Troubleshooting Cisco NIA Application

This chapter contains the following sections:

Debugging Cisco NIA Application

Cisco NIA Application Start

To debug Cisco NIA app start in bootstrap, check the following file in compute nodes for any issues in Cisco NIA app specific install hooks.

```
/var/afw/applogs/NIA/NIAshook_Cisco_afw_log.old
```

Example:

```
2019-06-05 22:04:32,345 INFO       config.py:016 Running in APIC

.....
2019-06-05 22:04:32,782 INFO    kafka_configure.py:064 Kafka Correct config=True
2019-06-05 22:04:32,782 INFO apic_configure_nia.py:033 Start hook passed kf_done=True

Clean hooks are in /var/afw/applogs/NIA/NIAchook_Cisco_afw_log.old
```

The first login for Cisco NIA app takes some time for UI transition. The following message is displayed until application loads completely.

```
Please wait while Application data is being loaded.
```

Cisco NIA Application User Interface

- Most common user interface issues are due to receiving unexpected data from the APIs. Open the developer tools network tab and repeat the last action. It displays the API data received.
  - For issues with APIs, troubleshoot the backend logs.
  - For successful API requests and responses, check the developer tools console tab for errors, empty or unexpected data in the UI.
- After initial installation, the application needs time for UI transition and load completely. For any errors take screenshots before and after reproducing an issue.

- Take a screenshot of full network capture saved as a HAR from you browser. Open a service request and attach a HAR recording, backend logs, and screenshots for root cause analysis.

Statistics Telemetry

Statistics telemetry enables Cisco to collect statistics, inventory, and other telemetry information from customer networks. To debug statistics telemetry:

- Make sure that Device Connector is connected to Intersight cloud and claimed using the Device Connector user interface.
- Make sure that telemetry streaming is enabled. Check the check box for **Help Cisco improve its products**.
- Log into the compute node where the Device Connector is running.

```
# docker ps | grep "device \| intersight"
# docker exec it <dc container> bash
```

- In the logs directory, check the Device Connector logs for any failures related to inventory or etl update. Record the errors, collect Device Connector details, and collect Cisco NIA tech-support.

Advisory Report

Advisory report allows the user to export all advisory information from a link on the Advisories list view. To debug perform the following steps:

- From your browser tools page, right click Inspect, and click the network tab in your browser. Check if `/getAdvisoryReport` endpoint HTTP call status is success.
- For a failed API call, view Active Data micro-service logs to check for any errors thrown in the micro-service. Collect Active Data micro-service logs for furthur analysis.

  If the API call is successful, but the file is not downloaded, check any popup blockers are enabled in the browser.

Debugging Software Upgrade Path and Upgrade Impact

1. From your browser tools page, check if POST to *upgradepath* endpoint is successful and input or output data is as expected.
2. To check the upgrade impact logs:
   a. Log into the compute node where the upgrade impact container is running.

      ```
      # docker ps | grep "upgradeimp"
      # docker exec -it <container_id> bash
      ```

   b. check for any errors in the upgrade impact logs from the logs directory.
   c. Make a note of the POST data, errors, screenshots of UI and collect Cisco NIA tech support.

The following are the examples for *upgradepath*.

Cisco NXOS

```
time="2020-01-22 07:43:59.485" level=info msg="new AdvMap=74522df14dfcas-UPG-admin"
file="upgradepath:204"
```

```
time="2020-01-22 07:43:59.485" level=info msg="Starting issumatrix call nxos 7.0(3)I7(1)
9.3(1)" file="upgradepath:277"
time="2020-01-22 07:43:59.485" level=info msg="Res output:[7.0(3)I7(1) 7.0(3)I7(5a) 9.3(1)]"
 file="upgradepath:297"
time="2020-01-22 07:43:59.486" level=info msg="Sending POST response" file="upgradepath:258"
```

Notices

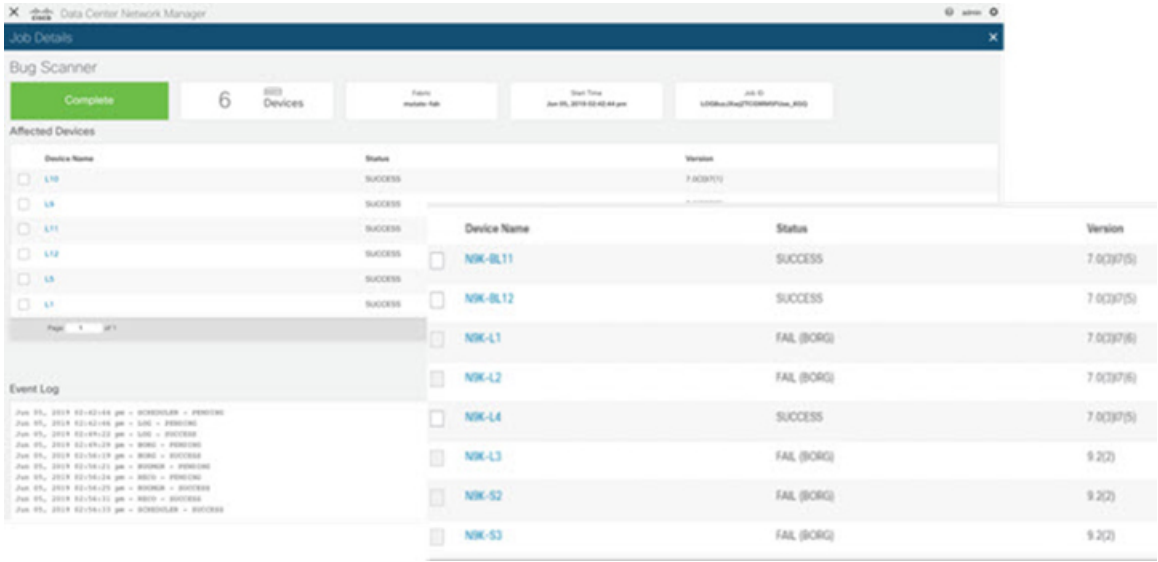
To debug notices:

- Connect to the Intersight cloud and claim the Device Connector atleast once.
- Make sure that all the devices are available in the network.
- Make sure that all data is downloaded successfully.
- In case no notices appear, collect device connector details and collect Cisco NIA tech-support.

Bugs and PSIRTs

To debug for bug scan and PSIRTs:

- Connect to the Intersight cloud and claim the Device Connector atleast once.
- Make sure that all the devices are available in the network.
- Make sure that all metadata is downloaded successfully.
- Configure the on-demand bug scan.
- Check for the bug scan on-demand job progress.



- In the log archiver, check the tech-support logs collected from switch.
  - In case the logs are not collected, then collect infra tech-support.
  - In case the collected logs do not show the bugs, then collect Cisco NIA tech-support.

TAC Assist On-demand

To debug TAC assist on-demand job:

- Check the status of the job in the **Job List** page.
- In the log archiver, check that the logs are successfully collected from the switches.
- Check the logs are available in Cisco DCNM.
- Collect the Cisco NIA tech-support in case of a failure.

Running Jobs

To debug abort or partial failures:

- Check that the infra services are up and running (Kafka, AFW). Collect infra tech-support if the services are not running.
- Collect Cisco NIA tech-support if the infra services are up and running.

Enhanced TAC Assist - User Initiated Upload to Cisco Cloud

In the user initiated TAC assist, the user collects the logs for specified devices and then uploads the collected logs to Cisco cloud. To debug perform the following steps:

- Make sure that Device Connector is connected to Intersight cloud and claimed using the Device Connector user interface.
- Log into the compute node where the Device Connector is running.

```
# docker ps | grep "device \| intersight"
# docker exec it <dc container> bash
```

- In the logs directory, check the Device Connector logs for any failures related to inventory or etl update. Record the errors, collect device connector details and collect Cisco NIA tech-support.

Example for uploading logs to Cisco cloud.

```
T22:05:35.087-0800 info stdplugins/techsupport.go:107
   Received request to collect techsupport for device: FDO22242J62, type: switch
{"traceId": "AS0cb8885d3e0ad999ec14d74a5074cbd6", "traceId":
"PE98f043ee82967a1831f5a8c9eedfe25b"}
T22:05:35.087-0800 info  stdplugins/techsupport.go:166
   Invoking techsupport function.  {"traceId": "AS0cb8885d3e0ad999ec14d74a5074cbd6",
"traceId": "PE98f043ee82967a1831f5a8c9eedfe25b"}
T22:05:35.087-0800  info  niatech/techsupport.go:370
{"traceId": "AS0cb8885d3e0ad999ec14d74a5074cbd6", "traceId":
"PE98f043ee82967a1831f5a8c9eedfe25b"}
T22:05:35.087-0800  info  niatech/techsupport.go:371     FDO22242J62
{"traceId": "AS0cb8885d3e0ad999ec14d74a5074cbd6", "traceId":
"PE98f043ee82967a1831f5a8c9eedfe25b"}
T22:05:35.122-0800  info  niatech/techsupport.go:339
         Got device model from dp
{"traceId": "AS0cb8885d3e0ad999ec14d74a5074cbd6", "traceId":
"PE98f043ee82967a1831f5a8c9eedfe25b"}
File start being uploaded:
T12:34:17.630-0800  info  niatech/techsupport.go:425
        Nashville: Finished techsupport collection with deviceType: switch, deviceId:
FDO22232LMZ
```

```
{"traceId": "ASc1a31b74ce56d39c3080fc97a4eba779", "traceId":
"PE0194accfee60ba13eee45ff21fa32b81"}
T12:34:17.630-0800  info  niatech/techsupport.go:426
            Nashville: Initiating techsupport upload with deviceType: switch, deviceId:
FDO22232LMZ
{"traceId": "ASc1a31b74ce56d39c3080fc97a4eba779", "traceId":
"PE0194accfee60ba13eee45ff21fa32b81"}
```

Flow State Validator First Hop Router Discovery

In the following scenarios collect Cisco NIA app and agent tech-support from affected switches for further debugging.

- Make sure that source IP or source MAC is available in the devices installed with compatible Cisco NIA agent RPM.
- In case FHR discovery fails and source IP or source MAC is available in Address Resolution Protocol (ARP) or MAC table for a device, then check if the device is not excluded from list of supported devices for FHR discovery.

  The following is an example for flow state validator event log.

  ```
  02:23:56pm - FSV - PENDING - WARNING: Removed devices ext-core1 Ex_Leaf site2-spine2
  from list of supported devices for FHR discovery as compatible FSV RPM is not installed;
  ```

- If the following error occurs in error log, then check for SIM output in flow state validator log. It occurs when SIM is unable to connect to the device to execute CLI hosted by Cisco NIA agent. Ping the compute node where SIM is running on the device to check if it works.

  ```
  02:23:57 pm - FSV - PENDING – WARNING: FHR discovery skipped for devices tor1
  due to connectivity failure.
  ```

- If the following error occurs in error log, then check for SIM output in flow state validator log. It occurs when SIM receives no or malformed data from Cisco NIA agent. In this case check if compatible Cisco NIA agent RPM is installed in the switch.

  ```
  02:23:57 pm - FSV - PENDING – WARNING: FHR discovery failure,
  received invalid response from agent.
  ```

- The following error occurs when source IP or source MAC is not available in Address Resolution Protocol (ARP) or MAC table of devices included for flow state validator job.

  ```
  12:19:09 pm - FSV - ABORT - WARNING: FHR not found for
  Source IP 60.0.0.11 and Destination IP 60.101.0.72
  ```

Flow State Validator Quick and Full Run

The following are debugging details for quick run and full run in a flow state validator job. In all these scenarios collect Cisco NIA app and agent tech-support from affected switches for further debugging.

- The flow tracing stops and fails immediately when agent returns failure while running in quick mode.
- In full mode the consistency checker runs in parallel in all the devices belonging to flow path. Consistency check errors are reported from multiple devices in flow summary table. See the flow summary table for errors and collect details for further debugging.
- If the following error appears in the error log, then check if the device is listed in the list of active devices for this flow state validator job. If not listed, then click **Device Count** to check the reason for exclusion in the flow detail page.

```
04:12:44 pm - FSV - PENDING – WARNING: Device ID SAL123456 Device Name spine1 not found

in FSV supported device list, Skipping...
```

- If the following error appears in the error log, then check for the SIM output in flow state validator log. It occurs when SIM receives no or malformed data from Cisco NIA agent. In this case check if compatible Cisco NIA agent RPM is installed in switch. Collect Cisco NIA agent tech-support from affected device.

```
02:23:57 pm - FSV - PENDING – WARNING: Flow state validation failed for
device ID FDO453245  device Name Spine, received invalid response from agent, Skipping…
```

- If the following error appears in the error log, then check for the SIM output in flow state validator log. It occurs when SIM is unable to connect device to execute CLI hosted by Cisco NIA agent. Ping the compute node where SIM is running on the device to check if it works.

```
02:23:57 pm - FSV - PENDING – WARNING: Flow state validation failed for
device ID FDO453245 device Name eor1 due to error device connectivity failure, Skipping...
```

- The flow state validator job is declared failure, if either quick run fails or consistency checker fails in full mode, or no path can not be traced to reach destination node.

Cisco NIA Log Paths

Collect the following logs to debug:

- Cisco DCNM:
  - Within the container.

    ```
    /opt/nia/<microservice>/log/<rotated log file>
    ```

    ```
    bash-4.2# env|grep NIA
    NIA_MS_LOGFILE=core.log
    NIA_MS_HOME=/opt/nia/core/
    NIA_MS_LOGDIR=/opt/nia/core/log
    ```

  - On each compute.

    ```
    /var/afw/applogs/NIA/appid_Cisco_afw_log/<logfile>
    ```

  - Docker logs.

    ```
    -f <container_id>
    ```

- Cisco DCNM master.

```
[root@dncm-mr2-node115 ~]# appmgr afw fetch-logs Cisco:NIA
```

Cisco DCNM Infra Log Paths

To debug logs:

- SIM on each compute logs.

```
[root@compute2 sim]# pwd
/var/afw/applogs/simagent_Cisco_afw_log/sim
  [root@compute2 sim]# ls -lrth
  total 3.7M
  lrwxrwxrwx 1 root root   29 Jun  2 21:12 sim.log ->   /var/log/toHost/sim/sim.log.1
  -rw-r--r-- 1 root root 3.7M Jun  5 15:29 sim.log.1
```

- CETI on each compute logs.

```
[root@compute2 ceti_Cisco_afw_log]# pwd
/var/afw/applogs/ceti_Cisco_afw_log
  [root@compute2 ceti_Cisco_afw_log]# ls -lrth
  total 11M
  lrwxrwxrwx 1 root root   26 Jun  5 14:15 ceti.log -> /var/log/toHost/ceti.log.1
  -rw-r--r-- 1 root root  11M Jun  4 11:28 ceti.log.1
```

- Kafka, Zookeeper, ElasticSearch logs.

```
[root@compute2 applogs]# pwd
   /var/afw/applogs
   drwxr-xr-x  3 root root 4096 Jun  2 20:53 elasticsix_Cisco_afw_log
   drwxr-xr-x  3 root root 4096 Jun  2 20:53 zookeeper_Cisco_afw_log
   drwxr-xr-x  3 root root 4096 Jun  2 20:53 kafka_Cisco_afw_log
```

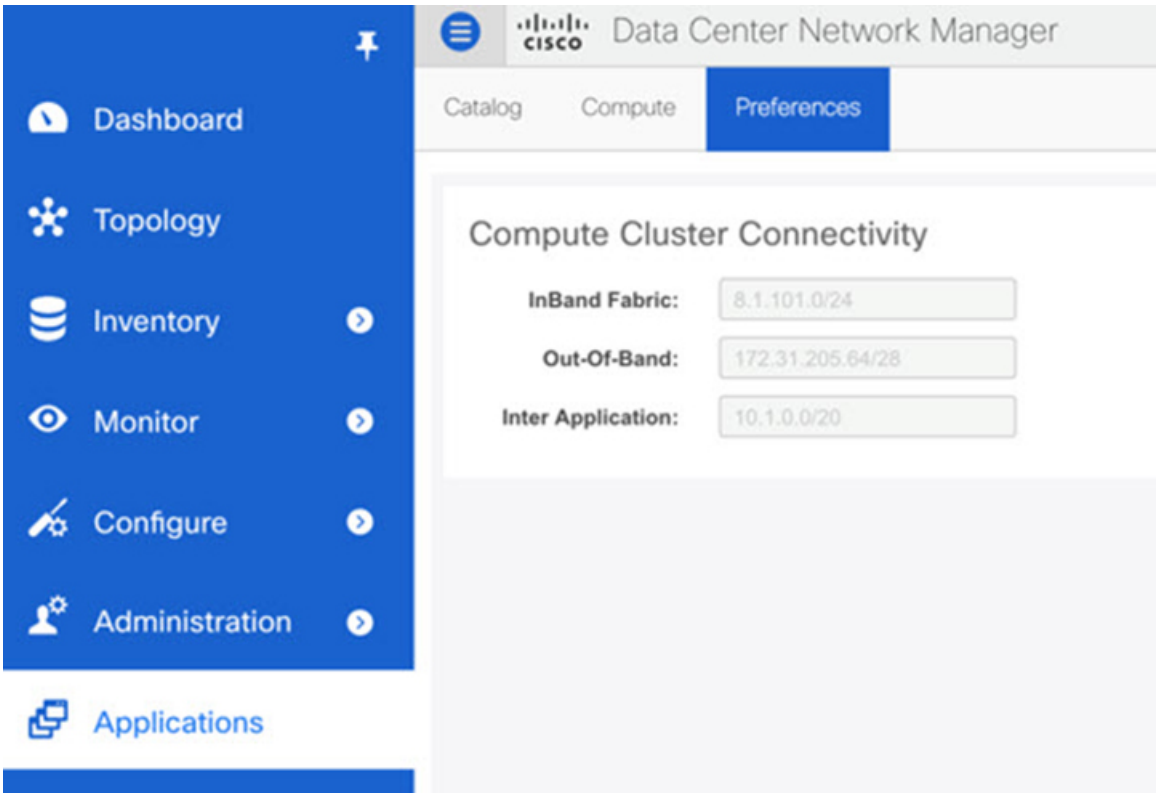
- Kafka, Zookeeper, ElasticSearch Docker logs.

```
docker ps --format 'table {{.ID}} {{.Image}}' | egrep "elastic:6|kafka|zookeeper"

CONTAINER ID IMAGE
8335f5140d42 172.31.205.60:5000/dcnmkafka:2.11_2.1.1
8c98df915797 172.31.205.60:5000/dcnmzookeeper:3.4.12
2e7e79eb22f0 172.31.205.60:5000/dcnmelastic:6.1.4


docker logs 8335f5140d42
  Infra:
  [root@dcnm-master ~]# appmgr afw fetch-logs Cisco:stalker
  [root@dcnm-master ~]# appmgr afw fetch-logs Cisco:ceti
  [root@dcnm-master ~]# appmgr afw fetch-logs Cisco:kafka
  [root@dcnm-master ~]# appmgr afw fetch-logs Cisco:elasticsix
```

Troubleshooting Cisco NIA on Cisco DCNM

Device Reachability and Authentication

Figure 1: Device Reachability



The following table summarizes the device reachability and authentication errors.

Problem	Solution
Device reachability	• Cisco NIA needs to reach the **Management IP** of each device it monitors to be able to perform bug scan, compliance check,TAC assist, and upgrade impact. • Connectivity to the **Management IP** of each device is through eth1 of SIM container and computer node. • The connectivity to the **Management IP** of each device is automatically taken care, when compute cluster is setup and **out-of-band** is entered.

Problem	Solution
Device authentication	• To discover devices, you need administrator credentials for device `username` in Cisco DCNM. Or, you need LAN credentials for the device to discover devices.
Infra	• Kafka: Check In Sync Replicas (ISR) for kafka related issues. • Elastic Search: Check HTTP errors for elastic search related issues. • SIM/CETI: Check Cisco DCNMcontainer logs. • Check for any loss of compute nodes. • Check Cisco DCNM master to standby failover.

Figure 2: Device Authentication Configuration

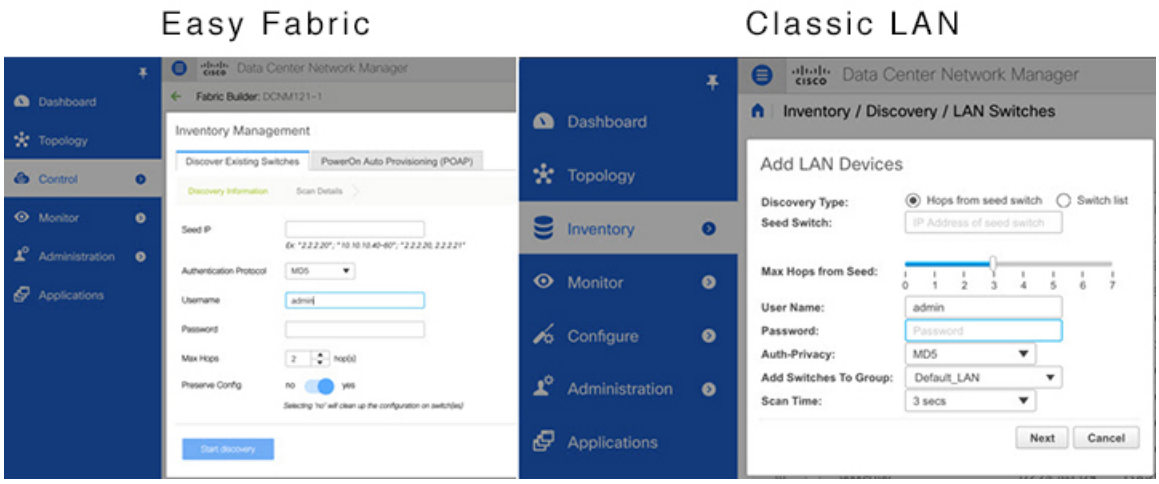
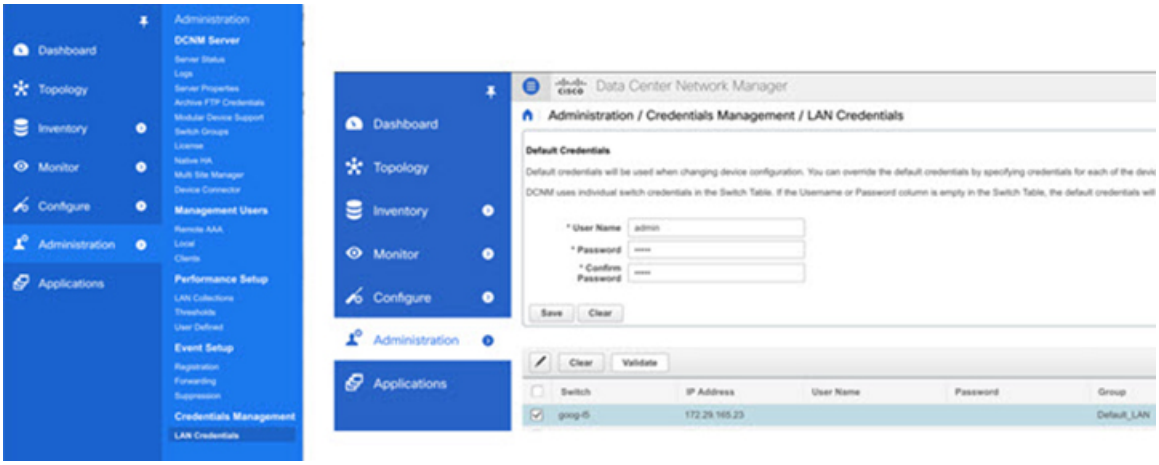


Figure 3: Device Authentication LAN Credentials



Enhanced TAC Assist - TAC Initiated Pull from Cisco Cloud

The following table summarizes how to troubleshoot errors for Cisco TAC triggered on-demand collection of logs for specified devices, which were pulled from Cisco cloud.

Problem	Solution
The app returns a 404 error, "The serial number is not present in DP inventory" when triggering the technical support job.	• Make sure the device must be registered as endpoint in Device Connector. • Borgcore has a scheduler job to monitor the Device Connector claim change and devices change. After you claim the Device Connector or upload a newly added device, allow 5 minutes for Borgcore to detect the change and register correspondingly. After 5 minutes if the issue still exists, check Borgcore > techsupport log and check the registration log for errors.
The app returns an error, "NotFound" "The requested device is not registered in the system" when triggering fast-start job.	• Make sure the device you want to collect is registered in the same cloud. If the problem still persists, it could be due to duplicate claim of the same device. Intersight returns error if there is more than one device with the same serial number and PID combination. • Duplicate claim of the device can occur when Device Connector was unclaimed and claimed again without deleting the Device Connector from the Intersight UI. Unclaiming the Device Connector from UI will not delete the MO from the Intersight database.

Software Upgrade Path

The following table summerizes the troubleshooting scenarios for software upgrade path.

Problem	Solution
Unable to see an upgrade path after running bug scan or having a software EOL.	If bug scan or software EOL advisory displays "Contact Cisco Technical Assistance Center (TAC)" then upgrade path cannot be shown, since there is no target version to check against. Software version advisories are required to see an upgrade path, which shows the recommended version.
In the upgrade path link for two releases, multi-hop is displayed, but Cisco NIA displays single hop.	If an internal error occurs while calculating the upgrade path, Cisco NIA defaults to the single hop. See the section below for debugging upgrade path issues.
Newer version is not dispalyed in the recommended release or in the upgrade path.	• Check for the cloud connectivity and for the latest version of metadata. • If the latest version is available to run, then run metadata update and bug scan update.