UCSM: Health and Pre-Upgrade Check Tool

Contents

Introduction

This document describes the process to run Unified Computing System Manager (UCSM) Health and Pre-Upgrade tool. This tool is a utility to perform pro-active self-checks on UCSM to ensure its stability and resiliency.

Prerequisites

Requirements

Cisco recommends that you have Python 3.6 or above installed on the system.

> **Note**: If you are running Windows OS, you should have Python installed and configured the Environment path.

> **Note**: Do not open a TAC case for Python issues/Script failed to run. Refer the CLI commands section to manually identify the issue and open TAC case per identified issue

Components Used

This document is not restricted to specific software and hardware versions.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Background Information

UCSM Health Check Tool helps automate a list of health and pre-upgrade checks on UCS systems to save time when the UCS infrastructure upgrade and maintenance operations take place.

> **Note**: Always download and use the latest version of the tool. Since the tool is enhanced frequently, using an older version can result in missing important checks.

> **Note**: This script is a best effort, free offering, and may not identify all possible issues.

When to Use

- Before UCS infrastructure upgrades
- UCS Health Check before and after Maintenance Activity
- When you work with Cisco TAC
- Proactive Health Check anytime

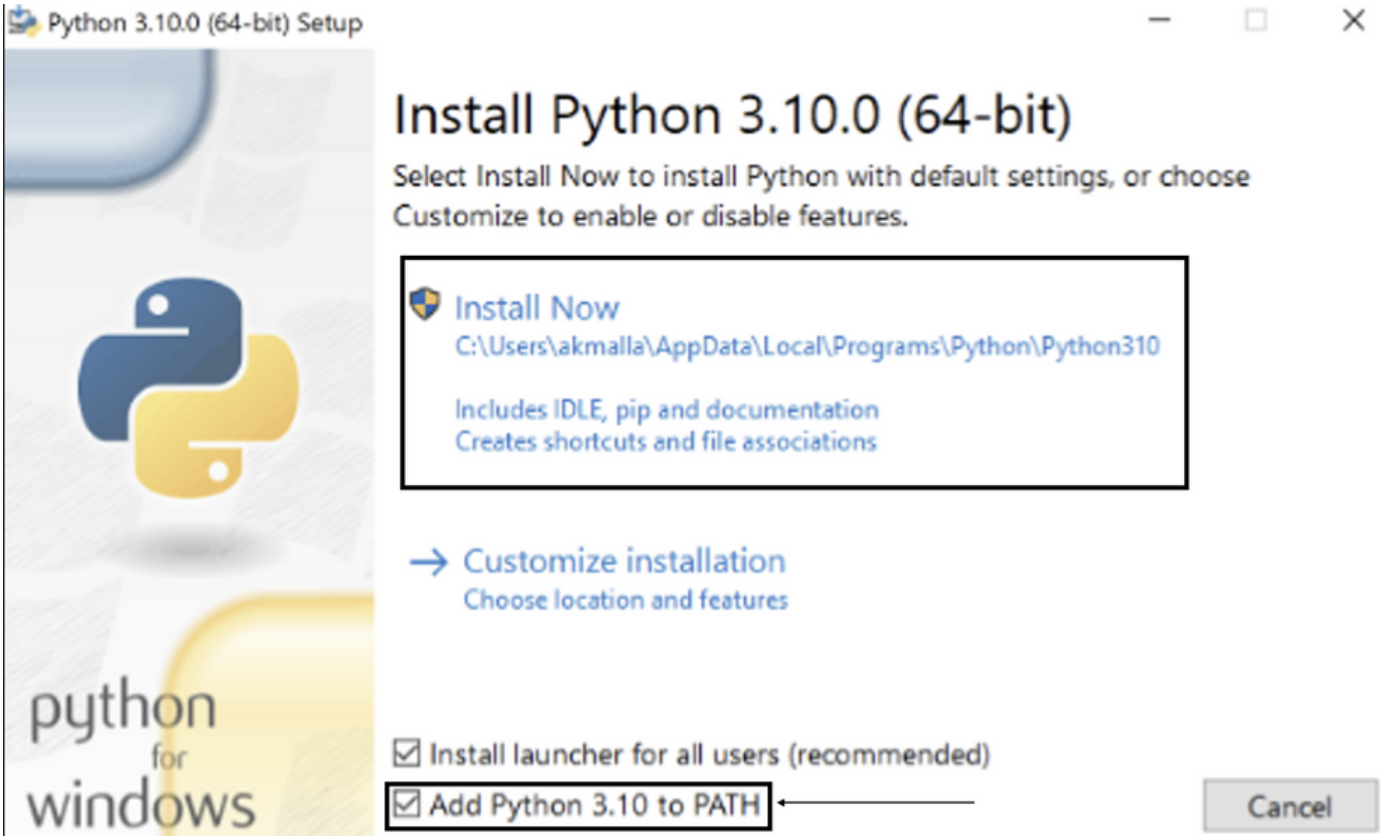
How to Use

Windows OS

Step 1. Download the latest version of Python from https://www.python.org/downloads/.

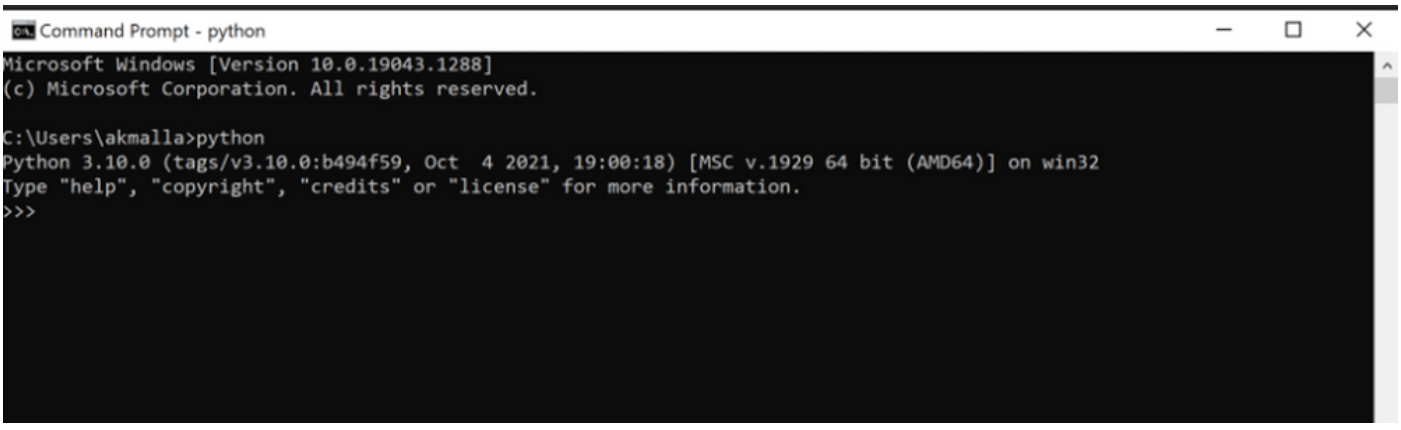
Step 2. Follow the normal installation process and click **Install Now** (the recommended one), to download the setup.

> **Note**: Ensure to check **Add Python to PATH**.

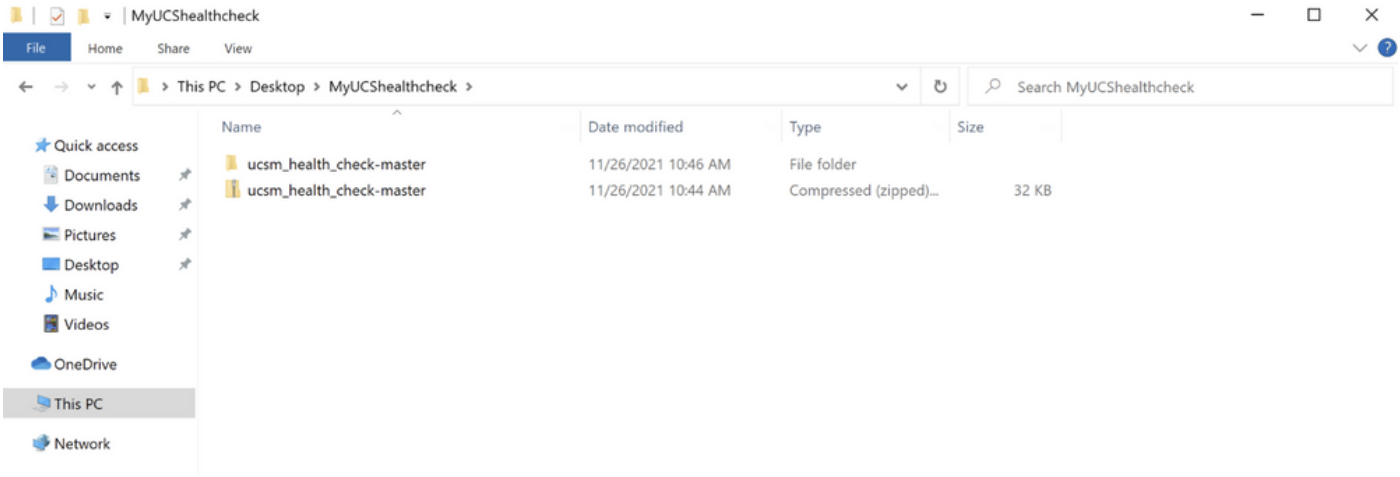


Step 3. Navigate to the directory in which Python was installed on the system.

Step 4. Open the command prompt and type the command **Python** to verify the python installation.

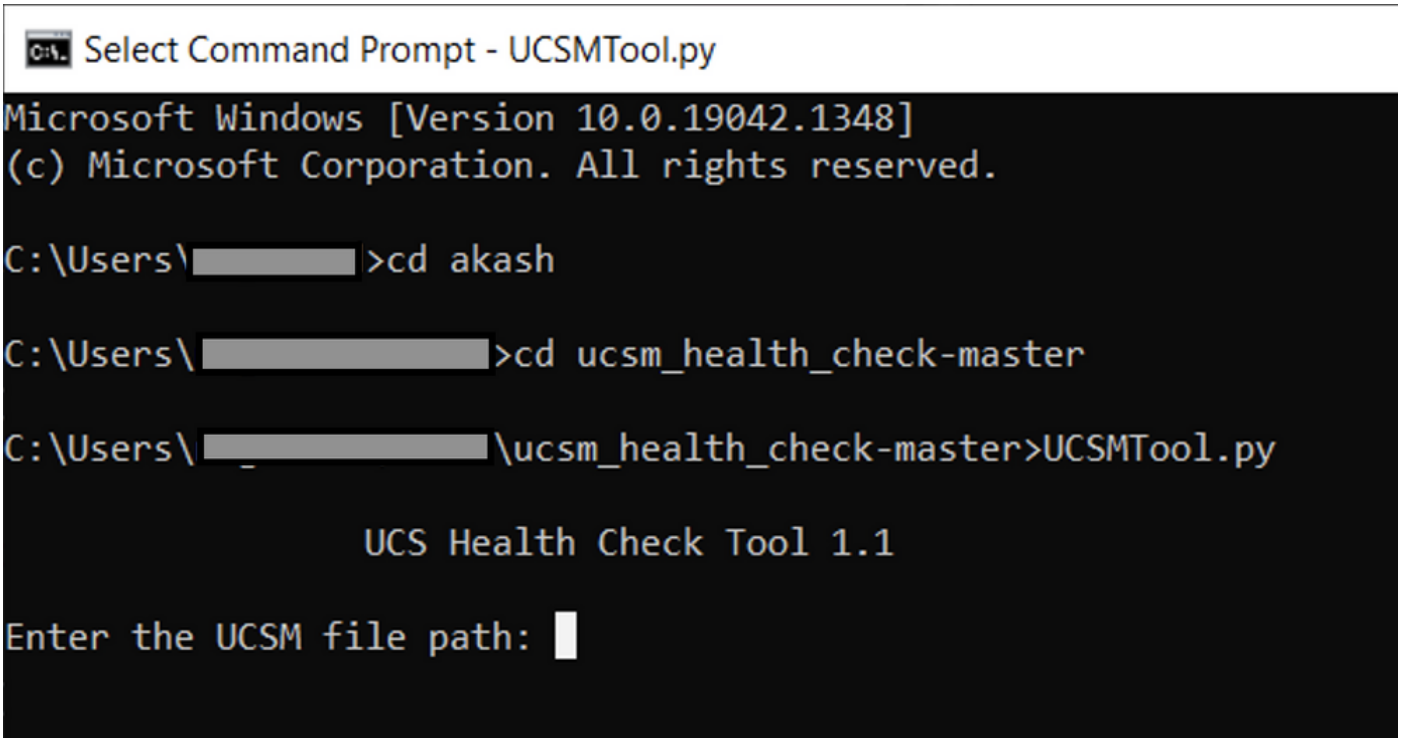


Step 5. Download the latest version of the health check script from here and save it to a folder, now extract the compressed file, as shown in the image.



Step 6. Download and save the latest UCSM technical support logs to the folder created, as shown in the image. Please click this link to find the steps to download UCSM log bundle; [Generating UCSM technical support.]

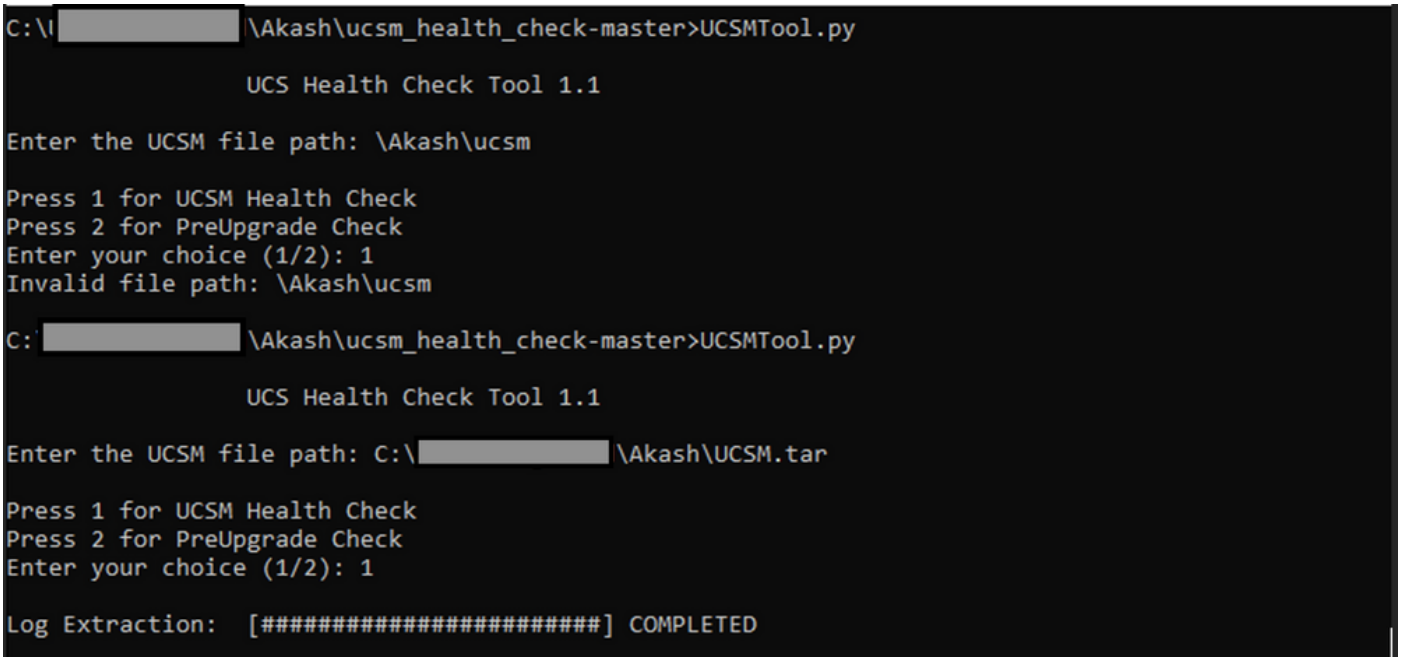
Step 7. Open CMD and **cd** to the folder where **UCSMTool.py** is located and run **UCSMTool.py** as shown in the image.



Step 8. Enter the file path where the UCSM technical support file is located and select the **desired option**.

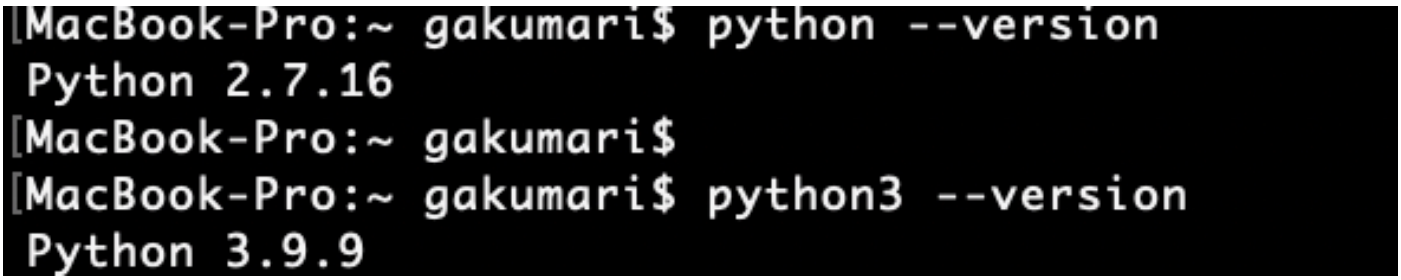
1. UCSM Health Check

2. PreUpgarde Check



MacOS

Step 1. MacOS comes with default python installed, verify the installed python version as shown here:



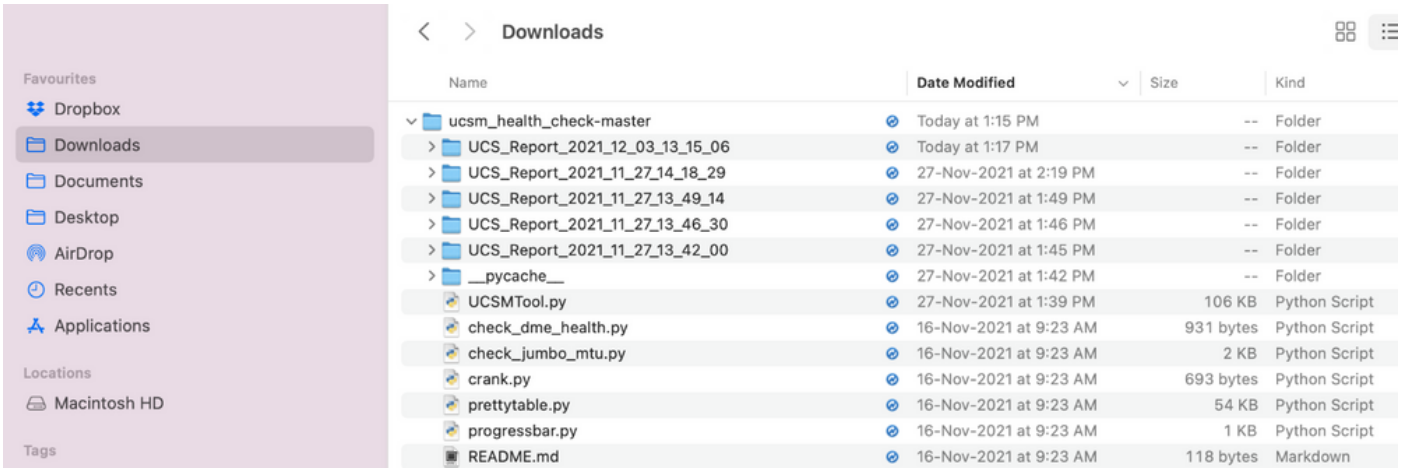
Note: In case the python version is lower than 3.6, please upgrade to 3.6 and later releases.

Note: If the python version is 3.6 or above jump to **Step 5.** else follow **Step 2.**

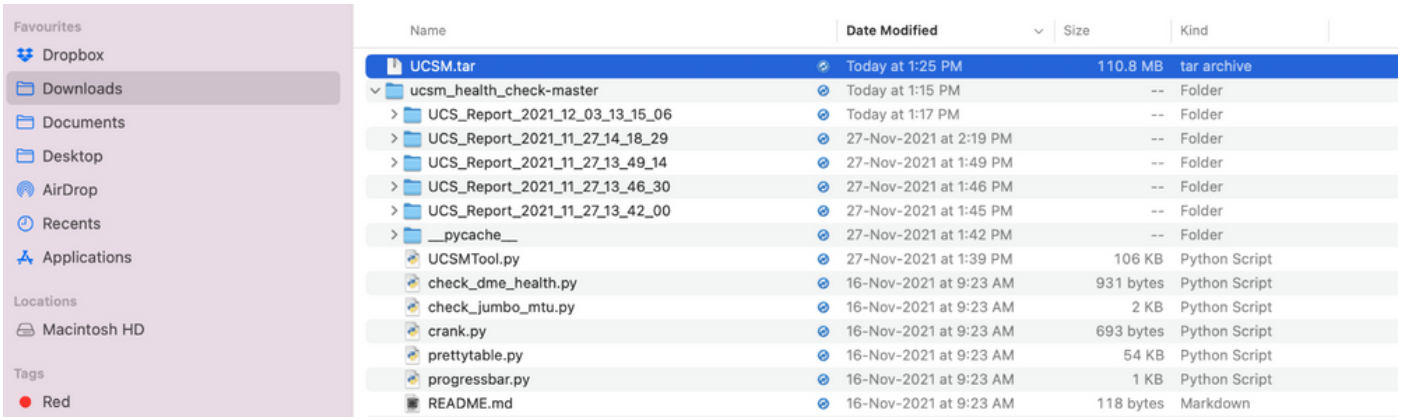
Step 2. Download the latest version of Python from https://www.python.org/downloads/macos/.

Step 3. Follow the normal installation process to complete/upgrade the python installation.

Step 4. Download the latest version of the health check script from here and save it to a folder, now extract the compressed file, as shown in this image.



Step 5. Download and save the latest UCSM technical support logs to the folder created, as shown in this image. Please click the link to find the steps to download UCSM log bundle; [Generating UCSM technical support.]



Step 6. Open the terminal, browse to the directory where you have the health check script downloaded, run **python UCSMTool.py** or **python3UCSMTool.py** as shown here.

```
[MacBook-Pro:~ gakumari$ cd Downloads
[MacBook-Pro:Downloads gakumari$ cd ucsm_health_check-master/
[MacBook-Pro:ucsm_health_check-master gakumari$ /usr/local/bin/python3 UCSMTool.py
```

Step 7. Enter the file path where the UCSM technical support file is located and select the **desired option** to execute the script.

1. UCSM Health Check

2. PreUpgarde Check

```
MacBook-Pro:ucsm_health_check-master gakumari$ /usr/local/bin/python3 UCSMTool.py

                UCS MU Tool 1.1

Enter the UCSM file path: /Users/gakumari/Downloads/UCSM.tar

Press 1 for UCSM Health Check
Press 2 for PreUpgrade Check
Enter your choice (1/2): 1

Log Extraction:  [########################] COMPLETED
```

Understand Outputs/Checks Performed

Checks Performed by UCSM HealthCheck

These checks are performed by UCSM-Healthchecktool:

UCSM HA Cluster State: Displays the cluster state of fabric interconnects.

PMON Process State: Displays the state of all processes in Cisco UCS Manager.

File System Mount: Displays the mount table.

Check for /var/ sysmgr size issue: Checks **/var/ sysmgr** usages.

Check for /var/ tmp size issue: Checks if **/var/ tmp** usages.

6296 FI unresponsive after a power cycle, HW revision update: Verify Fabric interconnect module and its HW revision number.

Faults with Severity Major or Severity Critical: Reports if you have any Major or Critical Alert in UCS Manager.

Check Backup Available: Verify if Backup is Available in UCS Manager.

Keyring Cert Check: Checks if the keyring is expired or valid.

Safeshut Workaround Needed or Not: Check if shafeshut workaround is needed or not by verifying the FI model and its version.

Deprecated Hardware in Cisco UCS Manager Release 4.x: Checks for any deprecated Hardware in Cisco UCS Manager 4.x Release.

Deprecated HW found for 3.1.x onwards: Checks for any deprecated Hardware in Cisco UCS Manager 3.x Release

Check for B200M4 reboot due to blank MRAID12G fields: Checks if B200M4 server is having blank S/N of MRAID12G RAID controller.

UCSM 3.1 Change in max power allocation causes blade discovery failure: Verify the power policy configured in the UCS Manager.

Existence of bootflash corruption fault code F1219: Check the existence of bootflash corruption.

Check for httpd fail to start when the default keyring is deleted: Check if the default keyring is deleted.

3rd GEN FIs has unclean file system states-"Filesystem state: clean with errors": Check for file system error.

Check for Server Auto-Install to 4.0(4b) Fails to Activate SAS Controller: Verify the host Firmware version and the SAS Expander version

Check for C-Series firmware upgrade stays long in process "perform an inventory of server" PNU OS Inventory: It verifies the server Model and its version to identify if you hitting this issue.

Check UCSM Authentication Domain using a Period or Hyphen: Verifies if Authentication Domain name is configured with a period or hyphen characters.

Local or fallback Authentication failure: Checks for authentication method configured for a particular FI model and verifies its version as well.

Health check between UCSM and UCS central: Verifying if UCSManager is registered with UCS Central

LAN and SAN Pin Groups: Check the lan/san pinning configuration in your cluster and highlight to review your configuration before upgrade/any MW activity

Checking Pending Activities Present in UCSM: Verify if there are any pending Activities in your UCS Manager Domain.

Health Check for IOM: Checks overall health of the IO Modules.

Core Files available in UCSM Check: Verifies if any Core File is found within 60 days.

Disjoint L2 potential misconfiguration: Verifies if there is any misconfiguration in case Disjoint L2 is configured.

VIC 1400 and 6400 Link Flap issue: Checks for conditions present in this defect

Check 2304 IOMs disconnect and re-connect during firmware update: Verifies the Fabric Interconnect and IO module model and identify if there is any potential issue.

DME Health Check: Verifies the health of the Data Management Engine (DME) database.

Number of Interface up and Flogi Matching on FI: Verifies number of interfaces and flogi's session

Jumbo or Standard MTU Check: Identifies the MTU configuration.

Sample UCSM Tool Output

```
afrahmad@AFRAHMAD-M-C3RS ucsm_health_check-master $ python UCSMTool.py UCS Health Check Tool 1.1
Enter the UCSM file path: /Users/afrahmad/Desktop/20190328180425_fabric-5410-1k08_UCSM.tar Press
1 for UCSM Health Check Press 2 for PreUpgrade Check Enter your choice (1/2): 2 Enter the UCS
Target Version [Ex:4.1(1x)]: 4.2(1i) Log Extraction: [########################] COMPLETED UCSM
Version: 3.2(3h)A Target Version: 4.2(1i) Upgrade Path: 3.2(3) ==> 4.2(1i) Summary Result: +----
--+-----------------------------------------------------------------------+-----------+------------
-------------------------------------------------+ | SlNo | Name | Status | Comments | +-----
-+-----------------------------------------------------------------------+-----------+-------------
-------------------------------------------------+ | 1 | UCSM HA Cluster State | PASS | | +---
---+-----------------------------------------------------------------------+-----------+-----------
-------------------------------------------------+ | 2 | PMON Process State | PASS | | +----
--+-----------------------------------------------------------------------+-----------+------------
-------------------------------------------------+ | 3 | File System Mount | PASS | | +------
+-----------------------------------------------------------------------+-----------+-------------
```

```
----------------------------------------------+ | 4 | Check for /var/sysmgr size issue | Not
Found | | +------+-------------------------------------------------------------------+----------
--+-------------------------------------------------------------+ | 5 | Check for /var/tmp
size issue | Not Found | | +------+-------------------------------------------------------------
------+------------+-------------------------------------------------------------------+ | 6 | 6296
FI unresponsive after power cycle, HW revision update | Not Found | | +------+-----------------
-------------------------------------+------------+-----------------------------
------------------------------+ | 7 | Faults with Severity Major or Severity Critical | Found |
Review the faults and Contact TAC, if needed | +------+-----------------------------------------
-------------------------+------------+-----------------------------------------------------
--------+ | 8 | Check Backup Available | No Backup | Please ensure to take backup, | | | | |
Refer this link: | | | | | http://go2.cisco.com/UCSBackup | +------+---------------------------
-----------------------------------+------------+-----------------------------------------
---------------------+ | 9 | Keyring Cert Check | PASS | | +------+---------------------------
-----------------------------------+------------+-----------------------------------------
-------------------+ | 10 | Safeshut Workaround Needed or Not | Not Needed | | +------+--------
-------------------------------------------------------+------------+----------------------
----------------------------------------+ | 11 | Deprecated Hardware in Cisco UCS Manager
Release 4.x | Found | Review the release notes to verify the hardware compatibility. | | | | |
Refer this link: | | | | | http://go2.cisco.com/RN-4 | +------+-----------------------------
-----------------------------------+------------+-----------------------------------------
----------------+ | 12 | Deprecated HW found for 3.1.x onwards | Not Found | | +------+---------
-------------------------------------------------------+------------+----------------------
----------------------------------------+ | 13 | Check for B200M4 reboot due to blank MRAID12G
fields | Found | Contact TAC | +------+-------------------------------------------------------------
----------+------------+-------------------------------------------------------------------+ | 14 |
UCSM 3.1 Change in max power allocation causes blade discovery | Not Found | | | | failure | | |
+------+-------------------------------------------------------------------+------------+-------
-----------------------------------------------------+ | 15 | Existence of bootflash
corruption fault code F1219 | Not Found | | +------+-----------------------------------------
----------------------+------------+-------------------------------------------------------
-----+ | 16 | Check for httpd fail to start when default keyring is deleted | Not Found | | +---
---+-------------------------------------------------------------------+------------+-----------
-----------------------------------------------+ | 17 | 3rd GEN FIs has unclean file
system states-"Filesystem state: | Not Found | | | | clean with errors" | | | +------+----------
-----------------------------------------------------+------------+-----------------------
---------------------------------------+ | 18 | Check for Server Auto-Install to 4.0(4b) Fails
to Activate SAS | Not Found | | | | Controller | | | +------+-----------------------------------
--------------------------------+------------+-----------------------------------------------
--------------+ | 19 | Check for C-Series firmware upgrade stays long in process | Not Found | |
| | "perform inventory of server" PNU OS Inventory | | | +------+-----------------------------
-----------------------------------+------------+-----------------------------------------
------------------+ | 20 | Check UCSM Authentication Domain using a Period or Hyphen | Not Found
| | +------+-------------------------------------------------------------------+------------+---
-----------------------------------------------------+ | 21 | Local or fallback
Authentication failure | Not Found | | +------+-----------------------------------------------
------------------+------------+-----------------------------------------------------------
+ | 22 | Health check between UCSM and UCS central | Not Found | UCS Manager is Not Registered |
+------+-------------------------------------------------------------------+------------+-------
-----------------------------------------------------+ | 23 | LAN and SAN Pin Groups | Not
Found | | +------+-------------------------------------------------------------------+----------
--+-------------------------------------------------------------+ | 24 | Checking Pending
Activities Present in UCSM | Not Found | | +------+-----------------------------------------
----------------------+------------+-----------------------------------------------------
----+ | 25 | Health Check for IOM | PASS | | +------+-----------------------------------------
----------------------+------------+-----------------------------------------------------
------+ | 26 | Core Files available in UCSM Check | Not Found | No core files were found in last
60 days | +------+-------------------------------------------------------------------+----------
--+-------------------------------------------------------------+ | 27 | Disjoint L2
potential misconfiguration | Not Found | | +------+-----------------------------------------
----------------------+------------+-----------------------------------------------------
----+ | 28 | VIC 1400 and 6400 Link Flap Issue | Not Found | | +------+-----------------------
-----------------------------------+------------+-----------------------------------------
-----------------------+ | 29 | Check 2304 IOMs disconnect and re-connect during firmware
```

```
update | Not Found | | | | step | | | +------+-----------------------------------------------
----------------+------------+-------------------------------------------------------------------+
| 30 | Number of Interface up and Flogi Matching on FI | --- | Primary: | | | | | FC Port
Trunking Count: 0, | | | | | Eth up Port: 5, | | | | | Flogi Count: 12 | | | | | Secondary: | |
| | | FC Port Trunking Count: 0, | | | | | Eth up Port: 5, | | | | | Flogi Count: 12 | +------+-
-------------------------------------------------------------------+------------+---------------
-----------------------------------------------+ | 31 | Jumbo or Standard MTU Check | NOT_FOUND
| | +------+-----------------------------------------------------------------------+------------+---
-----------------------------------------------------------+ Faults with Severity Major:
F0207: Adapter ether host interface 3/3/1/2 link state: down F0207: Adapter ether host interface
3/3/1/4 link state: down F0207: Adapter ether host interface 3/3/1/3 link state: down F0283:
ether VIF 1153 on server 3 / 3 of switch B down, reason: Admin config change F0479: Virtual
interface 1153 link state is down We would recommend Customers should complete the below prior
to an upgrade: a. Review firmware release notes b. Review compatibility c. Upload required
images d. Generate/Review UCSM show tech e. Determine vulnerable upgrade bugs and complete pro-
active workaround f. Verify FI HA and UCSM PMON status g. Generate all configuration and full
state backups (right before upgrade) h. Verify data path is ready (right before upgrade) i.
Disable call home (right before upgrade) NOTE: a. All reports and logs will be saved in the same
location from where the script was executed. b. Please visit the Summary Report/ Main Report to
view all the Major and Critical Fault alerts.
```

Analyze Tool Output - Next Steps

- The tool automates the process of running manual commands on UCS Systems.
- If the tool runs **OK** and gives **PASS/NOT FOUND** on all tests. The UCS system is good for all the checks which the script has performed.
- In situations where the tool **FAIL**/**FOUND** on some checks or doesn't run successfully, you can use the CLI commands (listed here) to perform the same checks on UCS System/Fabric interconnect is done by the script Manually.
- The tool **DOES NOT** check for any old/new/open/resolved caveats and hence it is highly recommended to review **UCS Release Notes and Upgrade Guides** before any upgrade or maintenance activity.

> **Tip**: For general health check of your UCS environment, Cisco TAC does not provide this service.Cisco's CX Customer Delivery Team (formerly known as Advanced Services) does have a bug scrub/risk analysis offering.If you require this type of service, please contact your Sales/Account Team.

CLI Commands

SSH to both Fabric Interconnects:

```
# show cluster extended-state, verify HA status is ready.

# connect local-mgmt ; # show pmon state, Verify the services are in running status.

# connect nxos ; # show system internal flash, Verify free size in  /var/sysmgr and /var/tmp

# connect nxos ; # show module, verify HW revision number for 6296 fabric interconnects.

# show fault detail | include F1219, verify this fault code for bootflash corruption

# show iom health status, displays health of IOM

# show server status, verify the status of server.
```

scope monitoring; # scope sysdebug; # show cores , verify if there are any core files.

scope security; # scope keyring default; #show detail, verify details for default keyring, expiry etc.

connect nxos; # show int br | grep -v down | wc –l, verify the number of active Ethernet interfaces.

scope security; # show authentication, review the authentication type.

connect nxos; # show flogi database, review the flogi database.