Collecting Diagnostics Using VMware Skyline Health Diagnostic Tools

Planning / Implementation

This paper describes two scripts, vm-support and vc-support, and the VMware Skyline Diagnostic Tool.

The vm-support is a useful tool provided by VMware to gather diagnostics information, troubleshoot issues, and understand the setup from the support side. vm-support is a simple script which gathers required logs from various files, core-dump if present, and information on the state of the virtual machines. The vc-support is a tool to collect vCenter based OS logs.

The vm-support works using two steps:

1. Collect the diagnostic logs from various locations. The support tool will collect logs from different components like vmkernel, host, CIM, virtual machines, security, vpxa, cronjobs, dmesg, update logs and many other diagnostic logs which are helpful to clarify the state of the system.
2. Collect configuration information of the NICs, switches, storage adapters, NAS mounts, multi-path setup, and many other details. To obtain such data, the vm-support tool triggers a list of commands which obtain the required results and stores them in the respective file under the vm-support bundle.

VMware Skyline Health Diagnostics for vSphere is a self-service tool to detect issues using log bundles and suggest the KB remediating the issue in the vSphere and vSAN product line. vSphere administrators can use this tool for troubleshooting issue before contacting VMware Support.

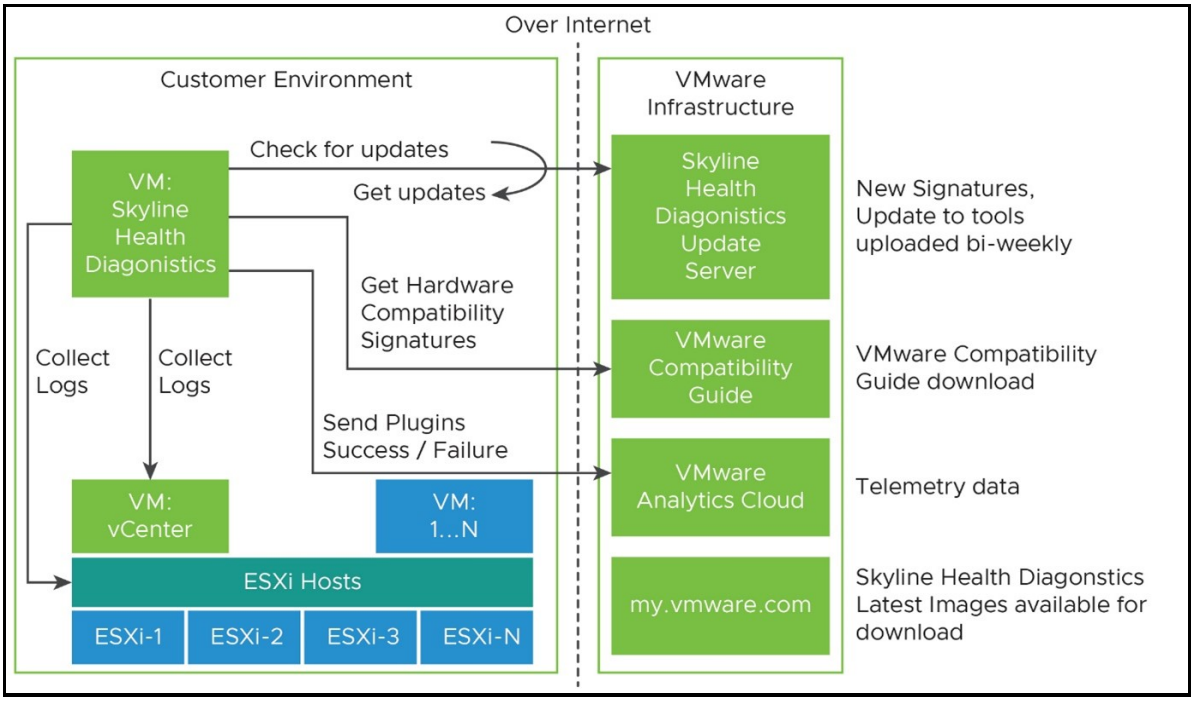

Figure 1. VMware Skyline Health Diagnostics process

Collecting logs from the command line

To collect vm-support logs from a command line interface, do the following:

1. Connect and login to VMware Host via ssh or open shell console from DCUI.
2. To gather logs using vm-support, and export the log bundle to a shared vmfs datastore, use the following command

   ```
   vm-support -w /vmfs/volumes/DATASTORE_NAME
   ```

   The output from the command is shown in the following figure:

   ```
   [root@localhost:/vmfs/volumes] vm-support -w /vmfs/volumes/datastore1/
   /bin/vm-support v4.1: 16:15:19, action threads 4
   16:17:57: Gathering output from /sbin/lldpnetmap
   16:18:59: Done.
   Please attach this file when submitting an incident report.
   To file a support incident, go to http://www.vmware.com/support/sr/sr_login.jsp
   To see the files collected, check '/vmfs/volumes/datastore1/esx-localhost.labs.lenovo.com-2023-04-20--16.15-1055077.tgz'
   ```

   Figure 2. Output from the vm-support command

3. Confirm that log bundle is created with tgz extension.
4. Copy the result file using scp or sftp. Send the logs to Lenovo Support if they're handing a support case.

To collect vc-support logs from a command line interface, do the following:

1. Login to SSH to vCenter Server Appliance as root.
2. Enter the following commands to export the logs to /storage/log/:

   ```
   shell.set --enabled true
   shell
   vc-support -l
   ```

   ```
   root@vc [ ~ ]# vc-support -l
   /usr/bin/vc-support v4.1: 08:58:20, action threads 4
   08:58:22: Adding /storage/log/vmware/analytics/vmware-analytics-gc-pid21323.log.
   08:58:22: Adding /storage/log/vmware/applmgmt-audit/applmgmt-audit.log.8.gz
   08:58:23: Adding /storage/log/vmware/analytics/vmware-analytics-gc-pid21323.log.
   08:58:23: Adding /storage/log/vmware/applmgmt/StatsMonitor-30.log.gz
   08:58:23: Adding /storage/log/vmware/analytics/vmware-analytics-gc-pid21323.log.
   08:58:23: Adding /etc/vmware-analytics/ph-featurestate.xml
   08:58:23: Adding /storage/log/vmware/analytics/vmware-analytics-gc-pid21323.log.
   08:58:23: Adding /etc/vmware-analytics/ph-properties-loader.xml
   08:58:23: Adding /storage/log/vmware/analytics/vmware-analytics-gc-pid21323.log.
   ```

   Figure 3. Output from vc-support -l

3. Confirm that log bundle is created with tgz extension.

   ```
   vc-vc.labs.lenovo.com-2023-04-20--08.58-27000/var/log/vmware/vsphere-ui/logs/access/localhost_access_log.2023-04-11.txt
   vc-vc.labs.lenovo.com-2023-04-20--08.58-27000/var/log/vmware/vsphere-ui/logs/access/localhost_access_log.2023-03-16.txt
   vc-vc.labs.lenovo.com-2023-04-20--08.58-27000/error.log
   vc-vc.labs.lenovo.com-2023-04-20--08.58-27000/action.log
   vc-vc.labs.lenovo.com-2023-04-20--08.58-27000/errors-ignored.log
   Please attach this file when submitting an incident report.
   To file a support incident, go to http://www.vmware.com/support/sr/sr_login.jsp
   To see the files collected, check '/storage/log/vc-vc.labs.lenovo.com-2023-04-20--08.58-27000.tgz'
   ```

   Figure 4. Output

4. Copy the result file using scp or sftp. Send the logs to Lenovo Support if they're handing a support case.

Collecting logs using the vSphere Web Client

To gather vm-support and vc-support using vSphere Web Client, do the following:

1. In a browser, enter the URL or IP address of the web client and logon into a web client.
2. In the **Hosts and Clusters** view, Select the ESXi hosts which you want to export logs.

3. Perform one of the followings:
    - Right-click the vCenter Server object and click **Export System Logs**.
    - Click **Actions** and click **Export System Logs**.

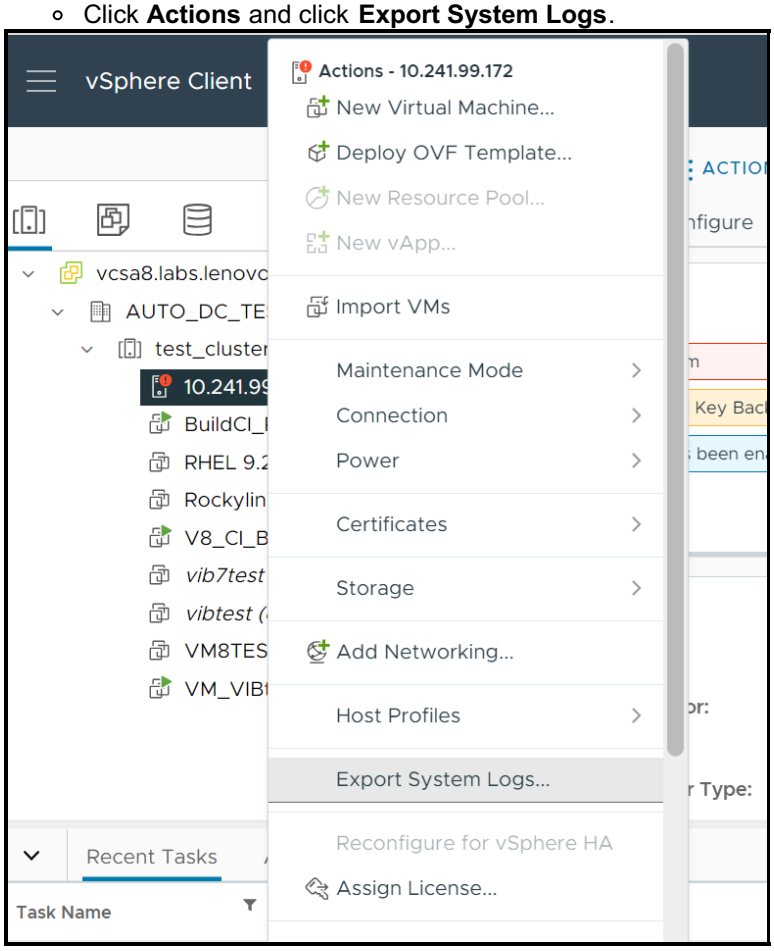

Figure 5. Selecting Export System Logs

4. Select the ESXi hosts for which you want to export logs.
5. Optionally, to collect diagnostic data for the vCenter Server itself, select the Include vCenter Server and vSphere UI Client logs option.
6. Click **Next**.
7. Optionally, select **Gather performance data** to include performance data information in the log files. This is optional and should only be selected if performance data is needed.

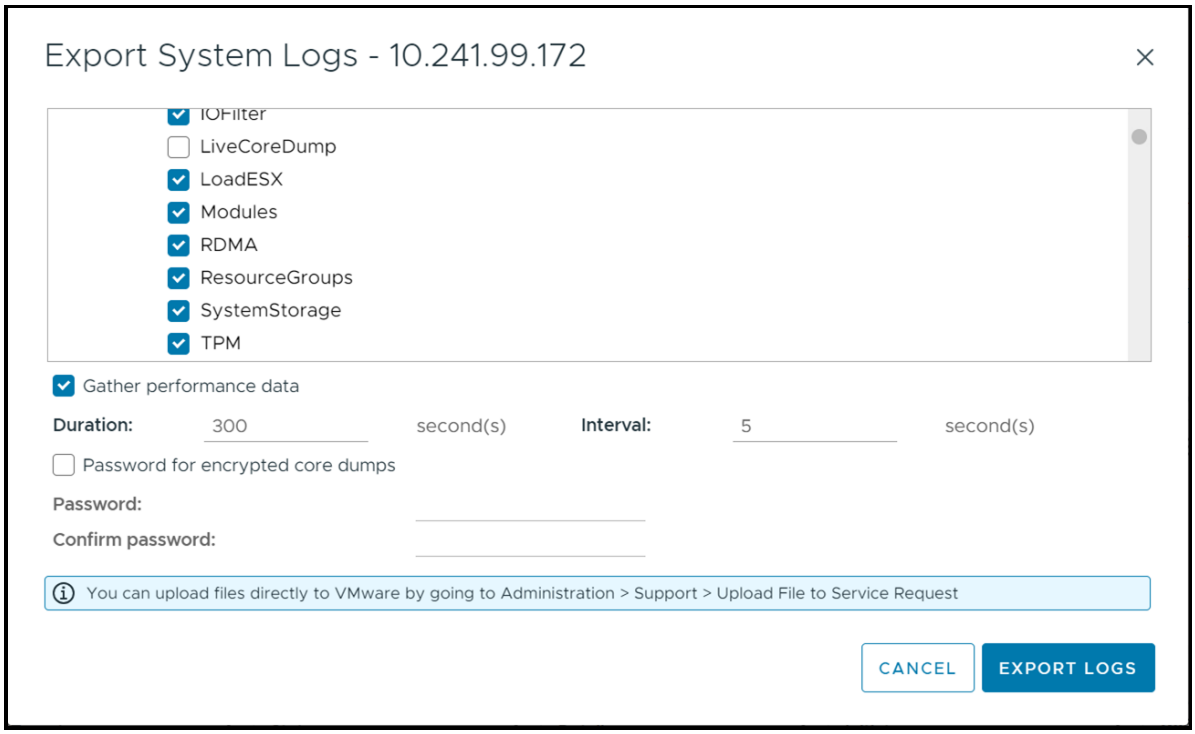

Figure 6. Export Logs

8. Click the **Export Logs** button to save the bundle to your local computer.

Collecting logs using vSphere PowerCLI

To gather vc-support logs using vSphere PowerCLI, do the following:

1. Launch Windows PowerShell.
2. Install vSphere PowerCLI with command:

```
Install-Module VMware.PowerCLI -Scope CurrentUser
```

3. Connect to vCenter with the following command

```
Connect-VIServer -Server HostnameOrIPAddress
```

You will see an output similar to the image below:

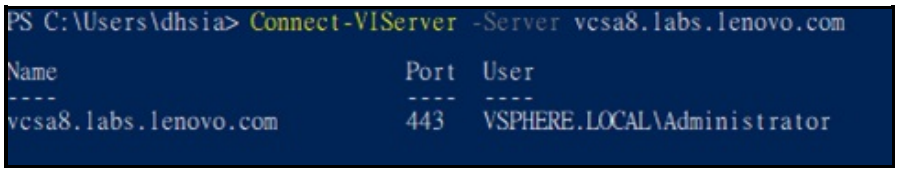

Figure 7. Connect-VIServer command

4. Download log with command

```
Get-Log -Bundle -DestinationPath c:\temp\
```

You see output similar to:

Figure 8. Get-Log command

To gather vm-support logs using vSphere PowerCLI, do the following:

1. Launch Windows PowerShell
2. Install vSphere PowerCLI with command

```
Install-Module VMware.PowerCLI -Scope CurrentUser
```

3. Connect to VMware host with command

```
Connect-VIServer -Server HostnameOrIPAddress
```

You see output similar to:

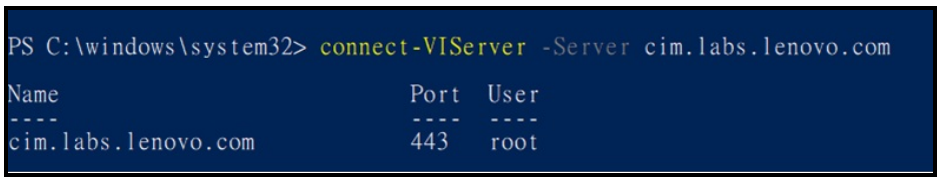

Figure 9. Connect-VIServer command

4. Download log with command

```
Get-VMHost HostNameOrIP | Get-Log -Bundle -DestinationPath c:\tmp\
```

You see output similar to:

Figure 10. Get-VMHost command

Collecting logs using HTTP download

To download vm-support logs using HTTPS from an ESXi host, do the following:

1. Using any web browser, navigate to:

```
https://ESXHostnameOrIPAddress/cgi-bin/vm-support.cgi
```

2. Logon with VMware network Management account and password

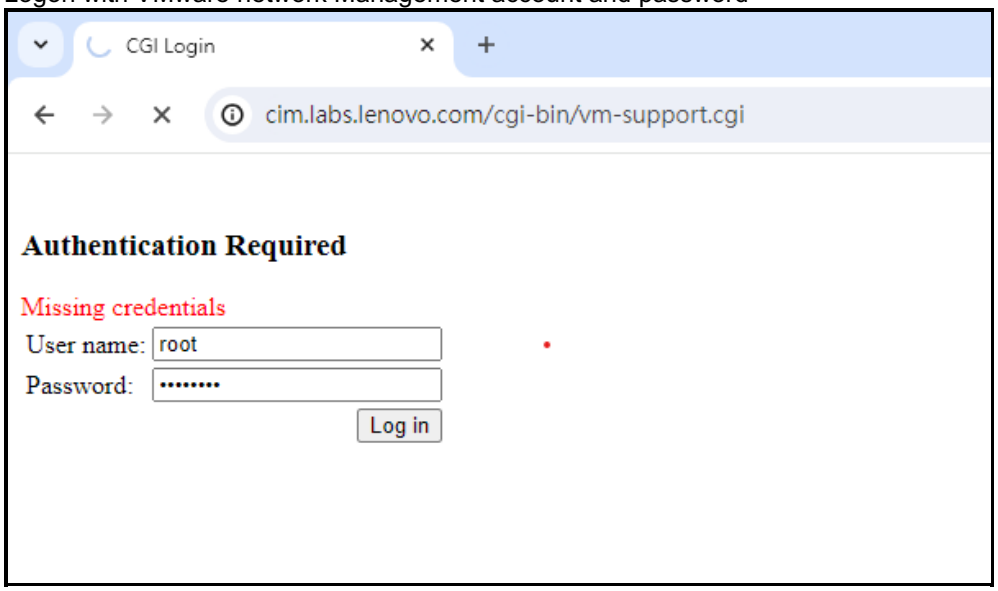

Figure 11. vm-support.cgi page

3. Select a folder for file download.

VMware Skyline Health Diagnostic tool

To deploy VMware Skyline Health Diagnostics using the OVA image, follow these steps:

1. Download the ova image for VMware Skyline Health Diagnostic from the following VMware web page: https://customerconnect.vmware.com/downloads/get-download?downloadGroup=SKYLINE_HD_VSPHERE
2. Deploy the ova on ESXi and on the following Additional Settings page, configuring the following settings. This additional settings page is the customize setting items in the OVA deploy for Skyline Health Diagnostic tool to configure passwords for root of VM and SHD-admin web portal and configure network settings. It depends on the network infrastructure of user's environment. The table below describes the required settings.

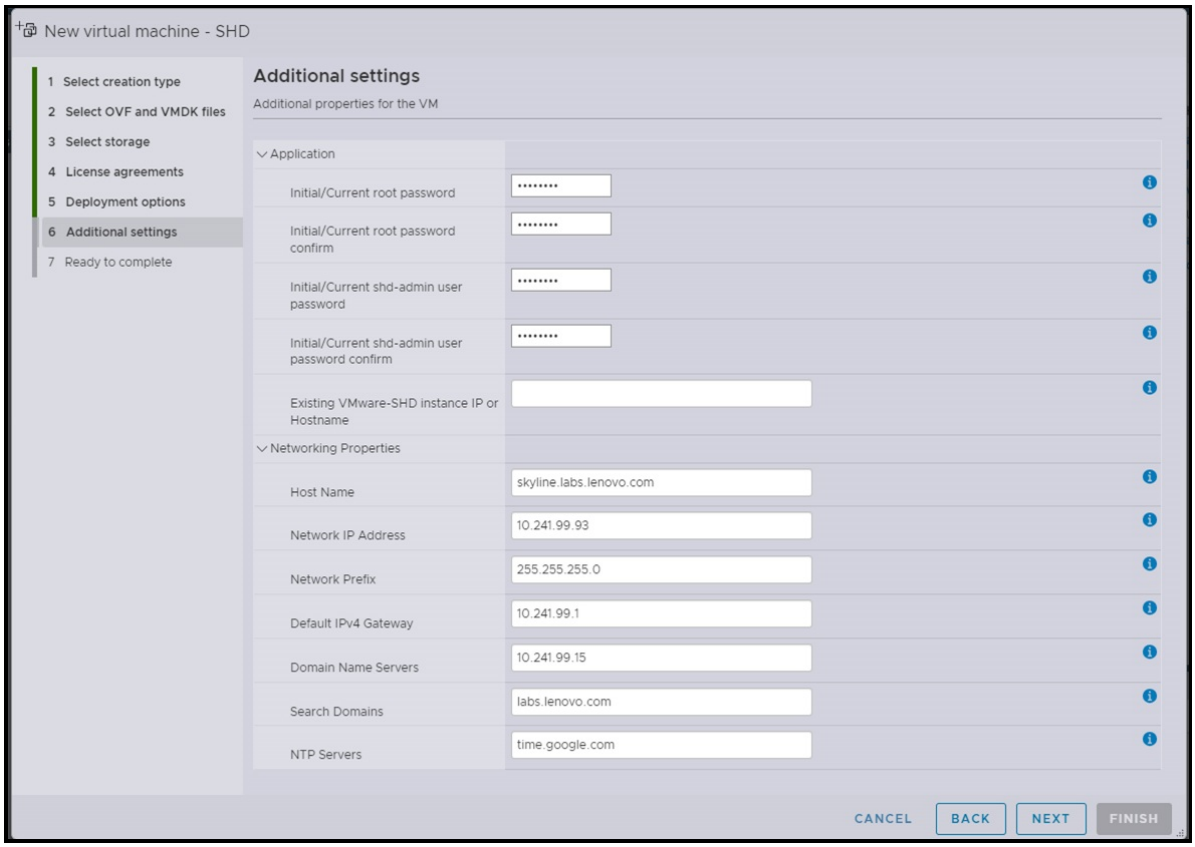

Figure 12. Additional Settings page

Table 1. Setting items for the Customize template page of OVA Image deployment

Setting	Value
Initial/Current root password	The password of the root user of VMware Photon operating system. The password must be a minimum of 8 characters and include at least one uppercase, one lowercase, one digit, and one special character.
Initial/Current shd-admin user password	The password for the shd-admin user account as per the security compliance policy of your organization. The password must be a minimum of 8 characters and include at least one uppercase, one lowercase, one digit, and one special character. **Note:** VMware Skyline Health Diagnostics by default creates a user shd-admin with Administrator Role. This user account must not be deleted and is the only account available post deployment. You can use this account to login and create other accounts for further use.
Host Name	Enter the hostname or FQDN for the appliance (leave blank in case DHCP is desired).
Network IP Address	Enter the IP address for the appliance (leave blank in case DHCP is desired).
Network Prefix	Enter the network prefix for the appliance (leave blank in case DHCP is desired).
Default IPv4 Gateway	Enter the default gateway for the appliance (leave blank in case DHCP is desired).
Domain Name Servers	Enter the IP address of the primary and secondary DNS servers, comma or space separated values are accepted (leave blank in case DHCP is desired).
NTP Servers	Enter the NTP server or servers. Enter comma or space separated values if entering multiple NTP servers. NTP servers can be entered using FQDNs or IP addresses.

3. On the Ready to complete page, click **Finish**, and wait for the completion of the task.
4. Power on the new VM. The OS boots up and login as root with your password that you set in previous step.
5. If you can't start the nginx service because you get a `crt file missing` error, use following commands to create crt:

```
cd /opt/vmware-shd/vmware-shd/conf/ssl/
openssl req -new -x509 -nodes -sha256 -days 365 -key rui.key -out rui.cert
```

Using VMware Skyline

There are two ways to analyze diagnostic logs using the VMware Skyline Health Diagnostic tool:

- Direct connection
- Offline bundle

Direct connection:

1. Login SHD web.
2. Click **Analyze**

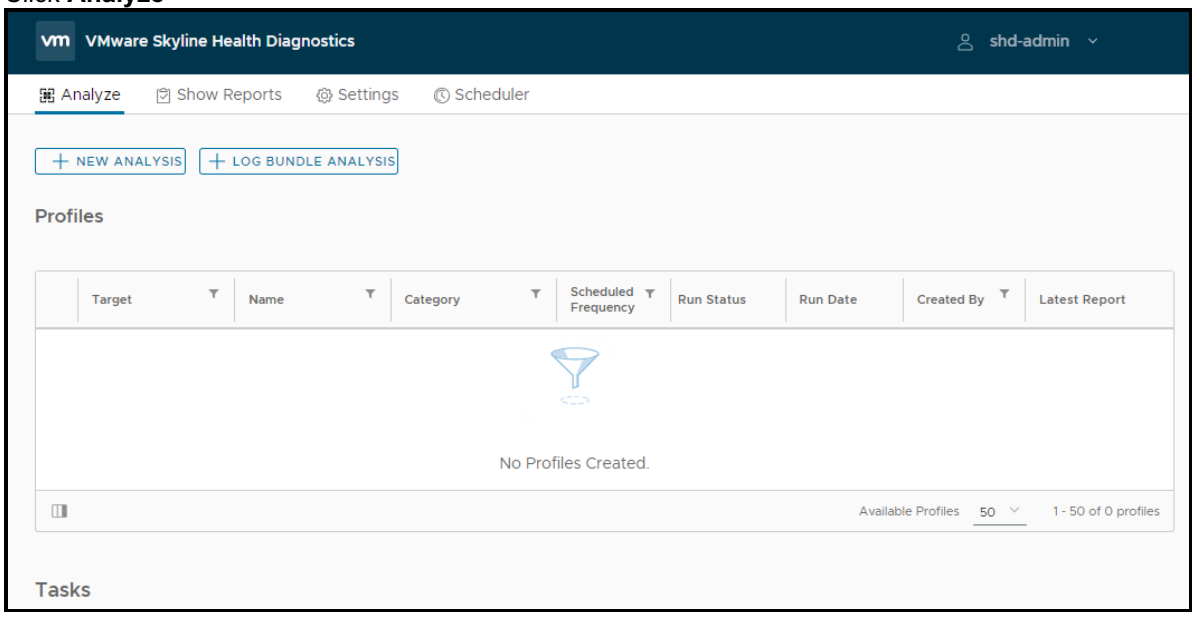

Figure 13. Analyze page

3. Click **New Analysis**
4. Select the Product and select diagnostics item.
5. Input the target FQDN or IP address, and the password, and click **Connect**.
6. Click **Run** to collect the download the log.

Offline bundle log:

1. Login SHD web.
2. Click **Analyze**

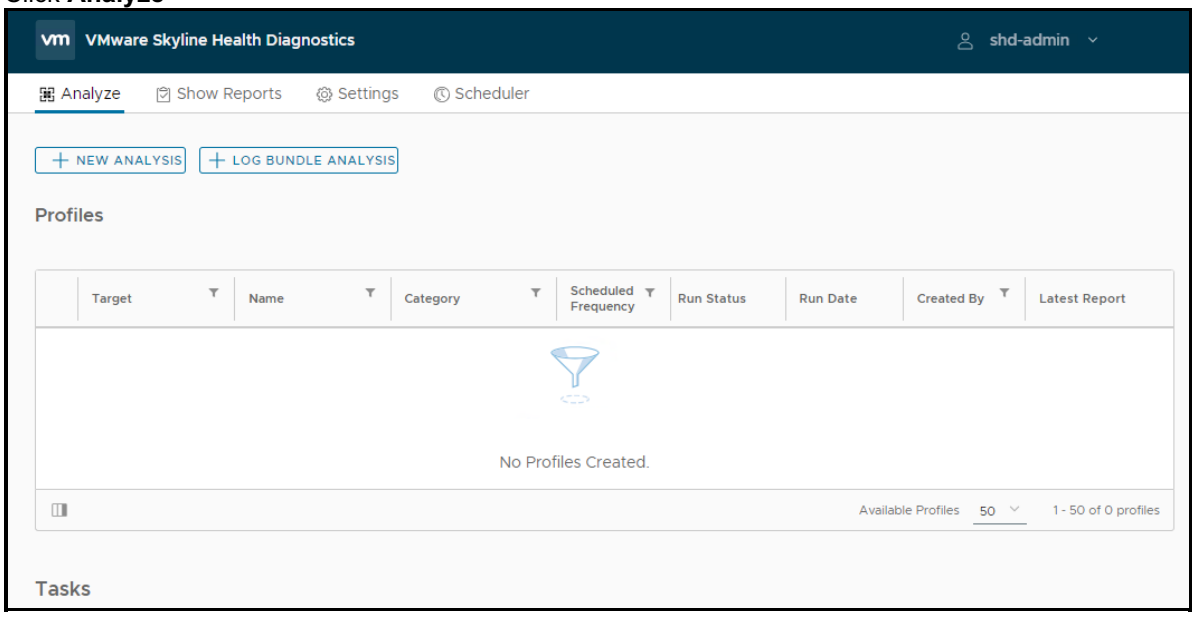

Figure 14. Analyze page

3. Click **Log bundle analysis**

4. Select the local file or remote file.
5. Click **Next** for Profile page.
6. Click **Run** to upload log and validation log.

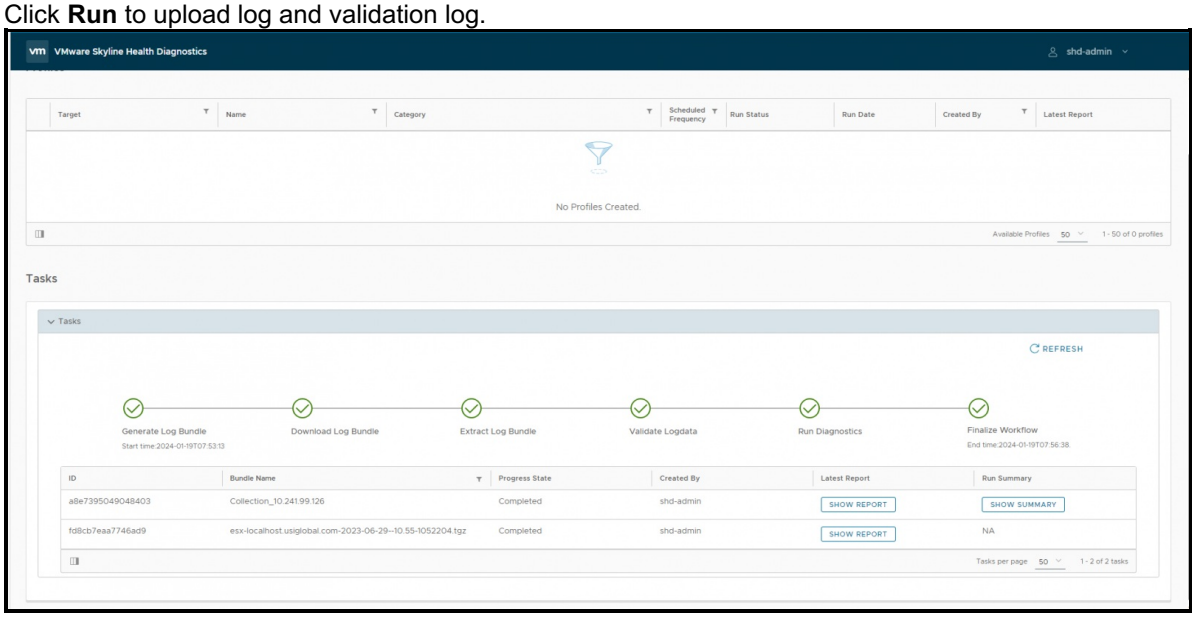

Figure 15. Tasks page

7. After the task is completed, click **Show Reports** on the top menu. The issues and suggested KB show on the Detail list. You can then click the link to check the details on the VMware website.

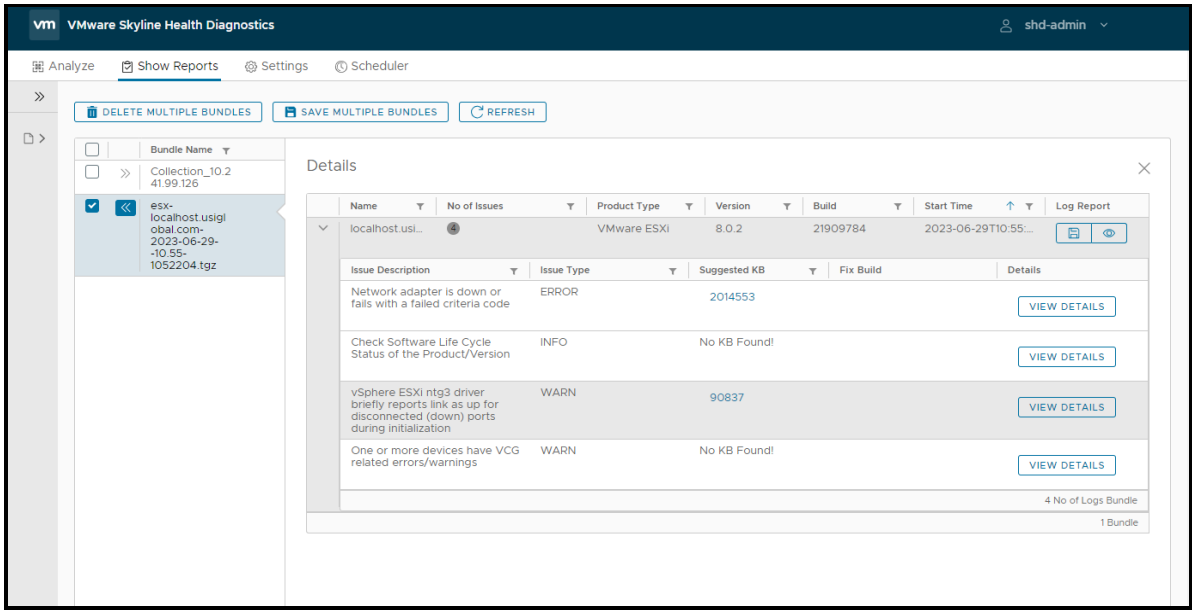

Figure 16. Show Reports page

Log files

The following table lists the important log files in VMware ESXi, along with location of the log and its purpose. These files are logs which are collected by vm-support.

Table 2. VMware ESXi log files

Component	Location	Purpose
Authentication	/var/log/auth.log	Contains all events related to authentication for the local system.
ESXi host agent log	/var/log/hostd.log	Contains information about the agent that manages and configures the ESXi host and its virtual machines.
Shell log	/var/log/shell.log	Contains a record of all commands typed into the ESXi Shell and shell events (for example, when the shell was enabled).
System messages	/var/log/syslog.log	Contains all general log messages and can be used for troubleshooting. This information was formerly located in the messages log file.
vCenter Server agent log	/var/log/vpxa.log	Contains information about the agent that communicates with vCenter Server (if the host is managed by vCenter Server).
Virtual machines	The same directory as the affected virtual machine's configuration files, named vmware.log and vmware*.log. For example, /vmfs/volumes/datastore/virtual machine/vmware.log	Contains virtual machine power events, system failure information, tools status and activity, time sync, virtual hardware changes, vMotion migrations, machine clones, and so on.
VMkernel	/var/log/vmkernel.log	Records activities related to virtual machines and ESXi.
VMkernel summary	/var/log/vmksummary.log	Used to determine uptime and availability statistics for ESXi (comma separated).
VMkernel warnings	/var/log/vmkwarning.log	Records activities related to virtual machines.
Quick Boot	/var/log/loadESX.log	Contains all events related to restarting an ESXi host through Quick Boot.
Trusted infrastructure agent	/var/run/log/kmxa.log	Records activities related to the Client Service on the ESXi Trusted Host.
Key Provider Service	/var/run/log/kmxd.log	Records activities related to the vSphere Trust Authority Key Provider Service.
Attestation Service	/var/run/log/attestd.log	Records activities related to the vSphere Trust Authority Attestation Service.
ESX Token Service	/var/run/log/esxtokend.log	Records activities related to the vSphere Trust Authority ESX Token Service.
ESX API Forwarder	/var/run/log/esxapiadapter.log	Records activities related to the vSphere Trust Authority API forwarder.

Resources

For additional information, see these resources:

- “vm-support” command in ESX/ESXi to collect diagnostic information
  https://kb.vmware.com/s/article/1010705
- Collecting diagnostic information for VMware vCenter Server 4.x, 5.x, 6.x and 7.0
  https://kb.vmware.com/s/article/2032892
- How to collect the diagnostic Information from ESXi hosts using the vm-support command.
  https://support.lenovo.com/us/en/solutions/ht509801-how-to-collect-the-diagnostic-information-from-esxi-hosts-using-the-vm-support-command
- VMware Skyline Health Diagnostics Guide and OVA download page
  https://customerconnect.vmware.com/downloads/get-download?downloadGroup=SKYLINE_HD_VSPHERE
- VMware Document for VMware Skyline Health Diagnostics Tool
  https://docs.vmware.com/en/VMware-vSphere/8.0/vsphere-monitoring-performance/GUID-D9DDF7B6-1F44-4F0F-BFE7-0DBCAF2F8CA5.html

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- David Watts, Lenovo Press

Related product families

Product families related to this document are the following:

- VMware vSphere
- VMware vSphere

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