Diagnostics

Maintenance Shell for Intersight Virtual Appliance and Intersight Assist

Cisco Intersight Virtual Appliance provides a diagnostic utility to monitor the installation and provide remediation steps to install the appliance successfully. This console-based utility helps in troubleshooting and addressing misconfiguration or networking issues during the appliance installation. The Maintenance Shell aims to:

- Detect and display issues with the installation prerequisites.
- Enable editing the inputs that are provided during the initial appliance deployment.
- Assist with continuing the installation after you fix the settings or change inputs during the appliance deployment.

Check the status of your installation by visiting <*https://fqdn-of-your-appliance*> after the VM is powered ON. If you notice that your VM does not respond after about 15 minutes since power-on, use the Intersight Virtual Appliance Maintenance Shell to troubleshoot networking or misconfiguration issues. When the login prompt appears, the diagnostic account is ready. Use the following instructions to troubleshoot:

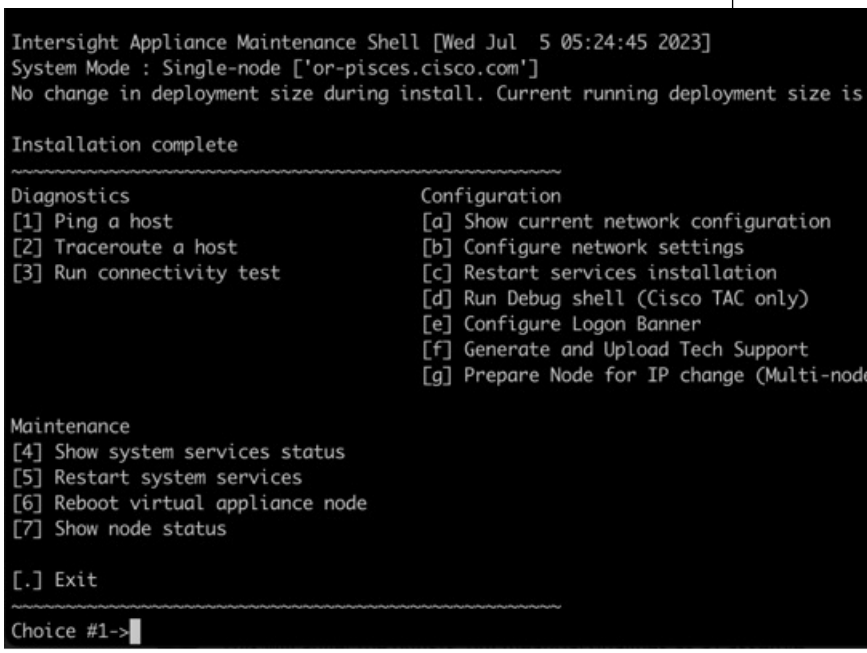
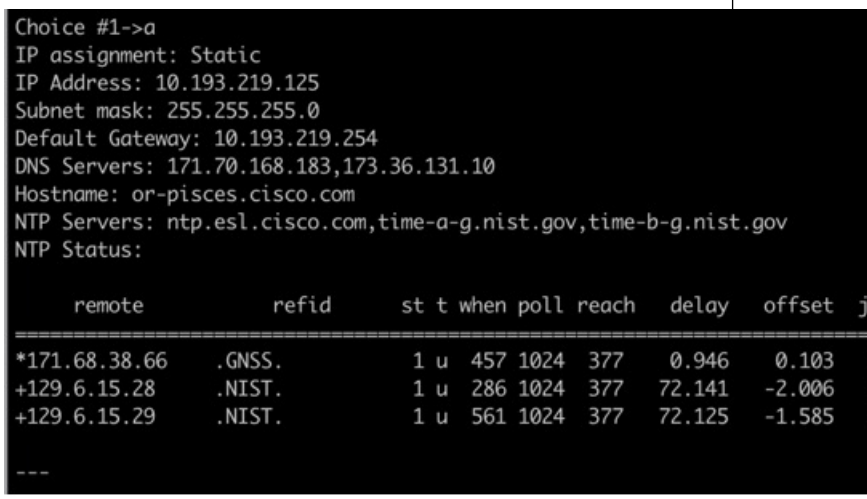
1. Launch the Intersight Virtual Appliance Maintenance Shell using one of the following three options:
   - Open a console window in your hypervisor.
     a. From either VMWare vCenter or Microsoft Hyper-V Manager, navigate to your virtual machine and open a console window.
     b. Log in as the admin user with username **admin** and enter the administrator password that you used during the appliance deployment.
   - Open an SSH session.
     a. SSH to the IP address of your Intersight Virtual Appliance.
     b. Log in as the admin user with username **admin** and enter the administrator password that you used during the appliance deployment.

- Open a telnet session to a serial console.
  a. In cases where opening an SSH session to the Intersight Virtual Appliance is not possible, use the information described in Configuring Cisco TAC Support Using a Serial Console to add a serial console to your Intersight Virtual Appliance VM.
  b. Telnet to the vCenter host IP at the PORT_NUMBER specified in the serial console setup.
  c. Log in as the admin user with username **admin** and enter the administrator password that you used during the appliance deployment.

2. Select one of the options listed in the following table to learn more about the command and the outcome of the command:

Intersight Appliance Maintenance Shell Options	Description
Diagnostic Options	• **[1] Ping a Host**—This option lets you ping a host to check why the installation is unsuccessful even after all properties and requirements are entered correctly. • **[2] Traceroute a host**—This option displays all IP addresses that the host has traversed through. • **[3] Run connectivity test**—This option runs a connectivity test and pings every host in the path from your host to the DNS server. The tool runs a few tests to verify if the IP address is valid, and checks for duplicate IPs to determine if it is used in multiple instances. The Run connectivity test option reaches the DNS server to resolve any connectivity issues.

Intersight Appliance Maintenance Shell Options	Description
Configuration Options	

Intersight Appliance Maintenance Shell Options	Description
	• **[a] Show current network configuration**—This option displays the existing configuration settings such as IP address, subnet mask, Default Gateway, DNS servers, Hostname, and NTP connection status to help you verify that all configuration settings are entered correctly. You can run the connectivity test (**Option 3**) to determine the status of the connectivity.   • **[b] Set network interface properties**—This option displays the network interface properties that you have set. You can click **enter**

Intersight Appliance Maintenance Shell Options	Description
	to retain the existing properties or provide a different set of inputs. This option detects issues (if any) with the following properties:

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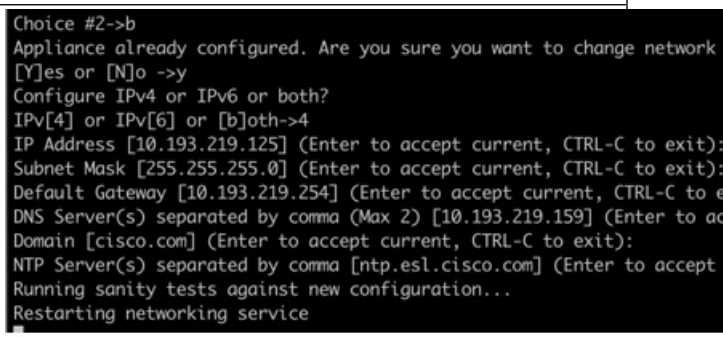
	• **An invalid or duplicate IP address**—The IP address could be incorrect even if you have configured your hostname with the correct credentials. • **Invalid subnet mask**—An invalid subnet mask might allow you to navigate inside your own network, but could impact external traffic. • **Incorrect or invalid Default Gateway**—If the DNS server is outside your network, an invalid default gateway impacts the connectivity to external hosts. **Changing IP Address**—Using this option, an **admin** user (with username **admin**) can make the following changes: • Assign a new IP address on the same network, connect the appliance VM to a different network and assign an IP on that network. • Change the IP address of an appliance VM after migrating it to a different vCenter or Hyper-V Manager deployment. **Attention** You must ensure that the DNS server records (A, CNAME, and PTR) are updated before the change is initiated and the new IP address resolves to the same FQDN as before. You can choose to change either just the IPv4 address or the IPv6 address, or change both at the same time. You can configure IPv6 addresses only after the appliance is completely installed. You will not experience any downtime with the services in your appliance after changing IPv6 addresses. Note that the appliance VM itself continues to be managed with the DNS name assigned to the IPv4 address of the appliance when it was first deployed. When you configure IPv6 addresses, it enables only the target claim of IPv6 endpoints. The IP change can take up to 15 minutes. Cisco recommends that you do not reboot the appliance VM during this time. After waiting for about 15 minutes, log back into the appliance from the UI.

Intersight Appliance Maintenance Shell Options	Description

	
	 
	• **For Multi-Node Only** - Do the following on the Maintenance Console:
	  • Enter configuration option **g** to prepare the appliance for IP change and input the IP address of your choice to configure on the appliance. This option allows you to add a new IP to the firewall policy to ensure that the other two nodes can communicate with the appliance when it is assigned the new IP address.
	  • Update the DNS server records (A, CNAME, and PTR) to ensure that the appliance's hostname now points to the new IP address
	  • Enter option **b** to configure the new IP. The appliance will reboot after the configuration is applied. The IP change can take up to 15 minutes. Cisco recommends that you do not reboot the appliance VM during this time. After waiting for about 15 minutes, log back into the appliance from the UI.

Intersight Appliance Maintenance Shell Options	Description
	• **[c] Restart installation services** This option is useful when you fix the configuration on your network that was previously assumed to be working. A few examples are: • Missing PTR record for the IP you have chosen (static IP assignment). • VM connected to incorrect portgroup/vSwitch. • DHCP server not running when you chose an IP assignment via DHCP. • You can check the progress of the installation by visiting the url *<fqdn-of-your-appliance-vm>*. • **[d] Run Debug (requires authentication)—This utility is intended only for Cisco TAC to troubleshoot installation issues.** • **[e] Configure Logon Banner**—This option enables you to configure a new banner message or edit an existing one to be displayed before the login screen.
Maintenance Options	This option enables you to gracefully reboot the appliance VM and restart the appliance services. **Options in this sub-menu are intended for debugging and recovery, and must be used as instructed by Cisco TAC**. You can access this option as a **admin** user. **[4] Show system service status**—This option provides a summary of the running/pending services and reports any errors. This option enables you to monitor the status of the appliance if the system is unresponsive or if there is a service disruption at any time. **[5] Restart system services**—This option enables you to troubleshoot the appliance and restarts the services running on it. **[6] Reboot virtual appliance node**—This option stops services, reboots the appliance, and restores the services when the appliance reboots.

For a demonstration of the Intersight Virtual Appliance Installation and troubleshooting, watch Cisco Intersight Appliance Installation and Debug.

Monitoring Virtual Appliance Sizing Options

The Intersight Appliance Maintenance Shell displays the status updates about the deployment size determination and the subsequent action. You can monitor the status of the deployment in the console and take remedial actions as required. The messages listed in the table below explain the scenario and the particular resource requirements for deployment.

Initial Message	Final Message
Installing <*size*>deployment size. This message is displayed when the required resources are adequate, and the desired size is being deployed. **Note** After evaluating the resources requirement, you can choose to deploy in the Small, Medium, or large options.	**Installed <*size*>deployment size.**
Installing <*size* >deployment size, after being under resourced. This message is displayed when the existing deployment is under-resourced for the current deployment size, and upon restarting the VM after the necessary resources have been added. This deployment could be in either size.	**Installed <*size*> deployment size, after being under resourced.**
Installed <*size*> deployment size. This message is displayed when the existing resources and the required resources are similar and no upgrade is required.	**No change in deployment size during reboot. Current running deployment size is Small.**
Downgrading deployment size from Medium to Small. This message is deployed when a Medium deployment size is downgraded to Small.	**Downgraded deployment size from Medium to Small.**
Upgrading deployment size from Small to Medium. This message is displayed when the deployment size is upgraded from Small to Medium.	**Upgraded deployment size from Small to Medium.**

Console Messages

You may encounter messages such as the following on the console during installation or during normal operation of Intersight Virtual Appliance and Intersight Assist. The exact content of the messages can vary depending on different circumstances.

```
kernel:NMI watchdog: BUG: soft lockup - CPU#0 stuck for 36s! [watchdog/0:11]
```

These messages can appear when Intersight Virtual Appliance or Intersight Assist is partially or fully paused by the hypervisor, such as when the hypervisor is creating a "snapshot" of the VM or when the hypervisor host is resource constrained. The Intersight Virtual Appliance and Intersight Assist will continue to operate normally, even in the presence of these messages.

If you encounter many such messages, particularly in a short period of time, we highly recommend that you investigate your hypervisor environment to find the root cause.