Hitachi Vantara

HDCA/OPS CENTER ANALYZER Probe Server Setup Guide

Center of Excellence – Storage Kit Setup Series

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Version History		
Version#	**Date**	**Comment**
22.00	11/19/2019	First initial draft
23.00	11/20/2019	Added 6 hour wait note for validating probe instance
28.00	11/20/2019	Added Version History Page
29.00	11/20/2019	Moved note in rev 23 to correct place in document
32.00	11/26/2019	Using the ll command to list disks by id rather than ls
33.00	12/12/2019	Edited document for customer use

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Purpose

Ops Center Analyzer uses the Ops Center Analyzer Probe server to collect performance metrics from storage arrays, to fibre channel switches, to servers and vCenter environments. Once collected, it then will transfer the information to the Ops Center Analyzer sever for long term storage and where the data can be used and analyzed. As such, installation of the Ops Center Analyzer Probe server is a critical step in setting up and configuring a HPA environment.

Overview

In this section, we will be installing the Ops Center Analyzer Probe VM and configure it to work in the Center of Excellence Storage Kit Environment. The process breaks down into the following steps:

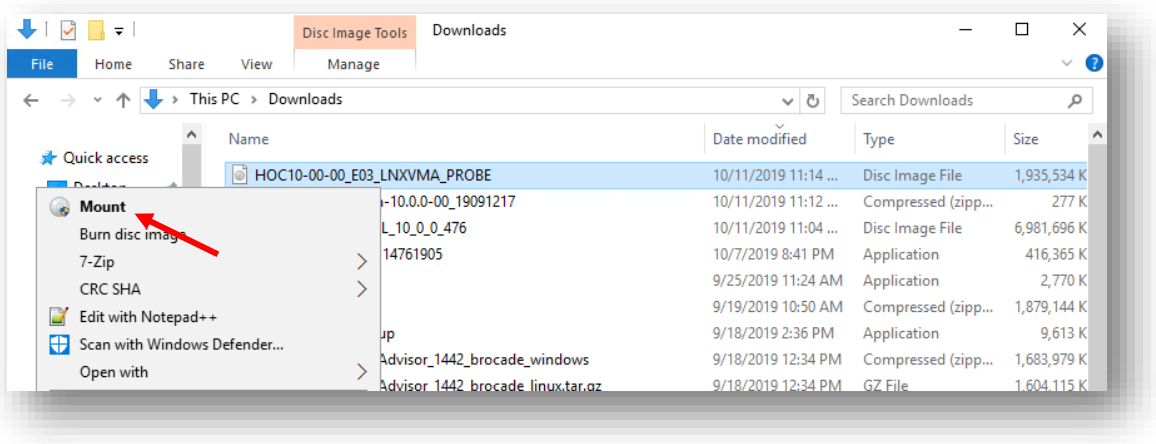
1. Deploy Ops Center Analyzer Probe VM into vCenter
2. Create Command Device
3. Map Command Device to ESXi server(s)
4. Map Command Device to Ops Center Analyzer Probe VM as RDM
5. Initial Configuration of the Ops Center Analyzer Probe Server
6. Configure Raid Agent (JPC)
7. Configure Ops Center Analyzer Probe Web Interface

Deploy Ops Center Analyzer Probe VM into vCenter

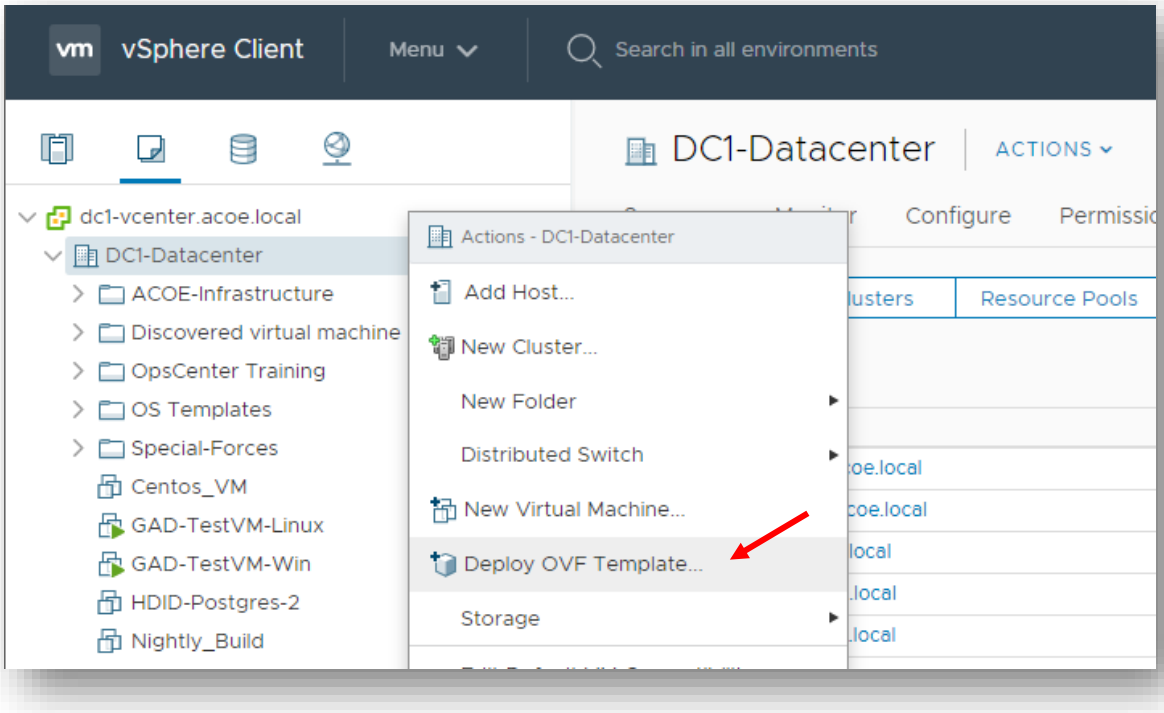
We begin the process of configuring our environment by deploying the Ops Center Analyzer Probe VM OVA into the vCenter Environment. Before beginning this section, make sure you have the latest Ops Center Analyzer Probe VM OVA by downloading the latest "Hitachi Ops Center Software for Linux VMA (VMware) Probe" ISO from https://support.hitachivantara.com

NOTE: The following instructions are for a Windows based workstation or server and assuming you have vCenter 6.7

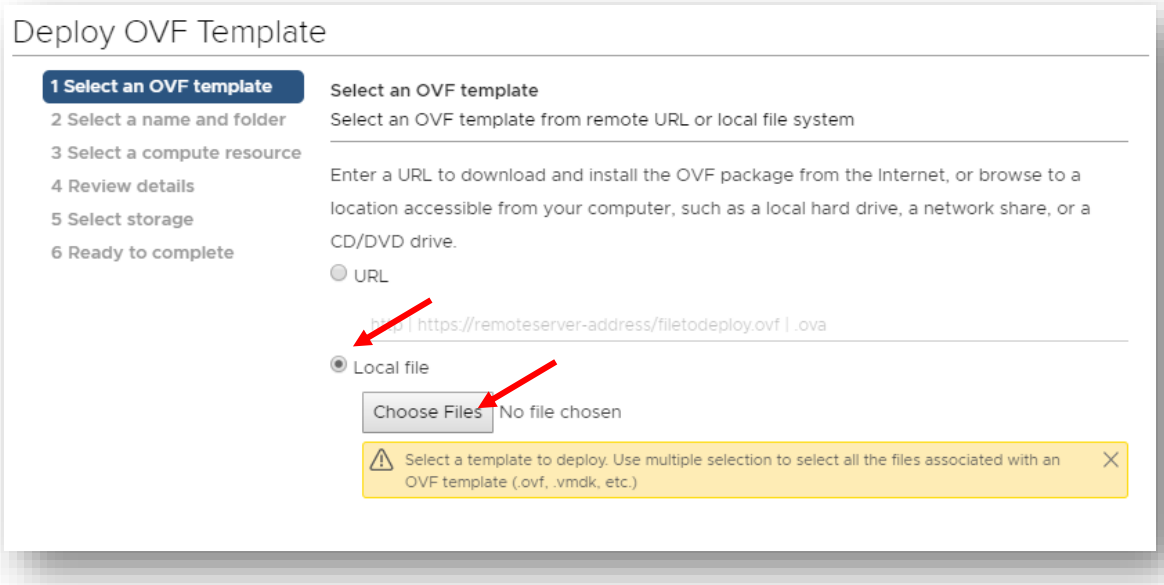
1. On a Windows Host, mount the HOCxx-xx-xx_xxx_LNXVMA_Probe ISO



2. On a Windows system, open the vCenter Web Interface
3. Within vCenter, deploy the Ops Center Analyzer OVA
    a. Right-Click the resource you want to deploy the VM to (i.e. the Datacenter object, the cluster object, the folder object or the ESXi server) and select "Deploy OFV Template"

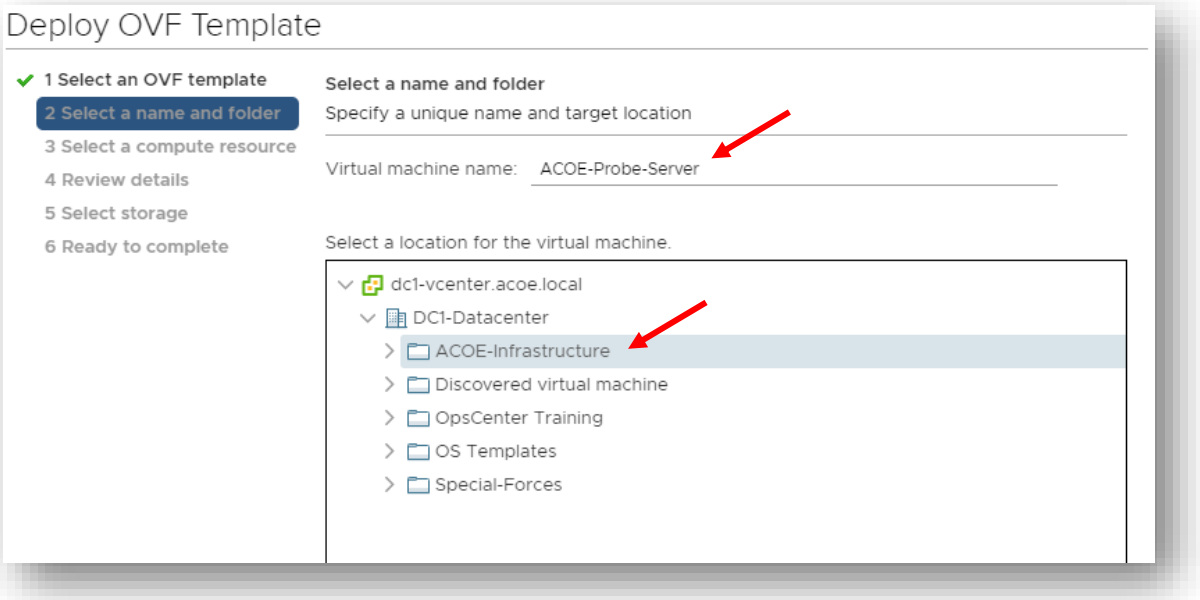


b. In the “Deploy OVF Template” windows, select “Local file” and then click “Choose File”

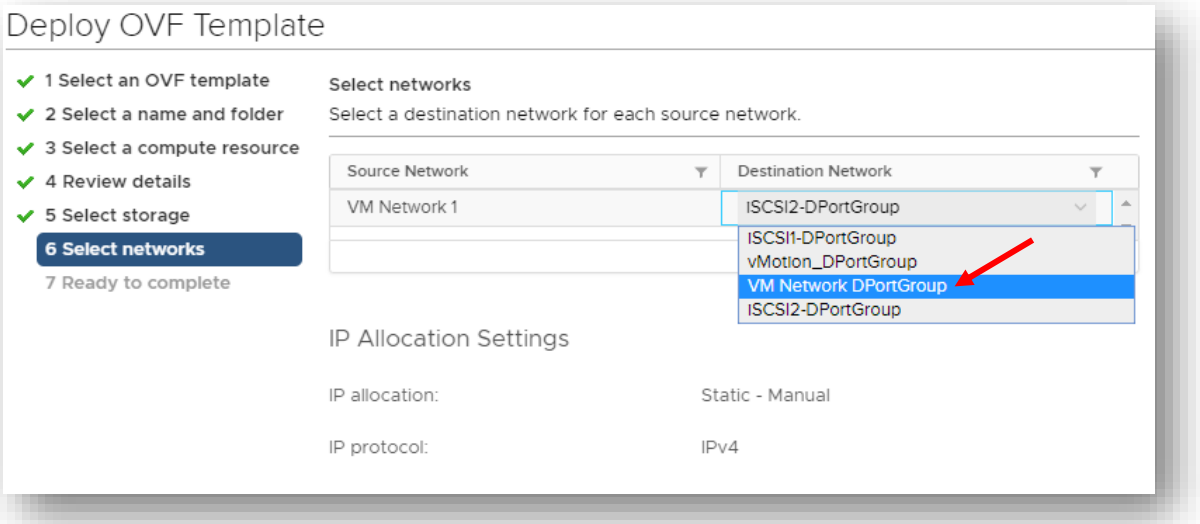


c. Navigate to the mounted ISO and select the “dcaprobe_x.x.x-xx.ova” file and click Open
d. Select “Next”
e. Assign a name to the new VM

f. Select the logical location for the VM (i.e. what VM folder do you want this VM to be placed)



g. Select "Next"
h. Select the physical location for the VM (i.e. what server or cluster you want to deploy the VM on)
i. Under the "Review Details" section, select "Next"
j. Choose a storage location for the Probe Server VM and click "Next" (NOTE: You may want this to be a SAN volume so that the VM can be easily vMotioned to other servers)
k. Select a network for the VM to be connected too and select "Next"



l. On the “Ready to complete” section, click “Finish”

4. After a few minutes, the VM will be deployed into you vCenter Environment

Create Command Device

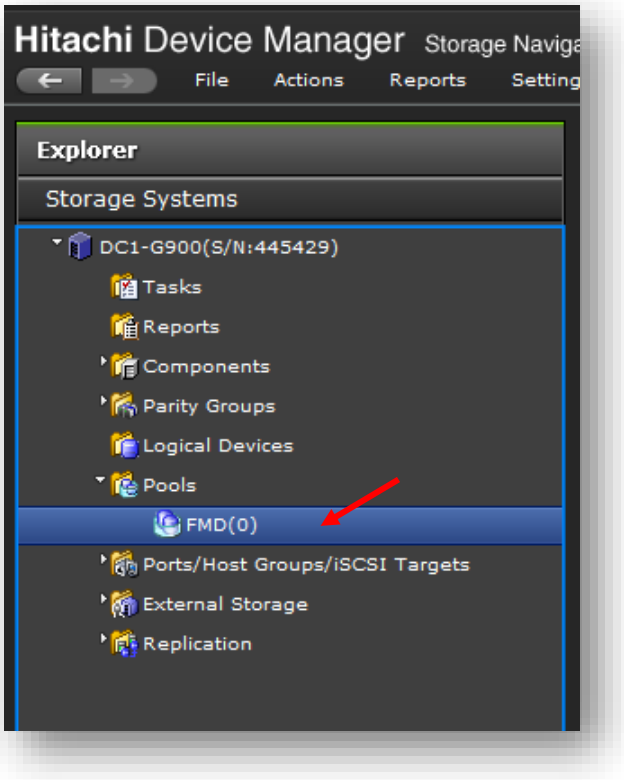
For the Ops Center Analyzer Probe Server to be able to communicate with a Hitachi Array and pull performance information, it needs access to a volume on that array. Additionally, that volume needs to be configured as a basic command device (No need for user authentication or other settings).

In this section, we will cover the steps to create a command device on Hitachi storage using the GUI application Storage Navigator as well as the CLI application Raidcom. We will assume there is already a pool created that we can create volumes in

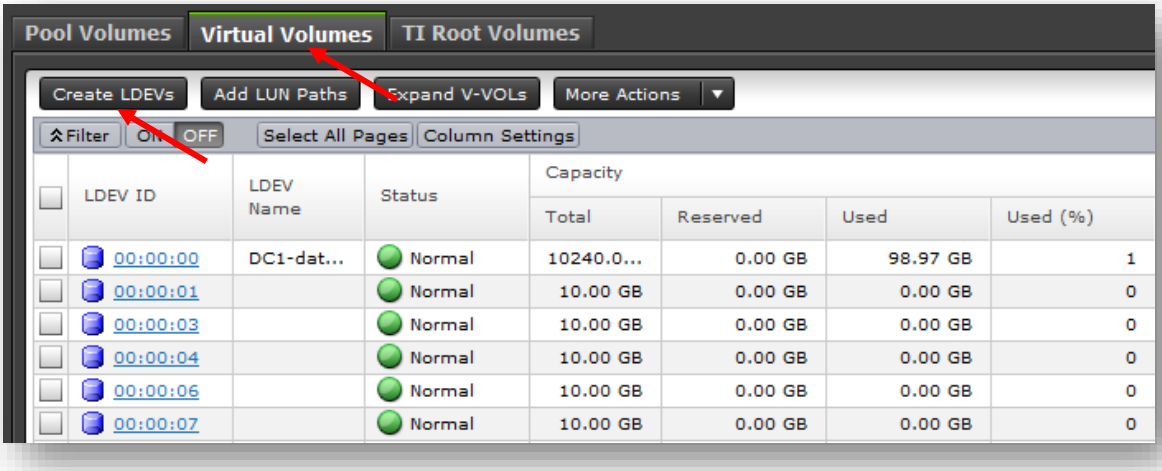
NOTE: You will have to repeat these steps for every array that this probe server will serve

Storage Navigator

1. Open the web interface for Storage Navigator and log into the array
2. Using the Explorer Pane, navigate to and select the pool you want to create the command device in

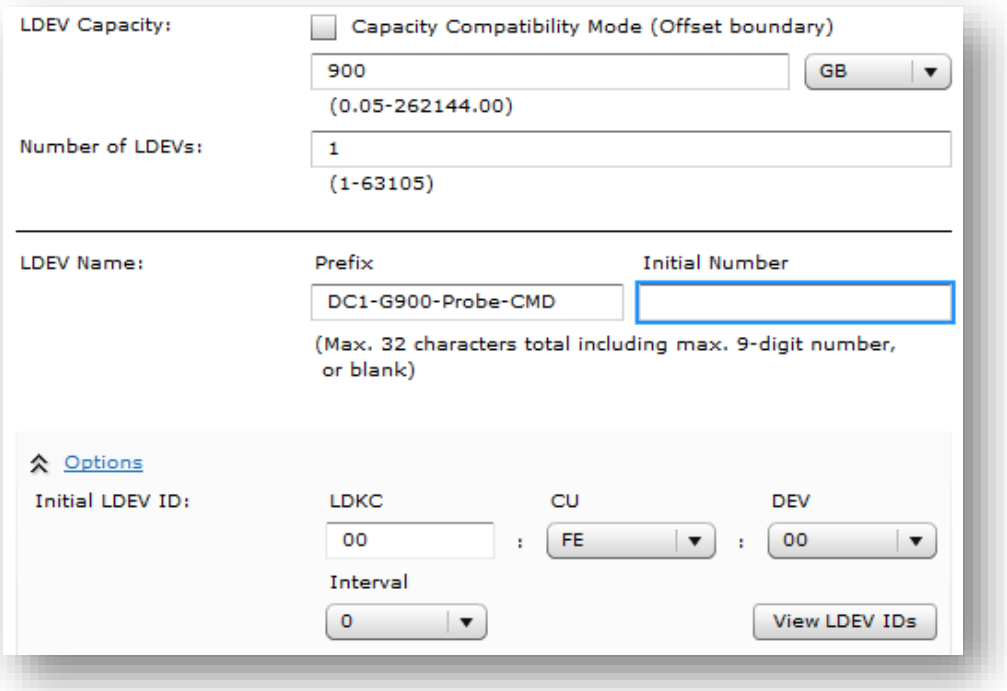


3. Navigate to the “Virtual Volumes” tab and select “Create LDEV”

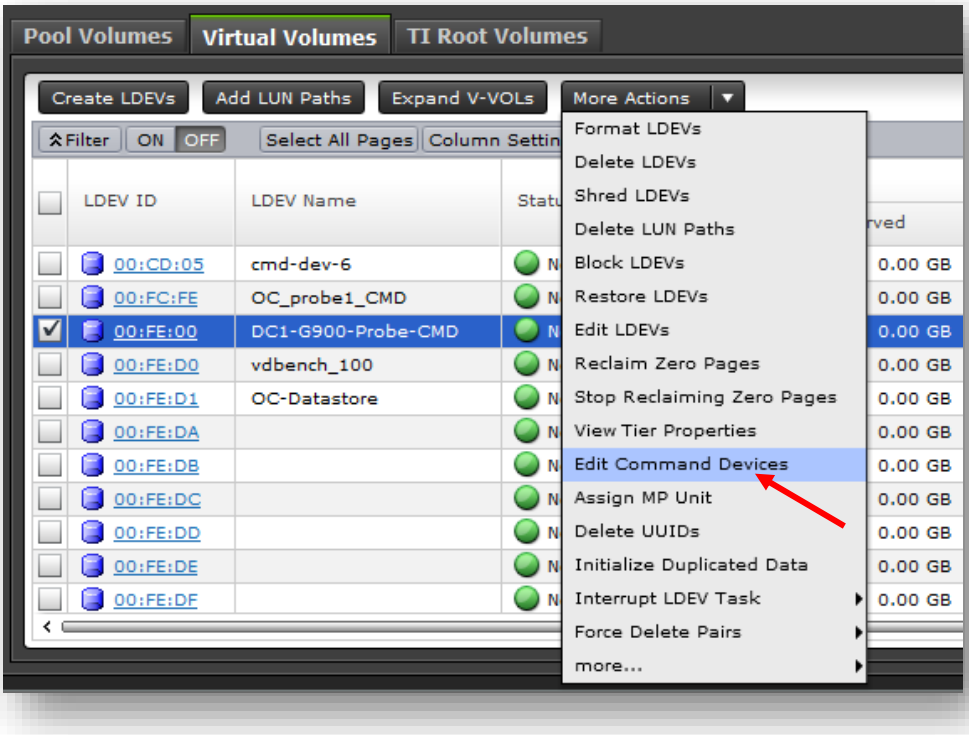


4. For the LDEV, leave all values default except the following:
    a. **LDEV Capacity**: <Choose any size 47MB or larger>
    b. **Number of LDEVs**: 1
    c. **LDEV Name**: <Array-name>-Probe-CMD
    d. **LDEV ID**: 00:FE:<Any number from 00 -> FF>

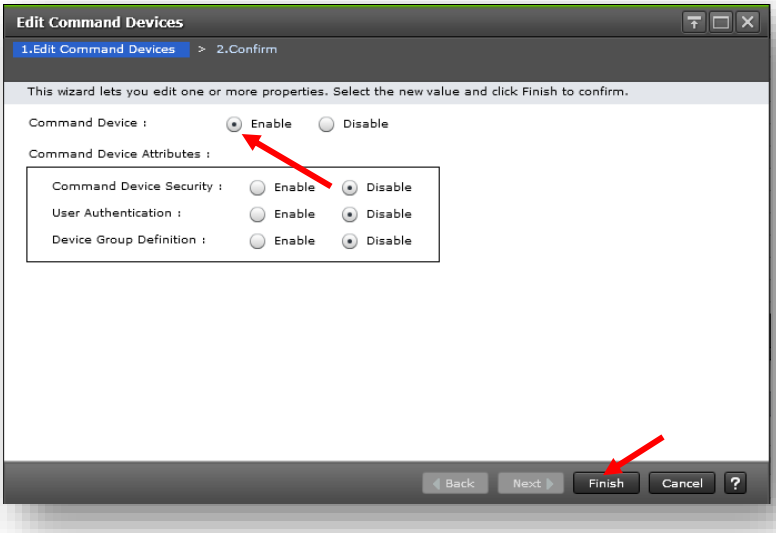
    NOTE: For LDEV Capacity, you might set the size to be whatever the model of the array is, so it is easier to determine if you are working with several arrays. (i.e. G900 -> LDEV Capacity: 900MB, G350 -> LDEV Capacity: 350MB)



5. Click “Add” followed by “Finish”
6. Click “Apply” to begin the job to create the LDEV
7. After a few minutes, the new LDEV will be created. We now have to enabled it as a command device. Select the volume under the “Virtual Volumes” tab under the pool you created it in, click “More Actions” and select “Edit Command Devices”



8. Set the “Command Device” setting to Enable and select finish



9. After a few minutes, the volume will now be a command device

Raidcom

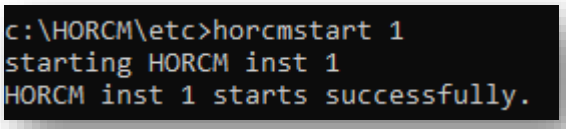
In this section, we will assume you have Raidcom installed and configured with either its own physical Command Device or an IP Command Device from the array you are working with, and it is registered as instance 1. Additionally, this section will be taken from the perspective of being on a Windows based host

1. Open Command Prompt (NOTE: Powershell will not work for this!)
2. Navigate to the folder c:\HORCM\etc\

```
cd c:\HORCM\etc\
```

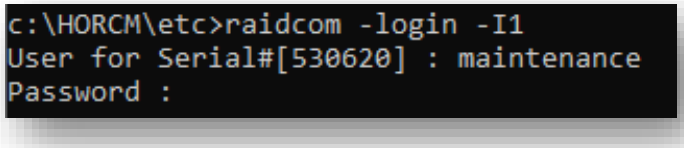
3. Start the HORCM instance

```
horcmstart 1
```



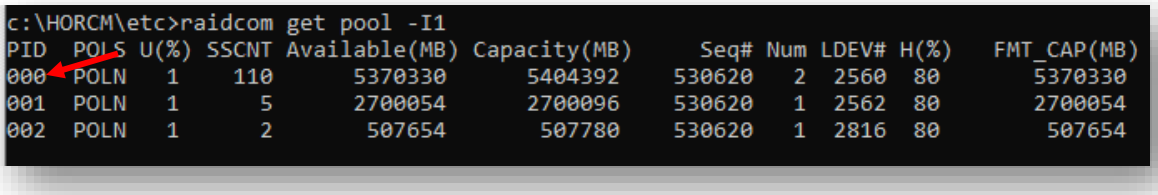
4. Use raidcom to log into the array

```
raidcom -login -I1
```



5. View the list of storage pools and select one from the list and record its pool ID

```
raidcom get pool -I1
```



6. Create the volume using the pool ID. In this example, we will use the following parameters:
    a. **Pool ID**: 0
    b. **LDEV ID**: 0xfe00
    c. **Capacity**: 500m NOTE: Choosing this size to help identify it as my VSP 5000 CMD Device, yes I changed to a VSP 5000 in the middle of this document… Get over it!

```
raidcom add ldev -pool 0 -ldev_id 0xfe00 -capacity 500m -I1
```

7. Add a descriptive name to the newly created LDEV

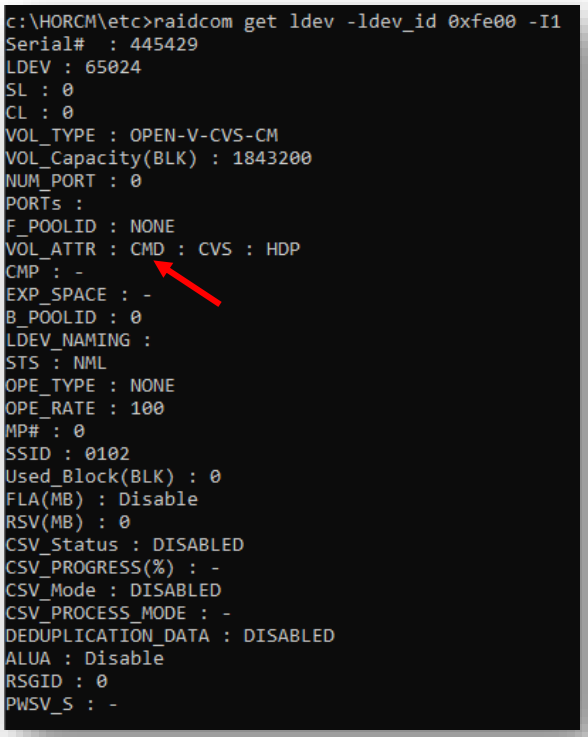
```
raidcom modify ldev -ldev_id 0xfe00 -ldev_name DC1-G900-Probe-
CMD -I1
```

8. Configure the LDEV to be a basic Command Device

```
raidcom modify ldev -ldev_id 0xfe00 -command_device y -I1
```

9. Verify the volume now has the CMD attribute on it

```
raidcom get ldev -ldev_id 0xfe00 -I1
```



10. The Command Device has now been configured

Map Command Device to ESXi Server(s)

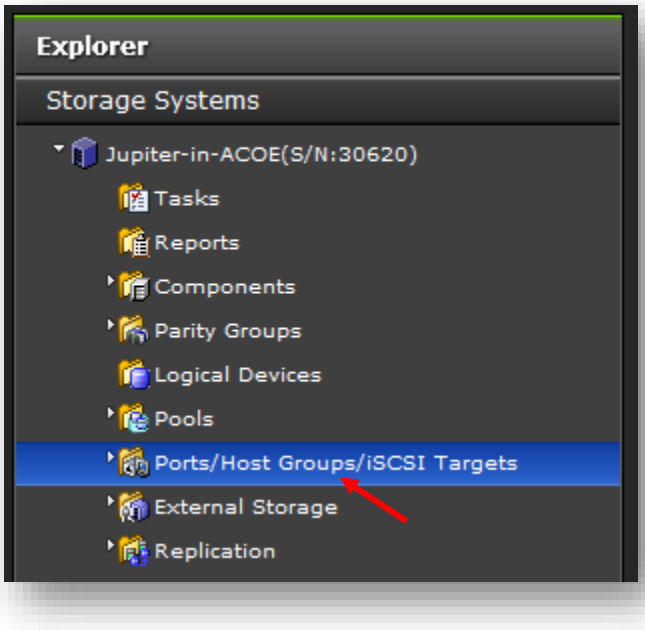
Now that the Command Device has been created, now we can focus on connecting it to the physical server. This process will entail creating Host Groups on the array and the having the ESXi Host(s) scan for the new volume. NOTE: We will assume that zoning from the ESXi Server(s) HBAs to both CL1-A and CL2-A have been preformed

In the following sections, we will show how to configure host mapping through both Storage Navigator as well as Raidcom

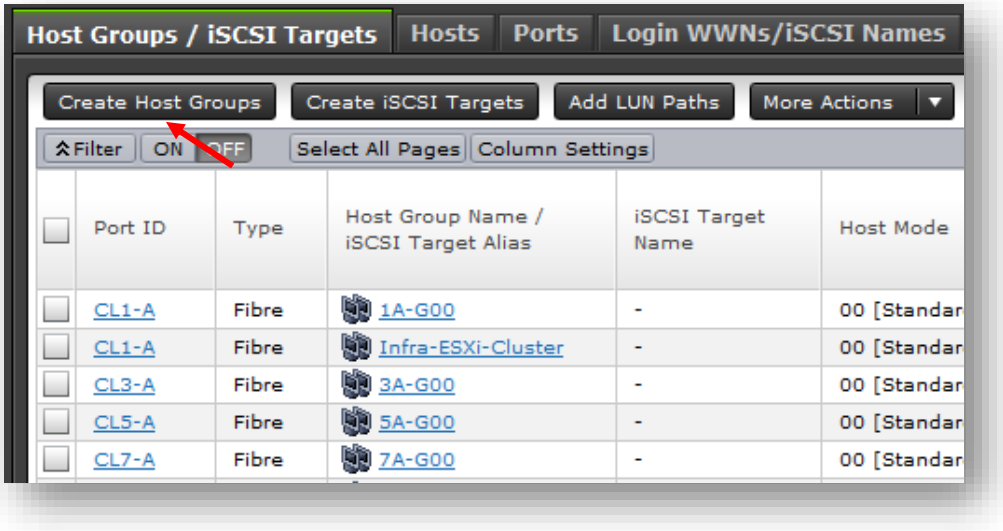
Create Mapping on Hitachi VSP Storage

Storage Navigator

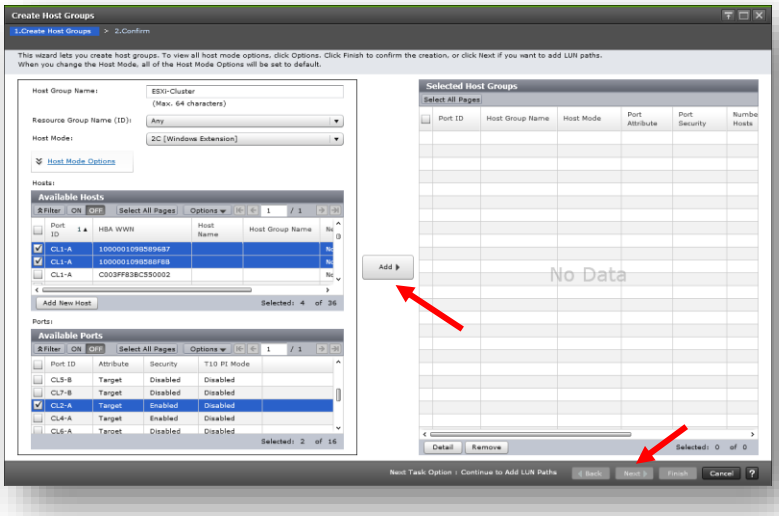
1. Open the Storage Navigator Web Interface
2. In the Explorer pane, navigate to Ports/Host Groups/iSCSI Targets



3. In the center pane, under the Host Groups / iSCSI Targets tab, select “Create Host Groups”

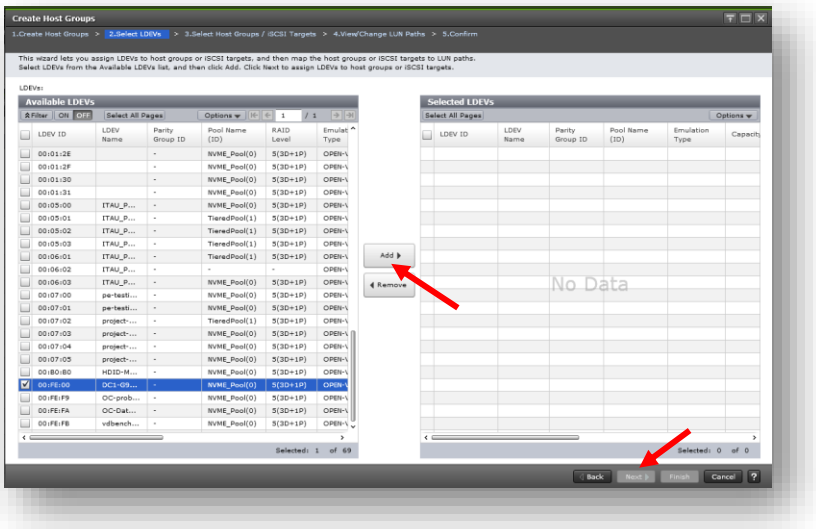


4. In the “Create Host Groups” dialog window, set the following items:
    a. **Host Group Name**: <Any Name>
    b. **Host Mode**: 21 [VMware Extension]
    c. **Available Hosts**: <Select your host(s) WWNs **that can talk to CL1-A**>
    d. **Ports**: <Select CL1-A>

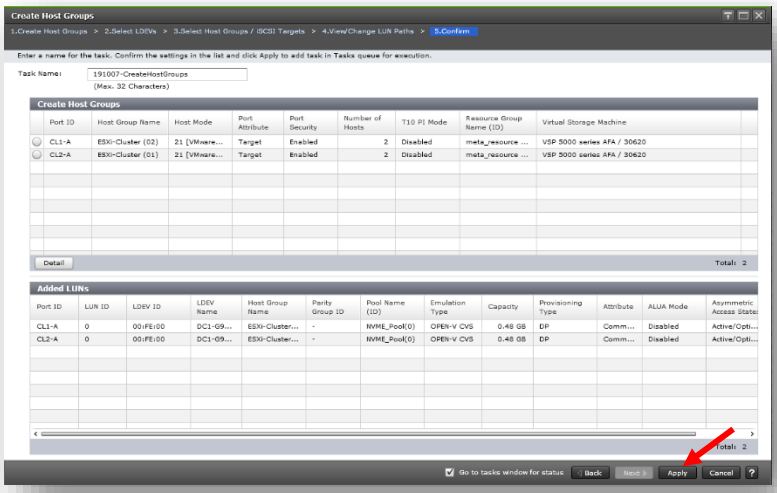


5. Click “Add” followed by clicking Next
6. Repeat Steps 4 and 5 but with the following info:
    a. **Host Group Name**: <Same as before>
    b. **Host Mode**: 21 [VMware Extension]
    c. **Available Hosts**: <Select your host(s) WWNs **that can talk to CL2-A**>
    d. **Ports**: <Select CL2-A>

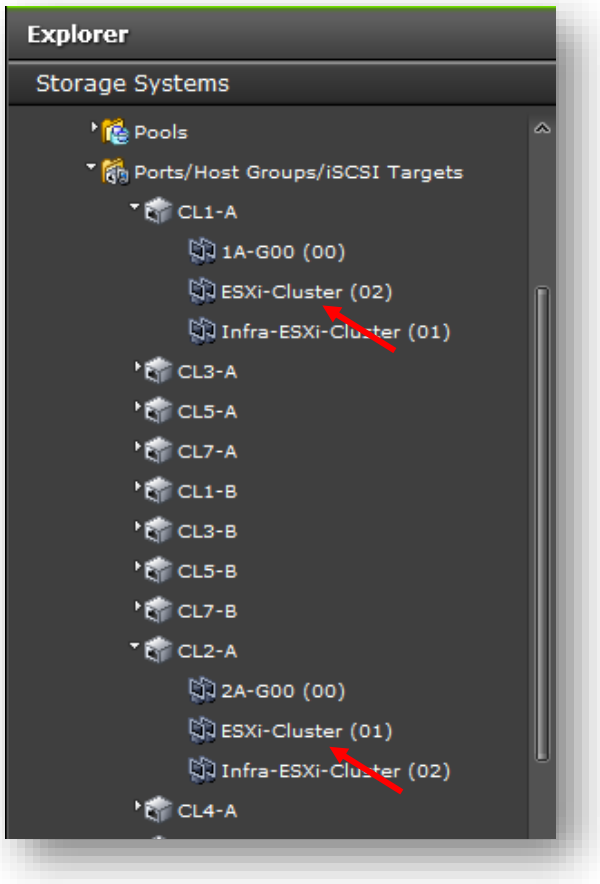
7. Select the Command Device Volume created in the previous section and click “Add” followed by clicking “Next”



8. On the “Select Host Groups / iSCSI Targets” page, click “Next”
9. On the “View/Change LUN Paths” page, click “Finish”
10. On the “Confirm” page, click “Apply” to begin the task of creating the Host Groups



11. Once the job has finished, verify that the Host Groups are in Storage Navigator under ports CL1-A and CL2-A



12. The Host Groups have now been successfully created

Raidcom

In this section, we will assume you have Raidcom installed and configured with either its own physical Command Device or an IP Command Device from the array you are working with, and it is registered as instance 1. Additionally, this section will be taken from the perspective of being on a Windows based host

1. Open Command Prompt (NOTE: Powershell will not work for this!)
2. Navigate to the folder c:\HORCM\etc\

```
cd c:\HORCM\etc\
```

3. Start the HORCM instance

```
horcmstart 1
```

```
c:\HORCM\etc>horcmstart 1
starting HORCM inst 1
HORCM inst 1 starts successfully.
```

4. Use raidcom to log into the array

```
raidcom -login -I1
```

```
c:\HORCM\etc>raidcom -login -I1
User for Serial#[530620] : maintenance
Password :
```

5. Create the two new Host Groups. In this example, we will use the following parameters:
    a. **Port**: CL1-A
    b. **Port**: CL2-A
    c. **Host Group Name**: ESXi-Cluster

```
raidcom add host_grp -port CL1-A -host_grp_name ESXi-Cluster -
I1
raidcom add host_grp -port CL2-A -host_grp_name ESXi-Cluster -
I1
```

6. Add the previously created LDEV to the two new Host Groups

```
raidcom add lun -port CL1-A ESXi-Cluster -ldev_id 0xfe00 -I1
raidcom add lun -port CL2-A ESXi-Cluster -ldev_id 0xfe00 -I1
```

7. Add Host WWN(s) to the respective new Host Group. In this example, we will use the following parameters:
    d. **Port**: CL1-A
    e. **CL1-A Host WWNs**: 100000109b588f8b, 100000109b5896b7
    f. **CL2-A Host WWNs**: 100000109b588f8c, 100000109b5896b8

```
raidcom add hba_wwn -port CL1-A ESXi-Cluster -hba_wwn
100000109b588f8b -I1
raidcom add hba_wwn -port CL1-A ESXi-Cluster -hba_wwn
100000109b5896b7 -I1

raidcom add hba_wwn -port CL2-A ESXi-Cluster -hba_wwn
100000109b588f8c -I1
raidcom add hba_wwn -port CL2-A ESXi-Cluster -hba_wwn
100000109b5896b8 -I1
```

8. Verify that the LDEV has been added to the Host Groups

```
raidcom get lun -port CL1-A ESXi-Cluster -I1 -fx
raidcom get lun -port CL2-A ESXi-Cluster -I1 -fx
```

```
c:\HORCM\etc>raidcom get lun -port CL1-A ESXi-Cluster -I1 -fx
PORT   GID  HMD           LUN  NUM     LDEV  CM    Serial#  HMO_BITs
CL1-A    2  VMWARE_EX      0    1     fe00  CM     530620

c:\HORCM\etc>raidcom get lun -port CL2-A ESXi-Cluster -I1 -fx
PORT   GID  HMD           LUN  NUM     LDEV  CM    Serial#  HMO_BITs
CL2-A    1  VMWARE_EX      0    1     fe00  CM     530620
```

9. Verify that the WWNs have been added to the Host Groups

```
raidcom get hba_wwn -port CL1-A ESXi-Cluster -I1
```

```
c:\HORCM\etc>raidcom get hba_wwn -port CL1-A ESXi-Cluster -I1
PORT   GID GROUP_NAME                    HWWN  Serial# NICK_NAME
CL1-A    2 ESXi-Cluster      100000109b5896b7   530620 -
CL1-A    2 ESXi-Cluster      100000109b588f8b   530620 -

c:\HORCM\etc>raidcom get hba_wwn -port CL2-A ESXi-Cluster -I1
PORT   GID GROUP_NAME                    HWWN  Serial# NICK_NAME
CL2-A    1 ESXi-Cluster      100000109b5896b8   530620 -
CL2-A    1 ESXi-Cluster      100000109b588f8c   530620 -
```

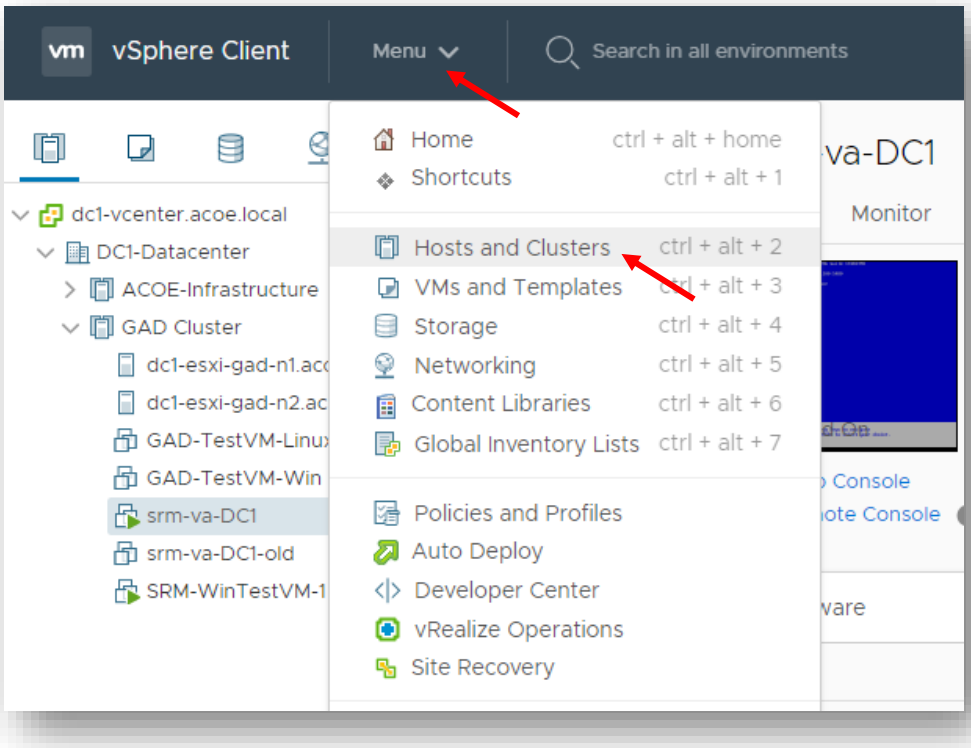
10. The Host Groups are now fully created

Rescan ESXi HBAs

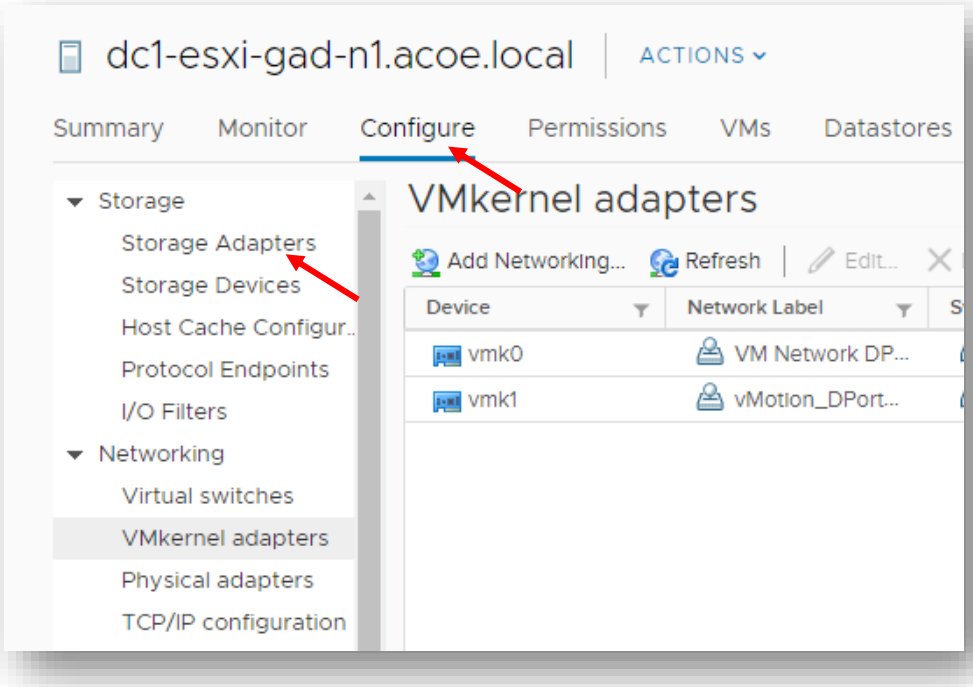
Now that the host groups on the storage array have been configured, now we will rescan the HBAs on the ESXi server(s) and verify that they see the command device LDEV so we can use it in the next section

NOTE: The following instructions are for a Windows based workstation or server and assuming you have vCenter 6.7

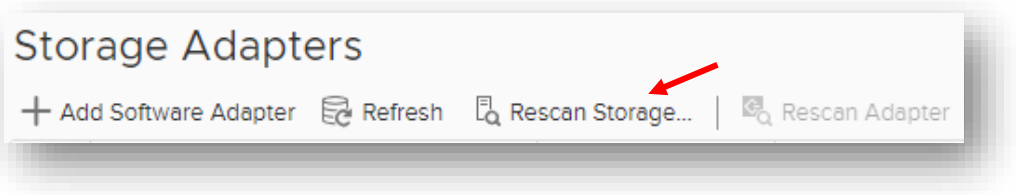
1. On a Windows system, open the vCenter Web Interface
1. Navigate to “Menu” -> “Hosts and Clusters”



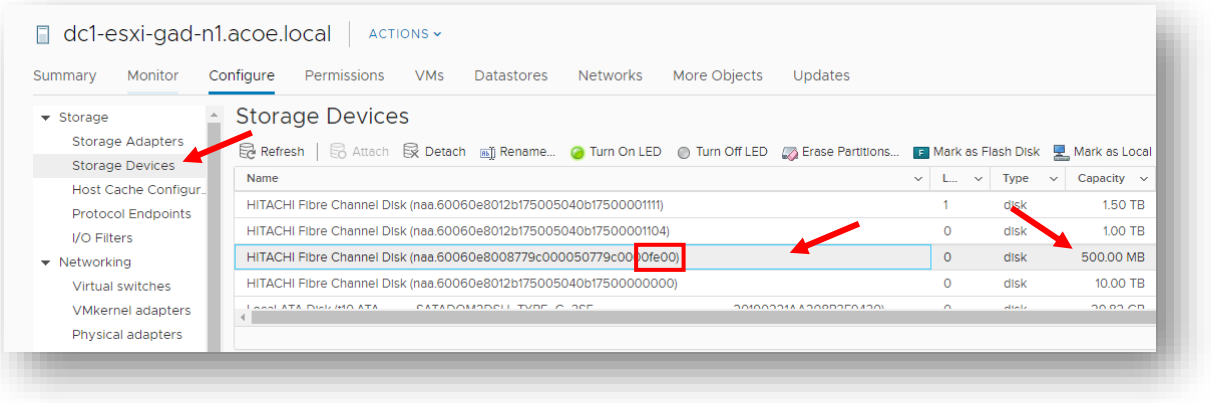
2. Select the ESXi Host in the left pane
3. Navigate to the “Configure” tab followed by “Storage Adapters”



4. Select “Rescan Storage”



5. Make sure “Scan for new Storage Devices” and “Scan for new VMFS Volumes” is checked. Click “OK”
6. After a few seconds, navigate to “Storage Devices”
7. Verify that the new LDEV is seen by the server. Look for either the size of the volume or you can verify by looking at the last 4 characters of the device name to see if it matches the LDEV ID on the VSP array



NOTE: If you do not see the volume after scanning the HBAs, it is possible that you need to reboot the server. This is due to the host not seeing that storage array from boot and therefore ignoring that storage array until another initial fabric scan is performed by the server. The server will do this initial fabric scan when the server is booted or if the HBA module is reloaded. Usually, rebooting is easier!

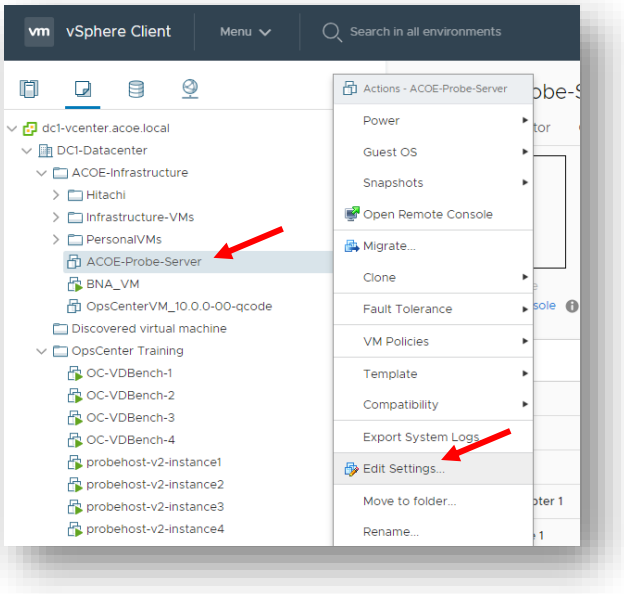
8. Repeat steps 2 though 7 for each additional server that is mapped the new LDEV
9. The Command Device LDEV is now mapped to all the ESXi servers

Map Command Device to Ops Center Analyzer Probe VM as RDM

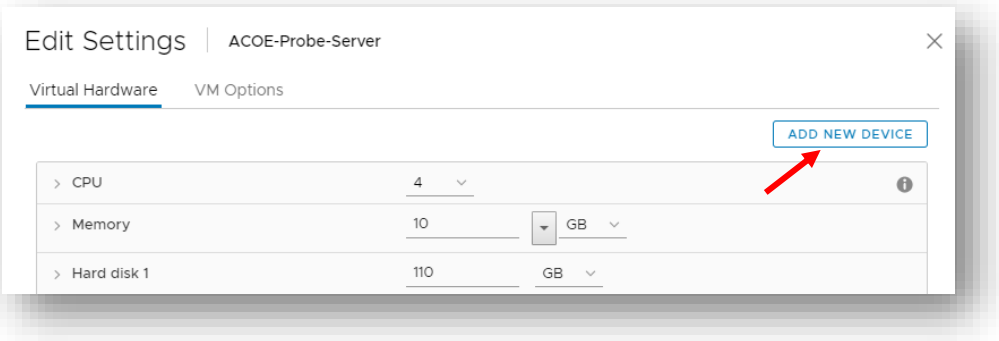
Now that the ESXi servers themselves see the Command Device volume; we now want to attach it to the Ops Center Analyzer Probe server so that it can use it to pull performance statistics from the VSP array. To do this, we will map the Command Device volume directly to the VM as a Raw Device Mapping (RDM).

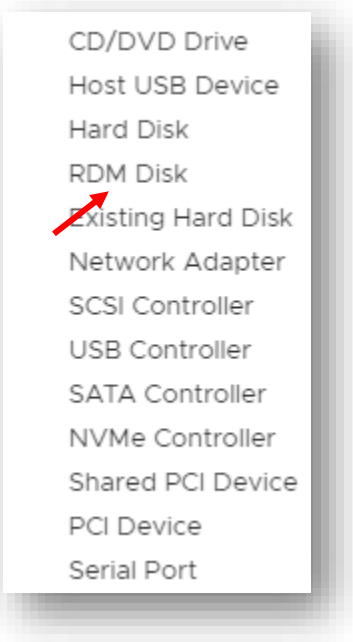
NOTE: The following instructions are for a Windows based workstation or server and assuming you have vCenter 6.7

1. On a Windows system, open the vCenter Web Interface
2. Navigate to and select the Ops Center Analyzer Probe VM we created earlier
3. Right-Click the VM and select “Edit Settings…”

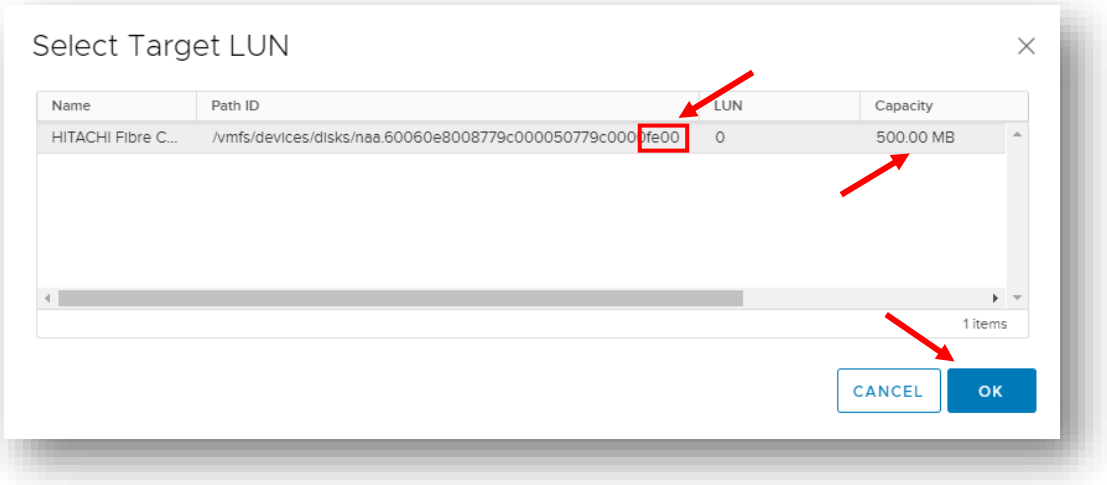


4. Select “Add New Device” followed “RDM Disk”





5. From the “Select Target LUN” window, select the Command Device LDEV and click “OK”. NOTE: Look for either the capacity or the last 4 characters of the Path ID to make sure it is the correct volume



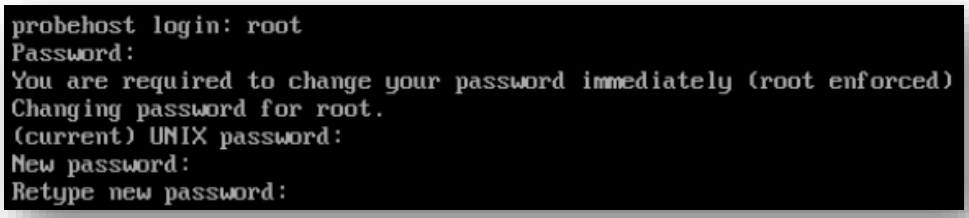
6. Finish adding the RDM to the Ops Center Analyzer Prove VM by clicking “OK” in the “Edit Settings” window
7. The Command Device is now mapped to the Ops Center Analyzer Probe Server

Initial Configuration of the Ops Center Analyzer Probe Server

With the Command Device LDEV now mapped to the Probe VM, we can move forward with the configuration of the Ops Center Analyzer Probe server. However, before we can configure the RAID Agent and connection to other items, we need to setup the initial configuration of the Ops Center Analyzer Probe Server. This includes setting such as the hostname of the operating system, its IP address information, time information and self-signed certificate settings.

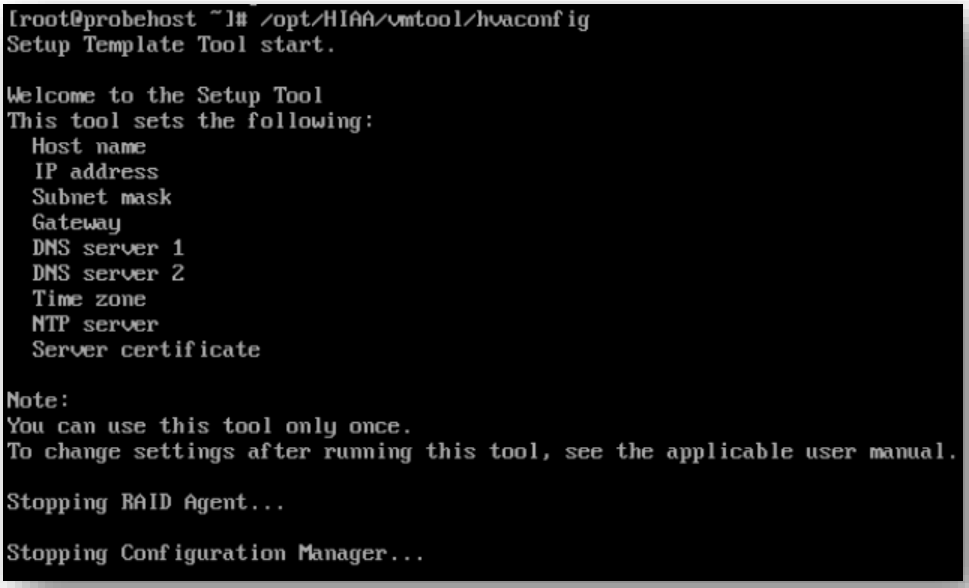
NOTE: The following instructions are for a Windows based workstation or server and assuming you have vCenter 6.7

1. On a Windows system, open the vCenter Web Interface
2. Navigate to the Ops Center Analyzer Probe VM created earlier
3. Turn on the VM and open its Web Console
4. Log into the Ops Center Analyzer Probe VM using the following credentials
    a. **Username**: root
    b. **Password**: manager
5. Change the root password to what you want it to be

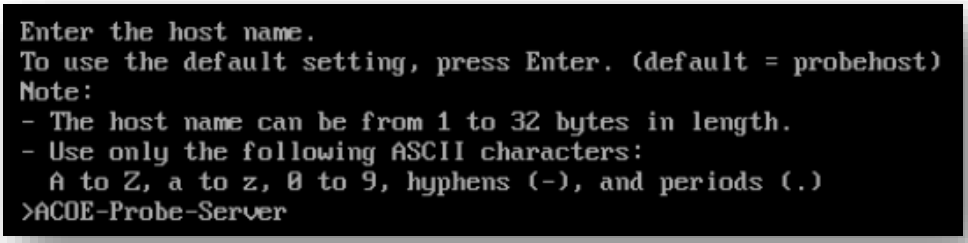


6. Run the probe server's initial configuration script to set common attributes for it
    a. Run the hvaconfig command that is stored in /opt/HIAA/vmtool

```
/opt/HIAA/vmtool/hvaconfig
```



b. Set the hostname for the Ops Center Analyzer Probe VM. In this example, we will be using the name “ACOE-Probe-Server”



c. Say No to using DHCP
d. Enter the IP Address for the Ops Center Analyzer Probe VM. In this example, we will use the following IP info:
    i. IP Address: 192.168.52.165
    ii. Subnet Mask: 255.255.254.0
    iii. Default Gateway: 192.168.53.254
    iv. DNS Server: 192.168.52.70

```
Enter the IPv4 address.
To use the default setting, press Enter. (default = 172.17.32.252)
>192.168.52.165

Enter the IPv4 subnet mask.
To use the default setting, press Enter. (default = 255.255.128.0)
>255.255.254.0

Enter the IPv4 default gateway.
To use the default setting, press Enter. (default = 172.17.0.1)
>192.168.53.254

Do you want to set a DNS server? (y/n)
>y
Enter IPv4 DNS server 1.
>192.168.52.70

Do you want to set a second DNS server? (y/n)
>n
```

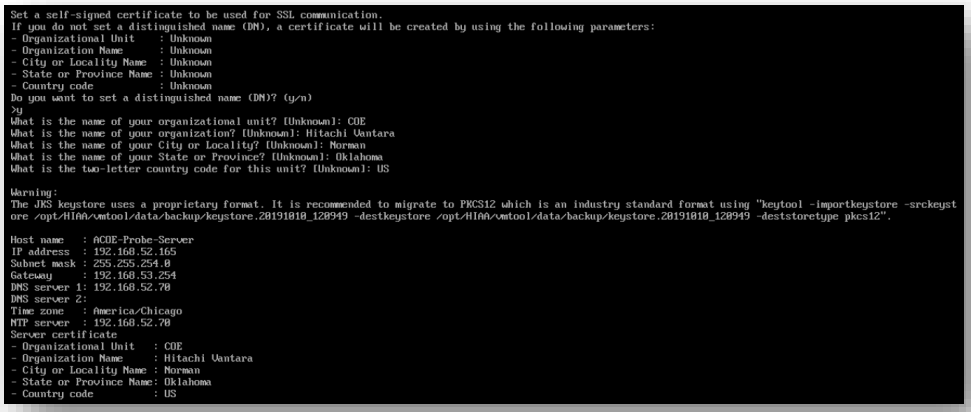
e. Set the time zone for the Probe VM. In this example, we will use the following the time zone “America/Chicago”

```
Enter the time zone in the following form: Area/Location.
Examples: America/Los_Angeles, Europe/Paris, Asia/Tokyo
If you do not know which values can be set, press [Ctrl+C] to stop processing, and then check the manual to see which values can be set.
To use the default setting, press Enter. (default = America/Los_Angeles)
>America/Chicago
```

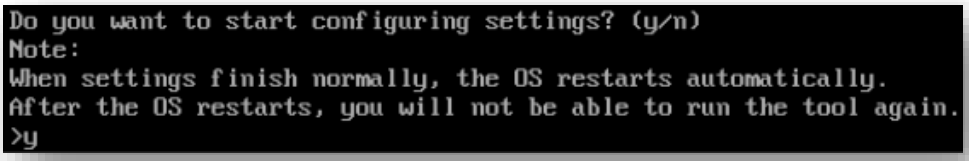
f. Set the NTP server settings the Probe Server. In this example, we will use the NTP Server 192.168.52.70

```
Do you want to set an NTP server? (y/n)
>y
Enter the NTP server.
Note:
- The ntp server name can be from 1 to 255 bytes in length.
>192.168.52.70
```

g. Setup the Self Signed Certificate. In this example, we will use the following settings:
    a. Organizational Unit: COE
    b. Organization: Hitachi Vantara
    c. City: Norman
    d. State: Oklahoma
    e. Country Code: US



h. Say yes to accept new settings and cause the server to reboot



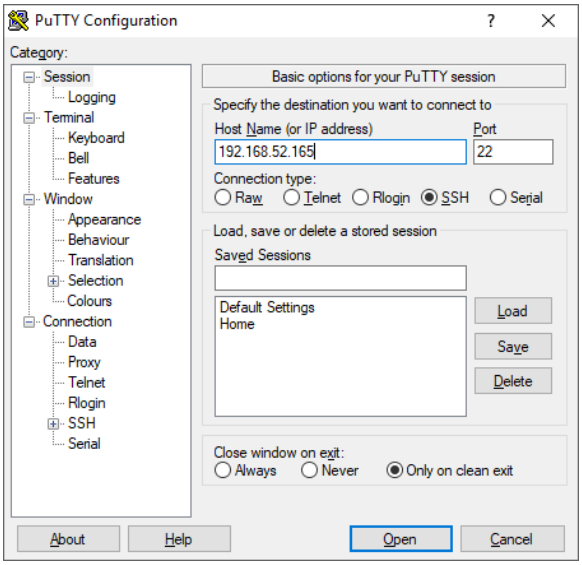
7. The Ops Center Analyzer Probe server will now reboot and initial configuration is now complete

Configure Raid Agent (JPC)

Our next task in installing and configuring the Ops Center Analyzer Probe Server is to configure the RAID Agent software on the Probe VM. The probe software uses the JPC command set for viewing and configuring the command device to be used for pulling performance statistics from the VSP array.

This section will be preformed using a SSH connection. You may use your preferred terminal program such as Putty, MobaXTerm, built-in Linux tools or anything else.

1. Use a Terminal program to connect to the management IP for the HDCP Probe VM



2. Change to the directory where all the JPC commands exist

```
cd /opt/jp1pc/tools/
```

3. Verify that the Probe Server see's the command device

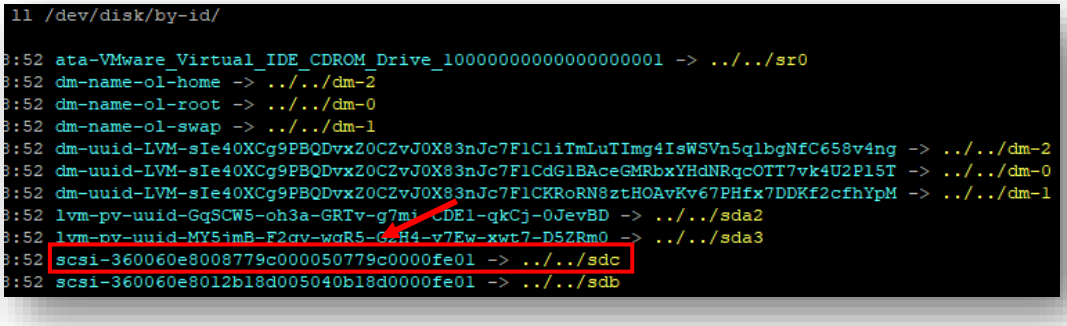
```
./jpctdlistraid
```

```
[root@ACOE-Probe-Server tools]# ./jpctdlistraid
KAVF18700-I The detection of the monitorable storage system has begun.
"PRODUCT"          ,"SERIAL"   ,"LDEV"     ,"SLPR","PORT" ,"DEVICE_FILE"
"VSP 5000 series AFA","30620"    ,"00:FE:00","""     ,"CL2-A","/dev/sdb"
KAVF18701-I The detection of the monitorable storage system has ended.
```

4. Now that we have identified that the Probe Server sees the command device, we will determine the command devices immutable identifier that we will use later in this setup. We can find this identifier in looking the directory "/dev/disk/by-id/" and finding the SCSI entry which has our LDEV ID on the end

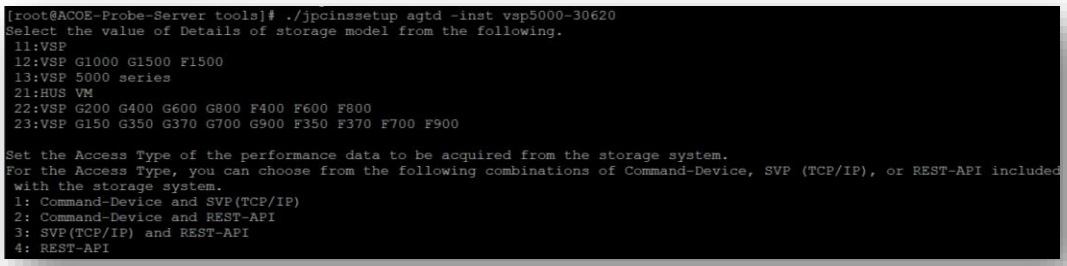
NOTE: We will use the immutable identifier so that the RAID Agent's configuration of the device will be consistent across reboots. This is especially more important if this probe server will be monitoring more than a single VSP array

```
ll /dev/disk/by-id/
```



5. Create the monitoring instance for the VSP array and its command device
    a. Start the creation by issuing the "jpcinssetup" command. The instance name should be the model of array followed by its serial number. In this example, we will be using the instance name "vsp5000-30620"

```
./jpcinssetup agtd -inst vsp5000-30620
```



    b. Specify the storage model. In this example we use option 13 for our VSP 5000 array
    c. Enter your VSP array's serial number. In this example we use 30620
    d. Enter your access type. If you array has a SVP, choose option 1. In this example, we do so we will use option 1
    e. For the command device file name, enter the full path to the scsi-id device you found in step 4 above
    f. Say yes to "Unassigned Open Volume Monitoring" and no to "Mainframe Volume Monitoring"
    g. Enter the IP Address for the SVP for your array. In this example, we will use the IP Address 192.18.53.13

h. Enter the username that the probe will use to log into the SVP. In this example, we will use the account “analyzeruser”. NOTE: You should avoid the use of the maintenance account and instead create a user for the probe VM or use the account used by Analyzer
i. For the Java VM Heap and Maximum number of volumes settings, accept the defaults

```
Specify the storage model [13]                : 13
Serial No               []                    : 30620
Access Type (specify by using 1, 2, 3, or 4 explained above) [1]                : 1
Command Device File Name []                   : /dev/disk/by-id/scsi-360060e8008779c000050779c0000fe00
Unassigned Open Volume Monitoring (Y/N) [Y]                   :
Mainframe Volume Monitoring (Y/N) [Y]                 : N
SVP IP Address or Host Name []                  : 192.168.53.13
Storage User ID for SVP  []                   : analyzeruser
Storage Password for SVP []                   :
                                  Re-enter :
Java VM Heap Memory setting Method (1: by maximum number of Volumes 2: by maximum memory usage)  [1]
1
Maximum number of Volumes [4000]              :
KAVE05080-I The instance environment is now being created. (servicekey=RAID, inst=vsp5000-30620)
KAVE05081-I The instance environment has been created. (servicekey=RAID, inst=vsp5000-30620)
```

8. Verify that the instance was created correctly and will work using the jpctdchkinst command

```
./jpctdchkinst -inst vsp5000-30620
```

```
[root@ACOE-Probe-Server tools]# ./jpctdchkinst -inst vsp5000-30620
KAVF18800-I The verification of the agent instance settings will now start. (instance name=vsp5000-30620)
[Instance parameters]
Storage model : VSP 5000 series
Access Type : Command-Device and SVP
Serial No : 30620
Command Device File Name : /dev/disk/by-id/scsi-360060e8008779c000050779c0000fe00
Unassigned Open Volume Monitoring : Y
Mainframe Volume Monitoring : N
SVP IP Address or Host Name : 192.168.53.13
Storage User ID for SVP : analyzeruser
Java VM Heap Memory setting Method : by maximum number of LDEVs
Maximum number of LDEVs : 4000
[Check result]
KAVF18837-I The instance is configured so that performance data is collected without using a REST-API connection.
KAVF18815-I No error was found during verification of the collection of performance data by using a command device.
KAVF18816-I No error was found during verification of the collection of performance data over a TCP/IP connection.
[Monitored storage system information]
PRODUCT  : VSP 5000 series AFA
SERIAL   : 30620
FIRMWARE : 90-01-60/02
KAVF18801-I The verification of the agent instance settings will now end.
```

9. Repeat steps 3 through 8 for each additional command device for other arrays
10. Start all instances for RAID Agent to monitor

```
/opt/jp1pc/htnm/bin/htmsrv start -all
```

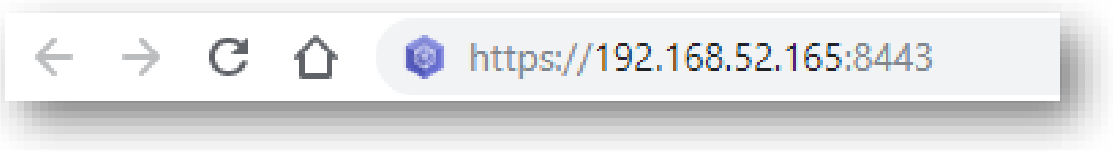
```
[root@ACOE-Probe-Server tools]# /opt/jp1pc/htnm/bin/htmsrv start -all
KAVE06007-I The service will now start. (service=Status Server)
KAVE06007-I The service will now start. (service=Action Handler)
KAVE06007-I The service will now start. (service=Agent Store for RAID, inst=vsp5000-30620)
KAVE06007-I The service will now start. (service=Agent for RAID, inst=vsp5000-30620)
KATR10028-I A service will now start. (service = Tuning Manager - Agent REST Application Service)
KATR10028-I A service will now start. (service = Tuning Manager - Agent REST Web Service)
```

11. RAID Agent has now been configured. Logout of the SSH session.

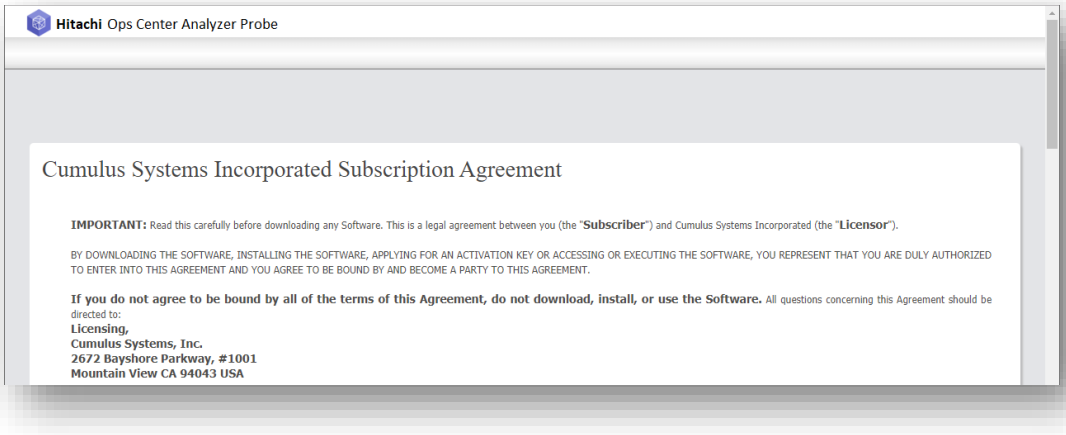
Configure Ops Center Analyzer Probe Web Interface

Now that we have the RAID Agent configured, our last step is to configure the web interface of the probe server and point it at the Analyzer server.

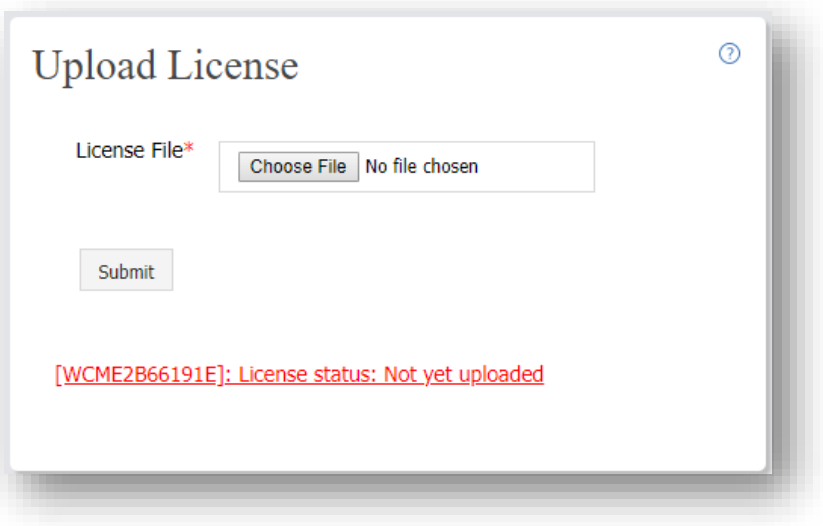
1. Using a web browser, connect to the Ops Center Analyzer Probe Server at https://<IP Address of Probe Server>:8443. In this example, the IP address for the Probe Server is 192.168.52.165



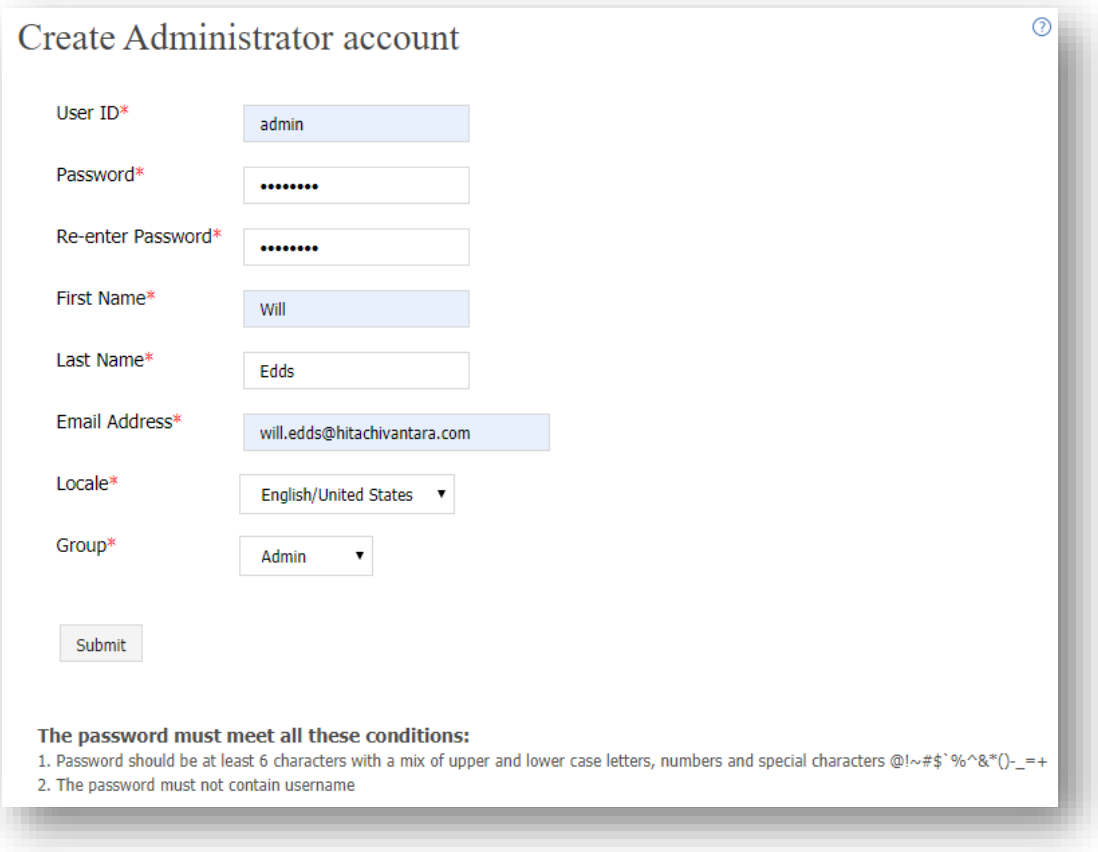
2. Accept the Cumulus Systems Incorporated Subscription Agreement and click “Next”



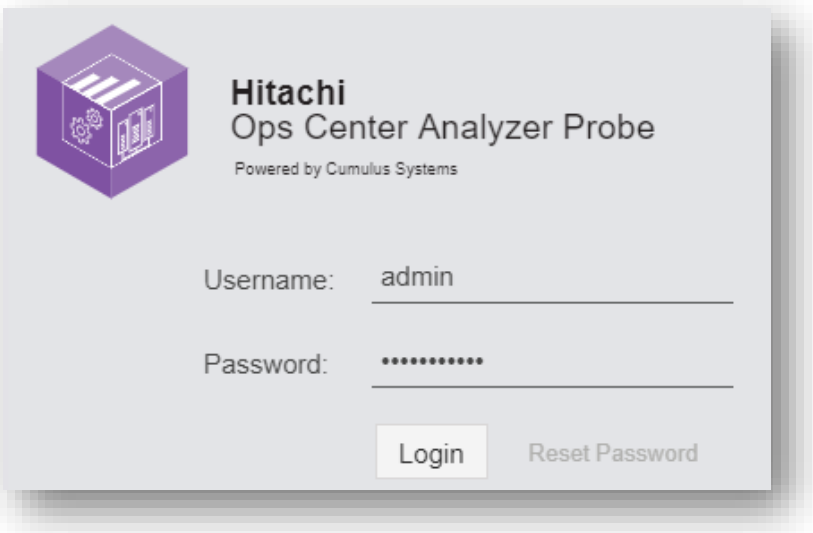
3. On the “Upload License” screen, click “Choose File”
   NOTE: If you have not obtained the HDCA/Analyzer Detail View Licenses yet, work with your Hitachi Vantara account team obtaining it



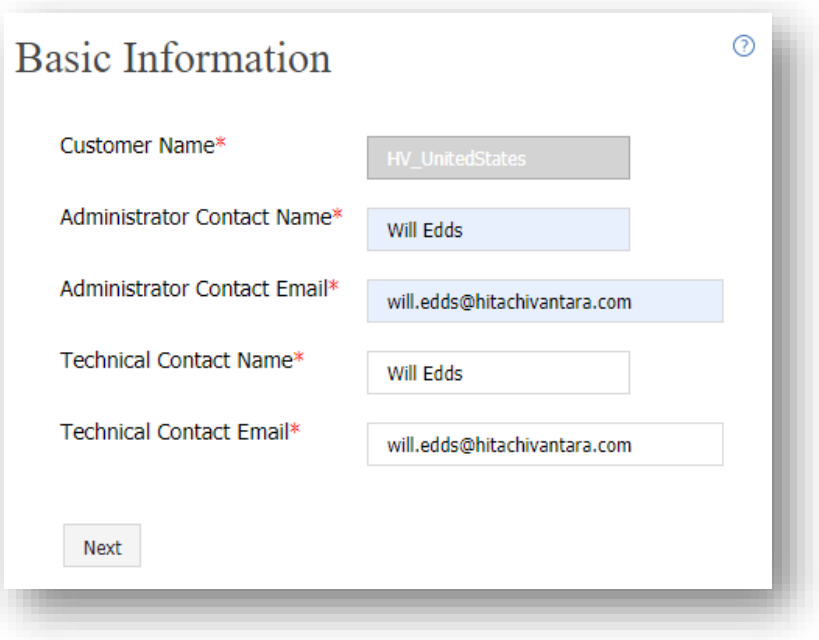
4. Navigate to your license file and click “OK”
5. Click “Submit”
6. Create Administrator account for administering the probe server
    a. User ID: admin
    b. Password: <password>
    c. First Name: <Your Name>
    d. Last Name: <Your Name>
    e. Email Address: <Your Email>
    f. Locale: <Your Locale>
    g. Group: Admin



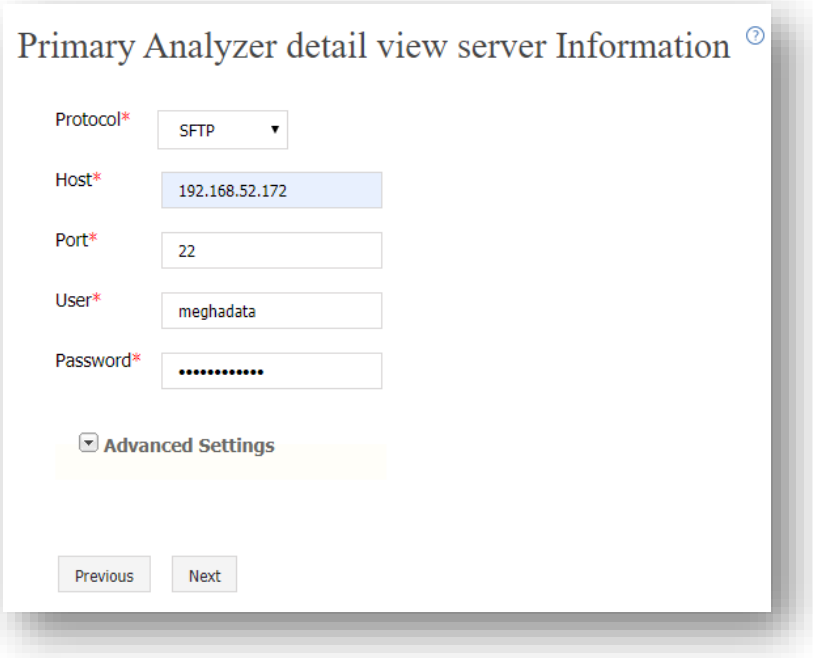
7. Click Submit
8. Login into the Probe Server web interface using the account you just created



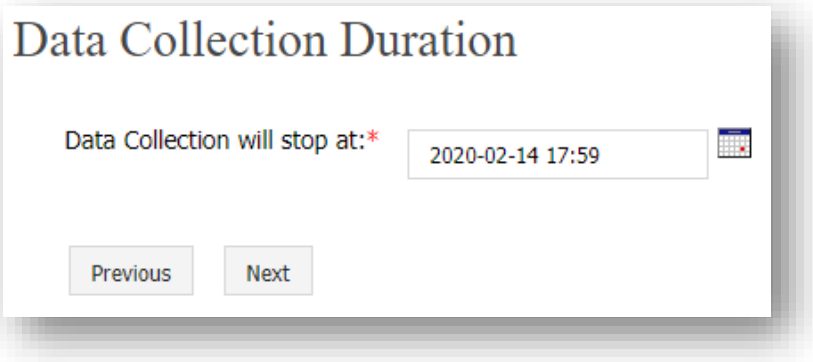
9. Enter Basic Information and click Next



10. Set your Timezone
11. Setup the connection to the HDCA/Analyzer Detail View Server. This will give the probe server the ability to upload its data collections to the HDCA/Analyzer Detail View Server
    a. Protocol: SFTP
    b. Host: <IP Address of either the HDCA server or of Ops Center VM>
    c. Port: 22
    d. User: meghadata
    e. Password: meghadata123



12. Click Next
13. Notate when the Data Collector will stop collecting data. You will need to know this so you will know when you need to request a new license. Add a reminder in your calendar to get new licenses!

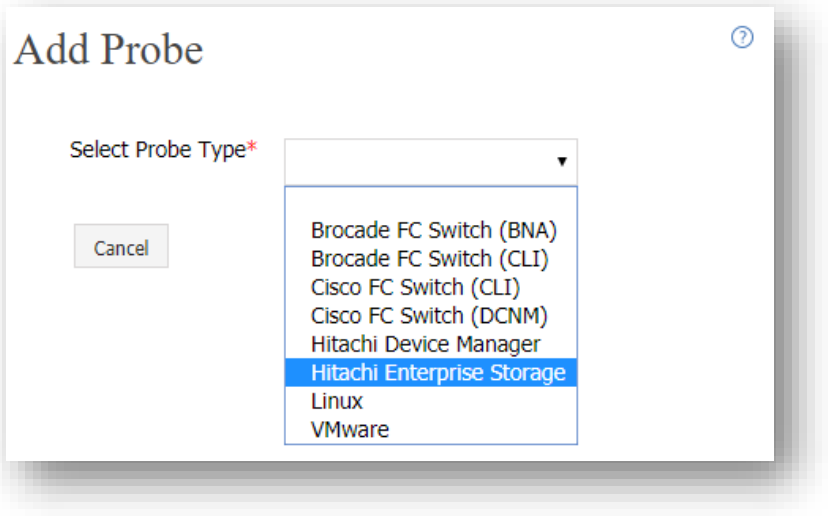


14. Click Next
15. You are finished with this section. Continue on to the “Configuring the Hitachi Storage Array Probe Entry” section of this manual

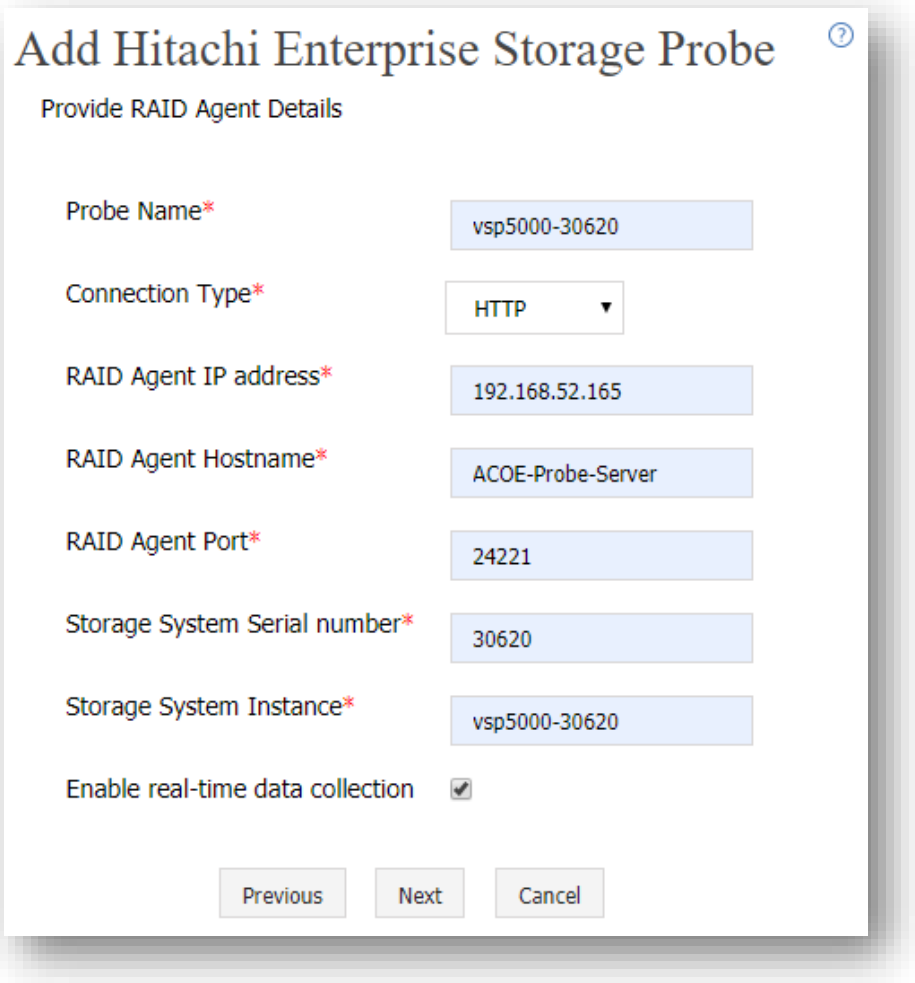
Configuring Hitachi Storage Array Probe Entry

Even though you are still in the same process as the last section, you are now prompted to create your first probe entry. We will go ahead and create an entry for the array that we have been working with up to this point.

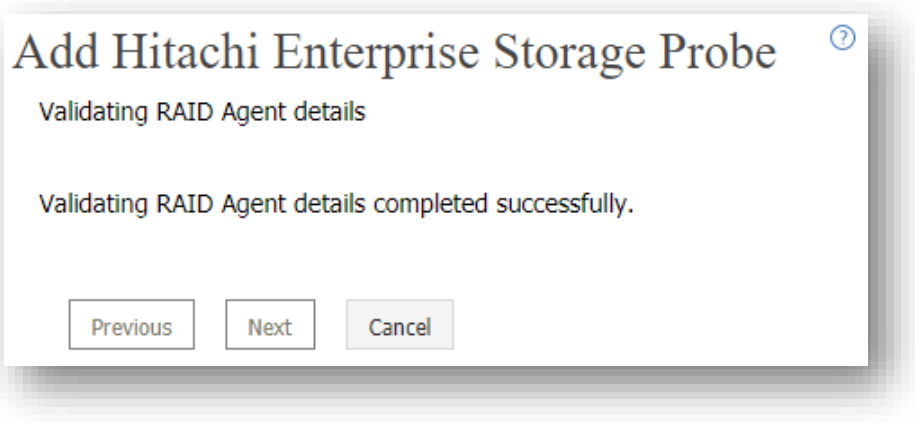
1. Add the Probe for your array
    a. Select “Hitachi Enterprise Storage”



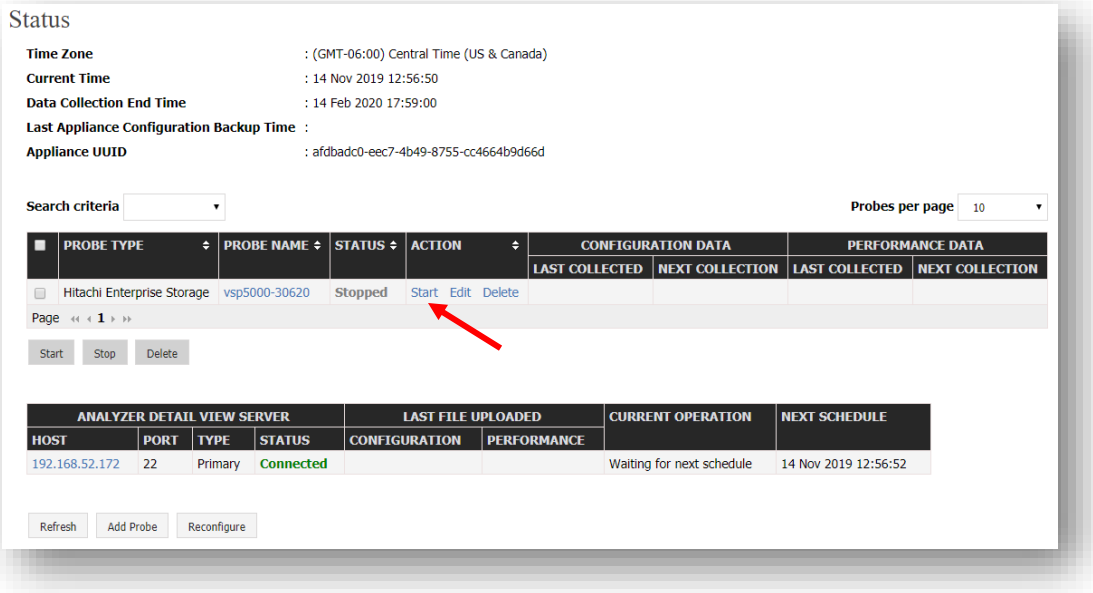
    b. Probe Name: <[Array Model]-[Array Serial#]>
    c. Connection Type: HTTP
    d. RAID Agent IP Address: <IP of probe server>
    e. RAID Agent Hostname: <Hostname of probe server>
    f. RAID Agent Port: 24221
    g. Storage System Serial Number: <Array serial#>
    h. Storage System Instance: <Instance name created in the last section>
    i. Enable real-time data collection: [Check it]



2. Click Next
3. In the "Configure RAID Agent Collection Interval" screen, change **Pool Configuration** and **Virtual Volume Configuration** from 360 to 60
4. Click Next
5. The Probe Server will validate the RAID Agent for the instance. Once finished, click Next again. **NOTE**: You may get the error "Storage details are not available through PD record". If you get this, wait up to 6 hours and then continue this step.



6. Do not check “Collect additional configuration metrics” and click Next
7. Click OK to accept the new probe being created
8. For the Hitachi Enterprise Storage probe just created, click Start



9. You have successfully added your Hitachi Array to the probe server

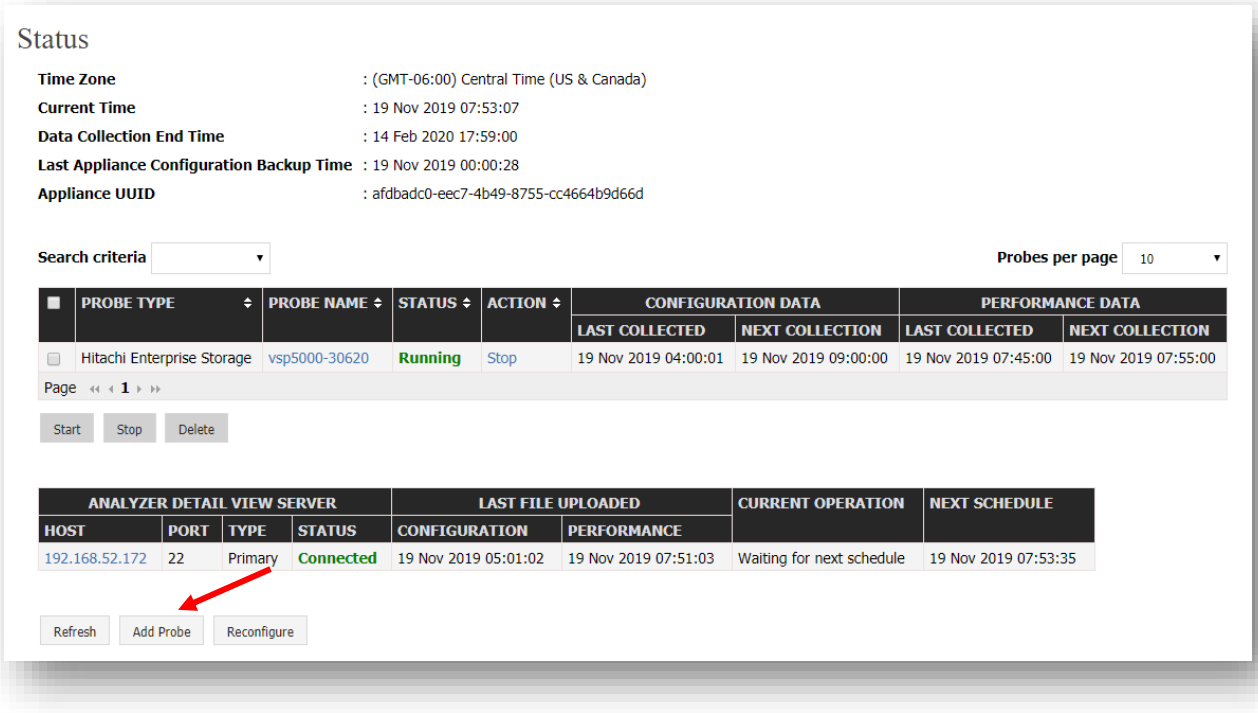
Add Additional Probes

In our environments, we may have several items that we want the probe server to collect data on. This includes fibre channel switches, operating systems, VMware environments and more. In this section, we will walk through how to add fibre channel switches as well as vCenter environments.

Hitachi Enterprise Storage Arrays

Adding additional arrays into the probe server is the exact same procedure as in the “Configuring Hitachi Storage Array Probe Entry” section with the minor exception of how to start the adding of the probe.

1. From the Status page of the probe server's web interface, click "Add Probe"

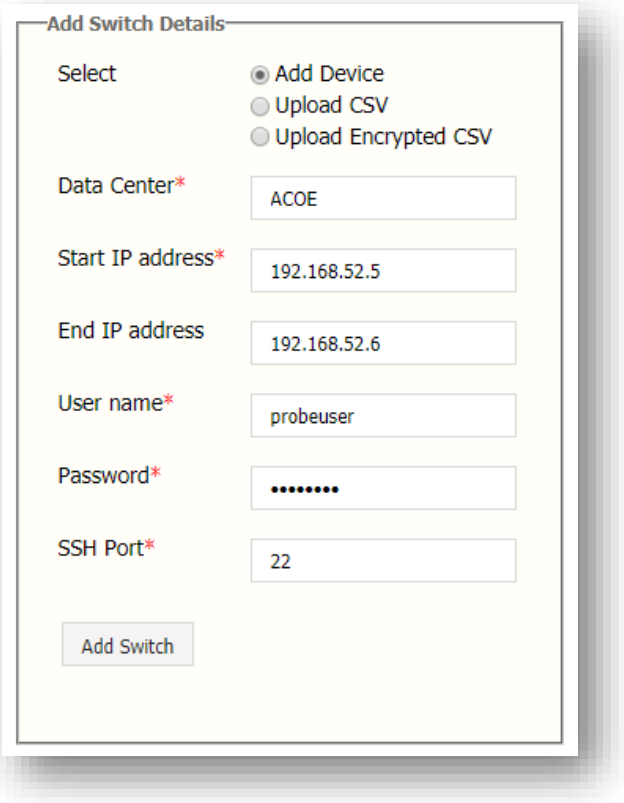


2. Repeat section "Configuring Hitachi Storage Array Probe Entry" of this manual

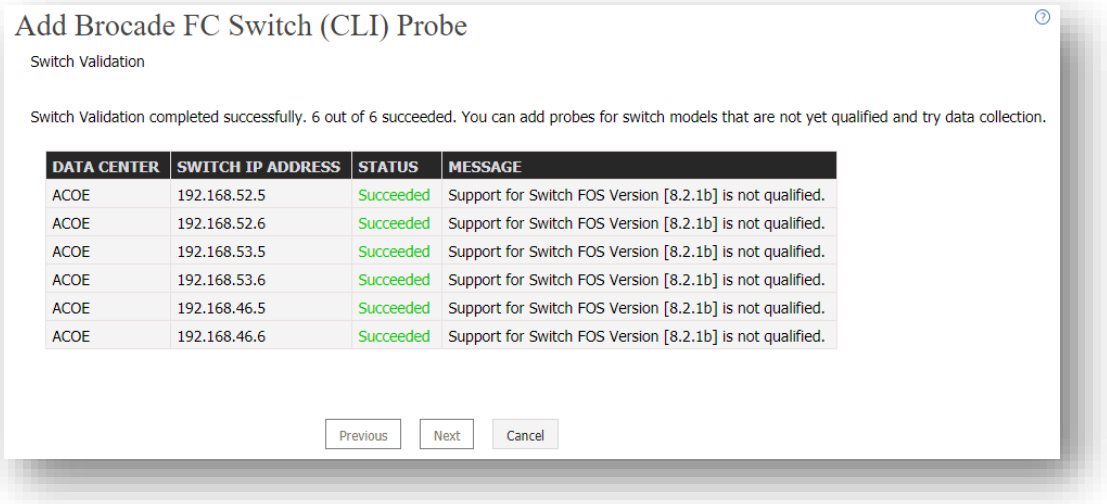
Fibre Channel Switches – CLI

In this section, we will be adding Brocade Fibre Channel switches using the CLI method. This is useful in small environments where Brocade Network Advisor is not being used and you want to collect statistical and performance information from the switches of the fabric.

1. From the Status page of the probe server's web interface, click "Add Probe"
2. From the "Select Probe Type" dropdown, select "Brocade FC Switch (CLI)"
3. Enter the information for your first contiguous set of switches
    a. Data Center: <Name of your Data Center, ACOE for example>
    b. Start IP Address: <IP Address of your first Switch>
    c. End IP Address: <IP Address of your last switch
    d. Username: <Username to log into the switches> NOTE: Suggest creating a custom user account on each switch for the probe server to use
    e. SSH Port: 22

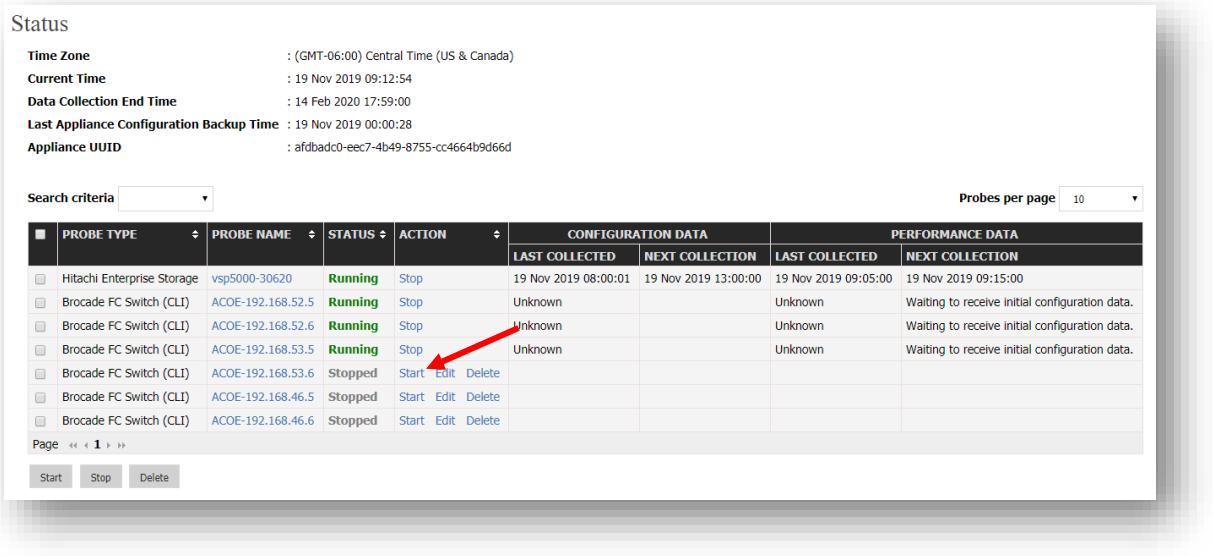


4. Click “Add Switch
5. Repeat step 3 for any additional set of switches in your environment
6. Click “Next”
7. After a few moments, the probe host will login into each switch and verify that it can connect



8. Click Next
9. Switch probes are now added to the probe host. Click Next

10. Click “Start” on all the new switch probes

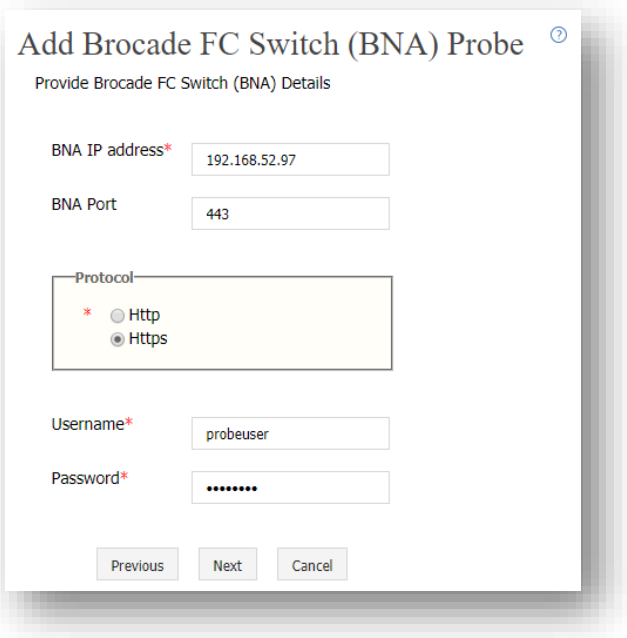


11. Your switch probes are now added and started for data collection

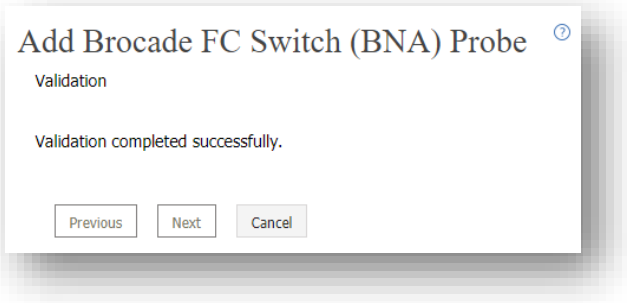
Fibre Channel Switches – BNA

In this section, we will be adding Brocade Fibre Channel switches using the Brocade Network Advisor (BNA) method. BNA is a Broadcom product (formally Brocade) designed to easily managing multiple switches in one or more fabrics. We will assume you have BNA installed and configured to manage your fabrics already.

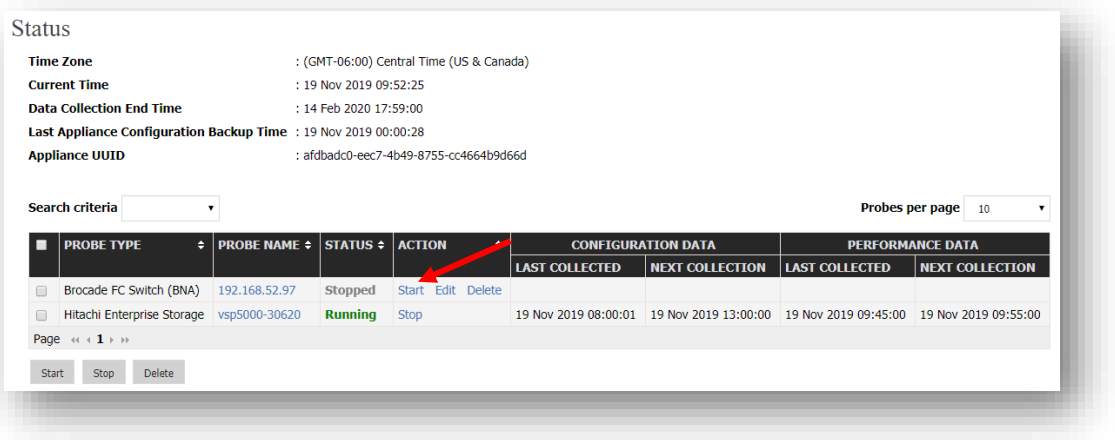
1. From the Status page of the probe server’s web interface, click “Add Probe”
2. From the “Select Probe Type” dropdown, select “Brocade FC Switch (BNA)”
3. Enter the information for the Brocade Network Advisor server
    a. BNA IP address: <IP Address for BNA server>
    b. BNA port:
    c. Protocol: <whichever you use in your environment
    d. Username: <username> NOTE: Suggest creating a custom user account on the BNA instance for the probe server to use
    e. Password: <password>



4. Click Next
5. The probe server will now verify that it can connect to the BNA server. Click Next



6. Make sure all switches are selected. Also insure that “Include Switches that are added in the future” is also checked
7. Click Next
8. Click OK
9. On the Probe Status screen, start the Brocade FC Switch (BNA) instance

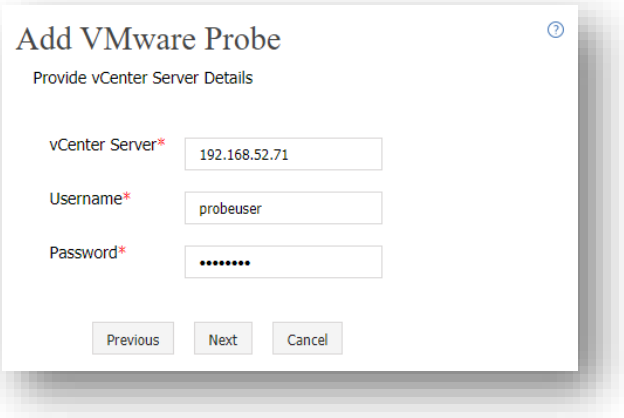


10. You have successfully added the BNA server into the probe server

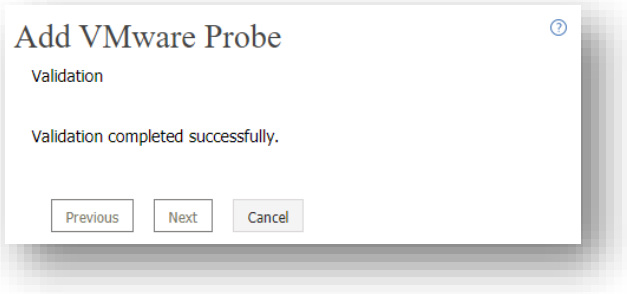
vCenter

It is common for customers to monitor the performance of their VMware environment. The probe server can be used to connect to the vCenter server and pull performance and statistics information from servers, ports, datastores and more items. This information can then be imported into HDCA/Analyzer Detail View and used in other applications. We will be going over the steps to add vCenter into the probe server.

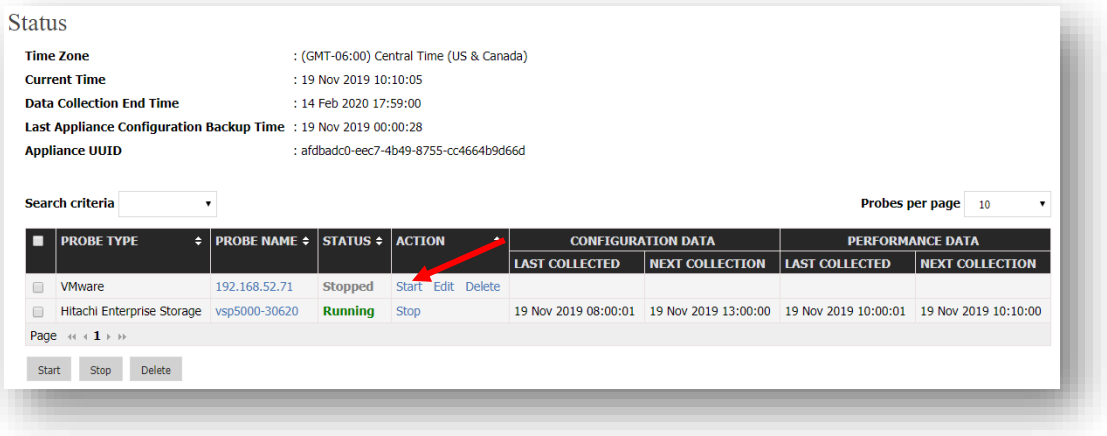
1. From the Status page of the probe server's web interface, click "Add Probe"
2. From the "Select Probe Type" dropdown, select "VMware"
3. Enter in the vCenter Server information
    a. VCenter Server: <IP Address for vCenter>
    b. Username: <vCenter user account> NOTE: Suggest creating a custom user account in vCenter for the probe server to use
    c. Password: <password>



4. Click Next
5. The probe server will validate its connection to the vCenter Server. Click Next



6. Ensure that all hosts are selected. Additionally, ensure “Include hosts that are added in the future” is selected.
7. Click Next
8. Click OK
9. On the Probe Status screen, start the VMware instance



10. You have successfully added and started the VMware probe