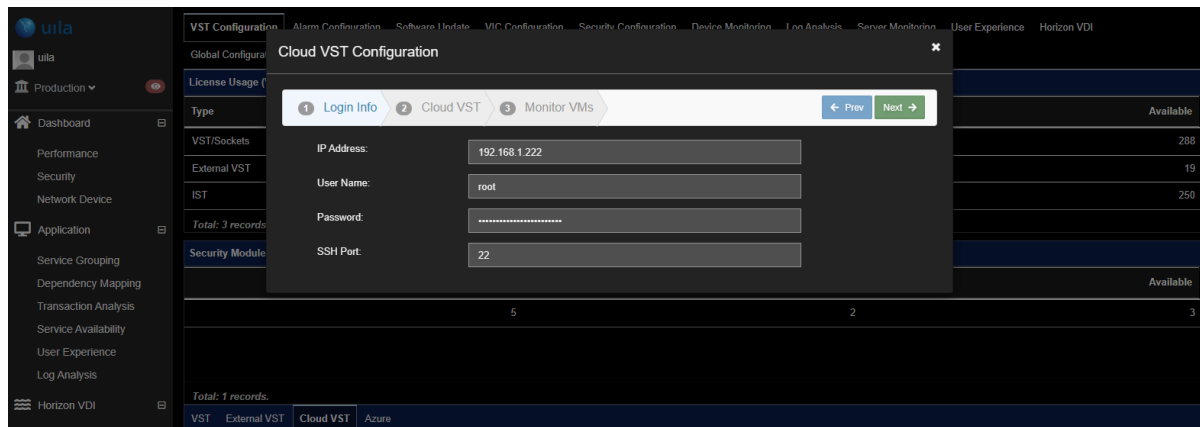
**Uila Solution for Public Cloud Deployment**



## Deploy Uila Virtual Smart Tap

1. Setup a brand new VM/Instance for the cVST. The recommended guest OS is Ubuntu 20.04.
2. Make sure to set the hostname of the cVST, making sure it is unique.
  - a. With sudo access run:  
**hostnamectl set-hostname "Auto-VST-1"**
3. Upload the VST installer to the VM
  - a. The installer file will be provided by Uila and its name would resemble **"installer-vst.tar.gz"**
  - b. Upload the Uila Installer file to **"/opt"**
4. Execute the vST installation -

- a. Run the commands -
  - i. **tar -xvf installer-vst.tar.gz**
  - ii. **cd UilaInstaller/**
  - iii. **./install.sh -rpcap deployment.properties**
  
5. Configure the cloud vST
  - a. Run the command –
    - i. **/opt/uila/VST/bin/setconfig -v <VIC IP address>**
    - ii. **/opt/uila/VST/bin/setconfig -t cloud**
  
6. Make sure package ‘unzip’ is installed, if not install it.
  - a. Run the command –
    - i. **sudo apt install unzip**
  
7. Now go to finish the cloud VST configuration –
  - a. Go to Uila GUI>>Settings>>VST configuration
  - b. Click on Cloud VST
  - c. You will see a list of the running Cloud VST
  - d. Under “Actions” click on “config”
  - e. Fill in the field below to identify the cloud VST
  - f. The account must have ‘sudo’ rights to perform service-related operations



8. **If cloning a VST** to be the cVST, here are some notes
  - a. Find a VST that does not have transaction analysis, no 2nd HD
  - b. If there are multiple NICs, make sure to delete all the unnecessary NICs
  - c. For 4 IST instances, requires 3G RAM, 2 cores, 3GB HD.

ADD NEW DEVICE

> CPU	2		<span>i</span>
> Memory	3	GB	
> Hard disk 1	3	GB	
> SCSI controller 0	LSI Logic Parallel		
> Network adapter 1	VM Network		<input checked="" type="checkbox"/> Connect...
> Video card	Specify custom settings		
VMCI device	Device on the virtual machine PCI bus that provides support for the virtual machine communication interface		
> Other	Additional Hardware		

- d. Get rid of the unneeded NIC config:
- e. Modify `/etc/network/interfaces` to remove links to the other NIC.
- f. Other possibility, vi `/etc/netplan/00-installer-config.yaml` to only have one NIC and IP

```

This is the network config written by 'subiquity'
network:
  ethernets:
    eno1:
      dhcp4: no
      addresses:
        - 192.168.1.50/24
      gateway4: 192.168.0.1
      nameservers:
        addresses: [192.168.0.20, 192.168.0.5]
    eno2:
      dhcp4: true
    enp1s0f0:
      dhcp4: no
    enp1s0f1:
      dhcp4: no
  version: 2
  
```

- g. Make sure there is only 1 `/opt/uila/VST/conf/uvst-rpcap.conf`

```
uila@localhost:/opt/uila/VST/conf$ ls -lrt
total 44
-rw-r--r-- 1 uila uila  285 Apr  7 2021 uvst.conf.synesis
-rw-r--r-- 1 uila uila  288 Apr  7 2021 uvst.conf.default
drwxr-xr-x 2 uila uila 4096 Apr  7 2021 ssh
-rw-r--r-- 1 uila uila 1440 Apr  7 2021 log4crc
-rw-r--r-- 1 uila uila 2437 Apr  7 2021 groonga-httpd.conf
-rw-r--r-- 1 uila uila  910 Apr  7 2021 Q1800705-20180627.bin
-rw-r--r-- 1 uila uila  457 Jan  9 14:36 version.h
-rw-r--r-- 1 uila uila  910 Jan  9 14:36 QA-14-084-2014-12-17.bin
-rw-r----- 1 uila uila  330 Jan  9 18:26 uvst.conf
-rw-r----- 1 uila uila  344 Jan  9 18:26 uvst-rpcap.conf
-rw-r--r-- 1 uila uila  127 Jan  9 18:26 uvst-global.conf
```

- h. And contents of the file uvst-rpcap.conf should similar to this:

```
[uila@cloudvST conf]$ cat uvst-rpcap.conf
# uvstd configuration file
[general]                                     ; section comment
vst_type = 3
device=eth1                                   ; monitor ethernet device

[ service ]
background = false
pidfile = /tmp/pidfile

[server]
address=10.3.252.44
port = 8000
interval = 60
maxrecord=1024

[debug]
verbose=2
max_pcapthreads=10
```

- i. Running the cVST installer should make those settings into the uvst-rpcap.conf.
- j. To enable Uila to use the 'root' account, modify /opt/uila/VST/conf/ssh/sshd\_config to change this line from :
- ```
PermitRootLogin without-password
```
- To:
- ```
PermitRootLogin yes
```
- k. To allow 'uila' account to have root access, modify the sudoer file:
- Run visudo and add this line after the 'root' line:  
uila ALL=(ALL:ALL) ALL
- l. Change the permission for the Uila (or custom account) to have sudo  
Run visudo
- m. Comment out the 'uila' setting and add this new line at bottom:

```

Cmnd_Alias UILA_CMDS = /opt/uila/VIC/bin/hosts-manager, /opt/
-agent, /opt/uila/bin/dmidecode, /bin/date, /usr/sbin/ntpdate,
ade/UilaInstaller/install.sh, /tmp/UilaInstaller/install.sh, /s
/shutdown, /opt/uila/bin/nagios-config.sh, /opt/uila/bin/nagios
opt/uila/bin/wmic
Cmnd_Alias NAG_CMDS = /usr/bin/nmap
#uila      ALL=(root)      NOPASSWD: UILA_CMDS
nagios     ALL=(root)      NOPASSWD: NAG_CMDS
uila      ALL=(ALL:ALL) ALL
~

```

## Deploy Uila Instance Smart Tap (IST) for Windows

Starting with version 5.6, Uila will now auto assign IST to the cVST. It is based on the VAPP\_NAME and PG\_NAME set into the IST configuration. Once the IST communicate with the VIC, VIC will search for and assign the IST to an available cVST that matches the above names. You can use VAPP and/or PG to further distinguish which cVST.

VST	External VST	Cloud VST						
VST	IST							
IST	VST	VST IP	Vapp Name	Port Group Name	Version	OS Type	Status	
ubuntu20	Ubuntu-CVST	10.3.249.50	Kimi-vApp	Kimi-PG	5.6.0-20	Linux	Active	
AUTO-IST-4	Ubuntu-CVST	10.3.249.50	Kimi-vApp	Kimi-PG	5.6.0-20	Windows	Active	
AUTO-IST-5	Auto-CVST	10.3.249.99	Kimi-vApp	Kimi-PG	5.6.0-20	Windows	Active	
AUTO-IST-3	Kimi-CVST	10.3.250.98	Kimi-vApp	Kimi-PG	5.6.0-20	Windows	Active	
AUTO-IST-1	Kimi-CVST	10.3.250.98	Kimi-vApp	Kimi-PG	5.6.0-20	Windows	Active	
auto-ist-6-centos8	Auto-CVST	10.3.249.99	Kimi-vApp	Kimi-PG	5.6.0-20	Linux	Active	
AUTO-IST-2	Kimi-CVST	10.3.250.98	Kimi-vApp	Kimi-PG	5.6.0-20	Windows	Active	

If no names are defined (default), then VIC will search for a cVST that has a name of 'default'.



### Cloud VST Configuration

1 Login Info   2 Cloud VST   3 Config IST Status

Cloud Type:

Cluster/Region:

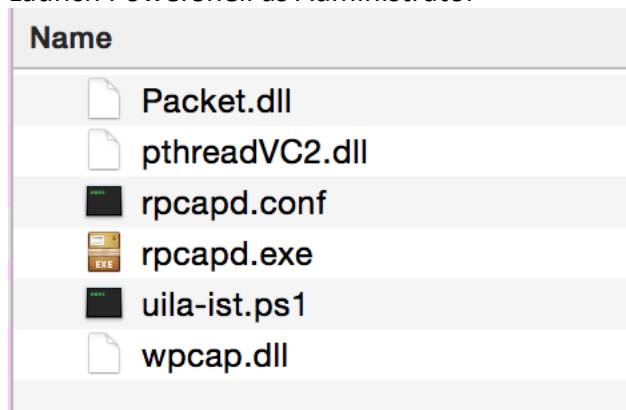
Host/VPC:

vApp/Application Group:

Port Group/Subnet:

## Installation

1. Download the IST install image (i.e. installer-ist-windows.zip) and copy it onto the target system. This image will be provided by Uila.
2. Install the iST on the target VM
  - a. Unzip the IST install package to a local directory (i.e. c:\TEMP\uila-ist-win) of the target system.
  - b. Launch PowerShell as Administrator



- c. Change directory to the Windows file folder containing uila-ist-win.ps1.
- d. Run the command below in PowerShell console to install iST
 

```
set-executionpolicy -executionpolicy bypass -scope process -force;
.\uila-ist.ps1 -Install -VIC 192.168.0.101 -vapp_name 'vdi' -pg_name 'west'
```
- e. If no specific cVST is needed then no need to specify the vapp or pg\_name.
 

```
set-executionpolicy -executionpolicy bypass -scope process -force;
.\uila-ist.ps1 -Install -VIC 192.168.0.101
```

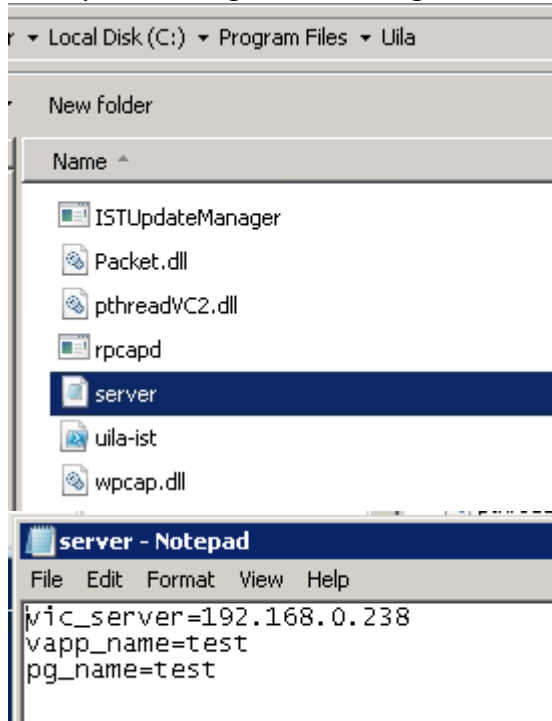
```

PS C:\uila\uila-ist-win> ./uila-ist.ps1 -vic 192.168.0.238 -vapp_name test -pg_name test -Install
Installing Uila iST service ...
Registering service uila-ist ...
Configure vIC server IP ...
Writing vIC server configuration file ...
Update vIC server configuration file, vIC 192.168.0.238
Update vIC server configuration file, vapp_name test
Update vIC server configuration file, pg_name test
Registering iST Update Service ...
Installing Npf driver Service ...
[SC] CreateService SUCCESS
reg : The operation completed successfully.
At C:\uila\uila-ist-win\uila-ist.ps1:243 char:5
+ reg import npf.reg
+ ~~~~~
+ CategoryInfo          : NotSpecified: (The operation completed successfully.)String [], RemoteException
+ FullyQualifiedErrorId : NativeCommandError

SERVICE_NAME: npf
        TYPE               : 1  KERNEL_DRIVER
        STATE                : 4  RUNNING
                        (STOPPABLE, NOT_PAUSABLE, IGNORES_SHUTDOWN)
        WIN32_EXIT_CODE      : 0  (0x0)
        SERVICE_EXIT_CODE  : 0  (0x0)
        CHECKPOINT          : 0x0
        WAIT_HINT           : 0x0
        PID                 : 0
        FLAGS                :
Starting service uila-ums
Service 'uila-ums' Status = Running
Starting service uila-ist
Service 'uila-ist' Status = Running

```

f. You can verify the setting in the c:/Program Files/Uila/server.conf.



**NOTE:**

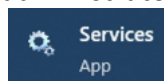
To uninstall the iST package:

```

set-executionpolicy -executionpolicy bypass -scope process -force;
.\uila-ist.ps1 -uninstall

```

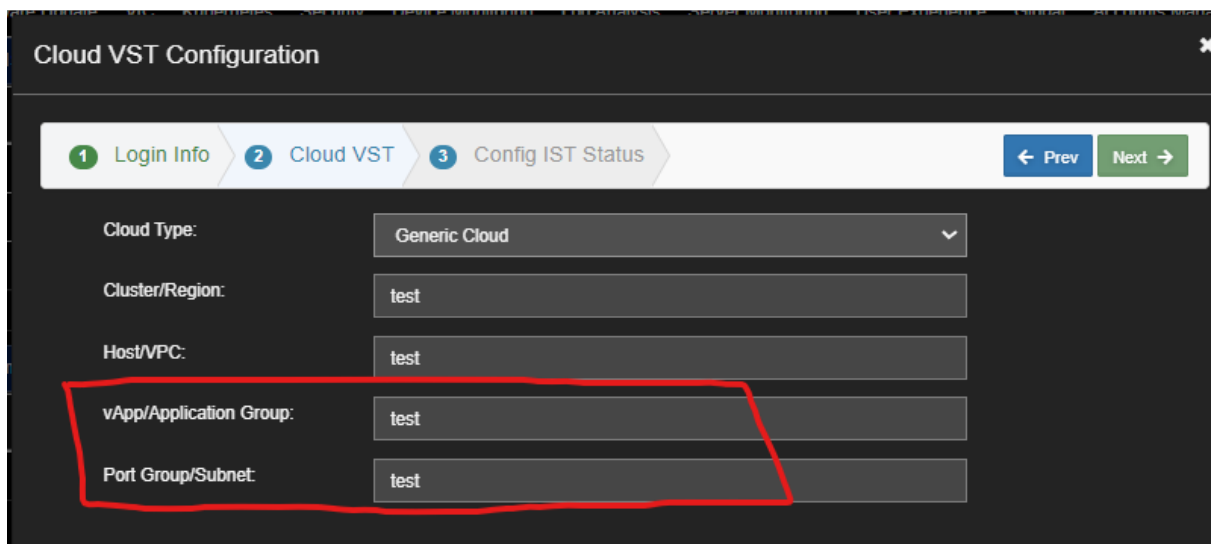
g. Verify if the Uila Service is up and running. Open Windows Services as an administrator. Or run services.msc



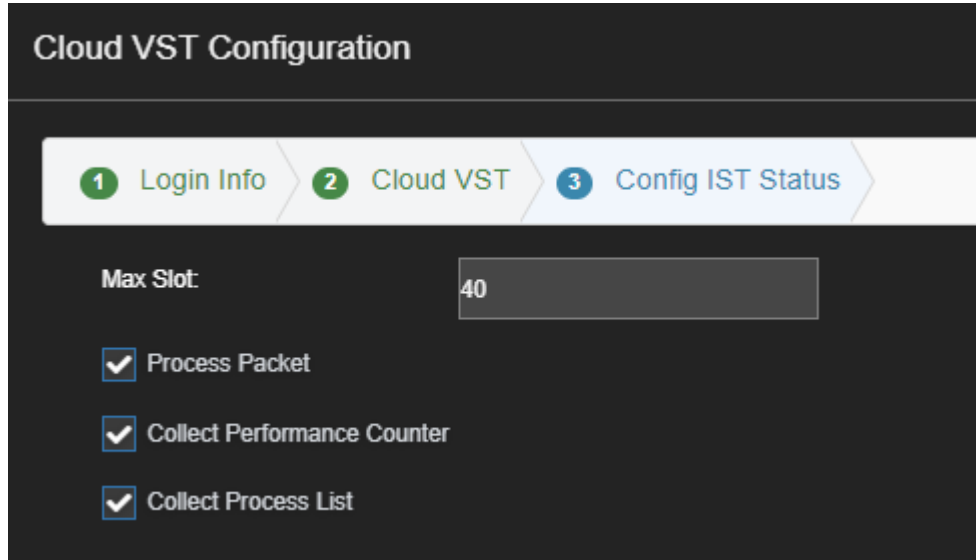
Start both Uila iST Service and Uila iST Update Service if they're not running already.



3. Go to the Uila Webpage
  - a. Settings>>VST Configuration
  - b. Click on Cloud VST
  - c. You will see the Cloud VST appear
  - d. Under "Actions" click on "config"
  - e. Fill in the login information to identify the cloud VST
  - f. Click Next
  - g. Define the correct vApp and Port Group name that you want ISTs to be assigned to



- h. If there are already ISTs deployed from prev versions, use the label 'default' for both vAPP and pg names. This will allow the default ISTs to get assigned and software to auto update.
- i. Click Next
- j. Set the max number of slots for this cvST. This number (default==40) is based on how much memory and cpu is assigned to this cvST.



- k. The base formula to use is :  
 $1G + \text{slot} \times 512 \text{ meg}$   
 So for 40 slots, the recommended memory is 21Gs of RAM and 4 – 8 CPU.  
 If the RAM is less, adjust the slot number to prevent ISTs from being assigned to this cVST.
- l. If there are more ISTs than cVST(slots), you should replicate another cVST with the same vApp/Pg name so additional ISTs can be assigned to this cVST. Like in this case, there are 3 cVST serving the same vApp/Pg:

VST	External VST	Cloud VST				
VST	IST					
Cloud Type	Port Group Name	Vapp Name	Used / Max Slots	License	VST Name	
AWS	Kimi-PG	Kimi-vApp	2 / 2	2	Auto-CVST	
Azure	Kimi-PG	Kimi-vApp	2 / 2	2	Ubuntu-CVST	
Generic Cloud	Kimi-PG	Kimi-vApp	3 / 3	3	Kimi-CVST	

- m. In this example, there are 2 IST that has vapp/pg names defined and assigned, and 2 IST that are default (no vapp/pg names shown). And there are no default cVST created, so those ISTs are not assigned.

VST	External VST	Cloud VST						
VST	IST							
IST	VST	VST IP	Vapp Name	Port Group Name	Version	OS Type	Status	
192.168.1.51	localhost.localdomain	192.168.1.222	test	test	5.7.0-2342	Linux	Active	
WIN7ULTIMATE	localhost.localdomain	192.168.1.222	test	test	5.7.0-2342	Windows	Active	
WIN-7B581FD0DF3					0.0.0-0	Unknown	Resource Unavailable	
DESKTOP-THRCJEF					0.0.0-0	Unknown	Resource Unavailable	

## Deploy Uila Instance Smart Tap for Linux

1. Supported OS
  - a. Centos/RedHat 6 – 8
  - b. Ubuntu 14 – 20
2. Upload the IST installer to the VM
  - a. The installer file will be provided by Uila and its name would resemble **“installer-ist-linux.tar.gz”**
  - b. Create a folder **“/opt”** on the target PC and Upload the Uila Installer file to **“/opt”**
3. Execute iST installation
  - a. `tar -xvf installer-ist-linux.tar.gz`
  - b. `cd UilaInstaller/`
  - c. If you do not need to group ISTs to specific cVST:  
`./install.sh -vic <vic ip> deployment.properties`
  - d. If you do want to assign this IST to a specific cVST, add the names:  
`./install.sh -vic <vic ip> -vapp_name 'vdi' -pg_name 'west' deployment.properties`
  - e. You can check the settings in the file `/opt/uila/IST/conf/server.conf` to check if they are set to the correct VIC, vapp\_name and pg\_name. You can manually change this in future to set to different cVST.

## 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](mailto:support@uila.com)

Phone: (408) 400-3706

## About Uila

Uila resolves Complex IT Disruptions for Enterprise Organizations with its Intelligent Full-Stack Observability Platform, that correlates Application and Infrastructure Performance to isolate and remediate issues before business impact. With Uila, IT teams can visualize application workload dependencies across cloud platforms, rightsize infrastructure resources, troubleshoot disruptions for any onsite or remote VDI user due to application/network/infrastructure challenges, plan workload migration strategies for Cloud deployments and use AIOps to streamline troubleshooting and reduce MTTR with remediation actions. And most importantly, this is done WITHOUT any agents. Uila also allows security teams to combat advanced cyber threats, by providing comprehensive application anomaly insights, cyber threats & Data Exfiltration activities. Organizations use Uila to align themselves with their IT teams and cut MTTR from days to minutes to always keep End-User Experience at peak performance & secure, across cloud boundaries.