



Cisco Application Policy Infrastructure Controller Release Notes, Release 6.0(1)

Introduction

The Cisco Application Centric Infrastructure (ACI) is an architecture that allows the application to define the networking requirements in a programmatic way. This architecture simplifies, optimizes, and accelerates the entire application deployment lifecycle. Cisco Application Policy Infrastructure Controller (APIC) is the software, or operating system, that acts as the controller.

This document describes the features, issues, and limitations for the Cisco APIC software. For the features, issues, and limitations for the Cisco NX-OS software for the Cisco Nexus 9000 series switches, see the [Cisco Nexus 9000 ACI-Mode Switches Release Notes, Release 16.0\(1\)](#).

For more information about this product, see "Related Content."

Date	Description
January 11, 2023	In the Hardware Compatibility Information section, removed APIC-M1 and APIC-L1. The last date of support was October 31, 2021.
November 18, 2022	In the Open Issues section, added bug CSCwc66053.
October 14, 2022	Release 6.0(1j) became available. Added the resolved bugs for this release.
August 1, 2022	In the Miscellaneous Compatibility Information section, added: <ul style="list-style-type: none">• 4.2(2a) CIMC HUU ISO (recommended) for UCS C220/C240 M5 (APIC-L3/M3)• 4.1(2k) CIMC HUU ISO (recommended) for UCS C220/C240 M4 (APIC-L2/M2)
July 13, 2022	Release 6.0(1g) became available.

New Software Features

Product Impact	Feature	Description
Base Functionality	BGP autonomous system (AS) enhancements	Cisco APIC now supports the Remove Private AS option to remove private autonomous system numbers from the AS_path in an eBGP route, and supports the AS-Path match clause while creating a BGP per-peer route-map. For more information, see the Cisco APIC Layer 3 Networking Configuration Guide, Release 6.0(x) .
	Breakout port support with the Cisco N9K-C93600CD-GX and N9K-C9316D-GX switches	Dynamic and auto breakout ports are now supported with the Cisco N9K-C93600CD-GX and N9K-C9316D-GX switches. For more information, see the Cisco APIC Layer 2 Networking Configuration Guide, Release 6.0(x) .
	Support for BFD on secondary IPv4/IPv6 subnets	Bidirectional Forwarding Detection (BFD) is now supported for static routes that are reachable using secondary IPv4/IPv6 subnets that are configured on routed interfaces. This feature was originally introduced in the 5.2(4) release and is now available in the 6.0 releases. For more information, see the Cisco APIC Layer 3 Networking Configuration Guide, Release 6.0(x) .
	Support for PTP G.8275.1 on remote leaf switch peer links and on vPCs	You can now use the PTP Telecom profile (G.8275.1) on virtual port channels (vPCs) and on remote leaf switch peer links. For more information, see the Cisco APIC System Management Configuration

Product Impact	Feature	Description
		Guide, Release 6.0(x).
Ease of Use	SPAN extended filter entries	<p>You can now configure extended filter entries for filter groups in a SPAN session, which enable you to monitor traffic originating from access nodes in leaf nodes.</p> <p>For more information, see the Cisco APIC Basic Configuration Guide, Release 6.0(x).</p>
	Support for remote pools with a subnet mask of up to /28	<p>Remote leaf switches now support remote pools with a subnet mask of up to /28. In prior releases, remote leaf switches supported remote pools with a subnet mask of up to /24.</p> <p>For more information, see the Cisco APIC Basic Configuration Guide, Release 6.0(x).</p>
	Weight-based symmetric policy-based redirect (PBR)	<p>In weight-based symmetric PBR, you can set weights for a PBR destination (service node) based on the capacity of the service node, and traffic is load balanced based on the set weights.</p> <p>For more information, see the Cisco APIC Layer 4 to Layer 7 Services Deployment Guide, Release 6.0(x).</p>
Interoperability	Support for SyncE on vPCs and on remote leaf switch peer links	<p>You can now use SyncE on vPCs and on remote leaf switch peer links.</p> <p>For more information, see the Cisco APIC System Management Configuration Guide, Release 6.0(x).</p>
Security	Cisco Nexus 9000 switch secure erase	<p>Cisco Nexus 9000 switches utilize persistent storage to maintain system software images, switch configuration, software logs, and operational history. Each of these areas can contain user-specific information such as details on network architecture and design, and potential target vectors for would-be attackers. The secure erase feature enables you comprehensively to erase this information, which you can do when you return a switch with return merchandise authorization (RMA), upgrade or replace a switch, or decommission a system that has reached its end-of-life.</p> <p>For more information, see the Cisco APIC Getting Started Guide, Release 6.0(x).</p>
	Support for a user group map rule for SAML and OAuth 2	<p>Authentication by an external server for SAML and OAuth 2 is based on user group map rule information, in addition to the standard CiscoAVpair-based authentication.</p> <p>For more information, see the Cisco APIC Security Configuration Guide, Release 6.0(x).</p>
	Transport Layer Security version 1.3 support	<p>Transport Layer Security (TLS) version 1.3 is now supported. This feature was originally introduced in the 5.2(5) release and is now available in the 6.0 releases.</p>

New Hardware Features

For the new hardware features, see the [Cisco Nexus 9000 ACI-Mode Switches Release Notes, Release 16.0\(1\)](#).

Changes in Behavior

For the changes in behavior, see the [Cisco ACI Releases Changes in Behavior](#) document.

Open Issues

Click the bug ID to access the Bug Search tool and see additional information about the bug. The "Exists In" column of the table specifies the 6.0(1) releases in which the bug exists. A bug might also exist in releases other than the 6.0(1) releases.

Bug ID	Description	Exists in
CSCvg81020	For strict security requirements, customers require custom certificates that have RSA key lengths of 3072 and 4096.	6.0(1g) and later
CSCvm56946	Support for local user (admin) maximum tries and login delay configuration.	6.0(1g) and later
CSCvt99966	A SPAN session with the source type set to "Routed-Outside" goes down. The SPAN configuration is pushed to the anchor or non-anchor nodes, but the interfaces are not pushed due to the following fault: "Failed to configure SPAN with source SpanFL3out due to Source fvlfConn not available".	6.0(1g) and later
CSCvv40511	Traffic from an endpoint under a remote leaf switch to an external node and its attached external networks is dropped. This occurs if the external node is attached to an L3Out with a vPC and there is a redistribution configuration on the L3Out to advertise the reachability of the external nodes as direct-attached hosts.	6.0(1g) and later
CSCvz72941	While performing ID recovery, id-import gets timed out. Due to this, ID recovery fails.	6.0(1g) and later
CSCwa58709	The GIPo address is only visible on APIC 1 when using the command "cat /data/data_admin/sam_exported.config". The command output from the other APICs outputs do not show the GIPo address.	6.0(1g) and later
CSCwc66053	Preconfiguration validations for L3Outs that occur whenever a new configuration is pushed to the Cisco APIC might not get triggered.	6.0(1g) and later
CSCwd26277	When deploying a service graph, the dialog does not list all bridge domains for the provider connector. This issue is observed when you enter or edit the bridge domain name in the consumer connector field. After this, the provider connector will only list the bridge domain that is selected by the consumer connector field.	6.0(1g) and later
CSCwe19885	The Nexus Insights application cannot stream the telemetry data to NDI, even though the Cisco ACI site is registered and active.	6.0(1g) and later
CSCwe52465	The NICC app image fails to load.	6.0(1g) and later
CSCwe92155	After configuring syslog using TCP on port 59500, the logit was sent out normally and netstat showed that it was established. However, after aborting the connection from the syslog server side, the TCP connection went from ESTABLISHED to CLOSE_WAIT and disappeared from the APIC side.	6.0(1g) and later
CSCwf16927	The system time does not reflect the daylight saving adjustments done in Egypt for releases prior to 5.3.1 and 6.0.4	6.0(1g) and later
CSCwf54771	User configuration is missing on APICs and switches following an ungraceful reload or power outage.	6.0(1g) and later
CSCwf59938	Fault code F1414 is triggered and cleared manually. After certain time, the fault is triggered again. This issue occurs when using the syslog server FQDN.	6.0(1g) and later

Bug ID	Description	Exists in
CSCwh05135	Override vpc interface policy doesnot consistently take precedence over regular vpc interface policy.Upon a leaf reload, its quite random which policy takes precedence, and accordingly the vlans get programmed.If the override or regular AEP is missing the relevant domain association/vlans, then those vlans are not programmed causing outages.	6.0(1g) and later
CSCwh07037	An outage occurred because traffic coming from the TEPs was dropped by the receiving leaf switches with INFRA_ENCAP_SRC_TEP_MISS.	6.0(1g) and later
CSCwh17898	The " panic: runtime error: invalid memory address or nil pointer dereference." Error occurred and then F1419 (Service kron failed on apic) was raised.	6.0(1g) and later
CSCwh18649	Inter-pod/Inter-site BGP peer is incorrectly marked as " manual,wan" under the BGP for the peer managed object of a spine switch.	6.0(1g) and later
CSCwh28834	The " show running config" command does not work in the APIC CLI and generates the following errors: Error while processing mode: interface Error while processing mode: leaf Error while processing mode: configure Error: ERROR occurred: <class 'xml.etree.ElementTree.ParseError'>, not well-formed (invalid token): line 1, column 51242, File "/mgmt/opt/controller/yaci/yaci/_cfg.py", line 18, in _execute_func subCmd.runningConfig(ctx, **kwargs)	6.0(1g) and later
CSCwh41865	When upgrading an APIC, the " from" version is displayed as " to" version in the event record.	6.0(1g) and later
CSCwh44987	When a non-default OOB management EPG is configured and a default one is removed from the configuration, the default EPG will be recreated automatically after a fabric upgrade. This is causes fault F0523 " Configuration failed for EPG default due to Not Associated With Management Zone".	6.0(1g) and later
CSCwh47794	The ACI VMM Tags tab returns " the server returned unintelligible response" message even though the tag is retrievable using the CLI.	6.0(1g) and later
CSCwh53706	In scale setups, when there are more than the usual number of objects and if the user tries to load the Capacity Dashboard page, the page times out. A few queries that are hit from the browser and the page become stuck for few seconds.	6.0(1g) and later
CSCwh53727	The API call /mqapi2/deployment.query.json?mode=getvmmCapInfo that is done against the Cisco APICs by an external management system takes too long to process.	6.0(1g) and later
CSCwh56716	When the Cisco APICs use Direct Connect to CSSM, running the " show license usage" command on APIC 1, 2, or 3 shows ACI_LEAF_ESS_10G 6 in use. When APICs 2 and 3 are restarted, this output is unchanged. When APIC 1 is restarted, the output becomes " No Licenses in use" on APICs 1, 2, and 3. The " Registering for Smart Licensing with Direct Connect to CSSM Using the GUI" process has to be done again.This was tested in the lab with Cisco APIC releases 5.2(6g), 5.2(7g), and 6.0(2j)	6.0(1g) and later
CSCwh67428	The GUI does not display maxSpeed and direction information in the equipment view.	6.0(1g) and later
CSCwh74484	ACI pushes the VLANs from the old VLAN pool after changing the vNIC template in	6.0(1g) and

Bug ID	Description	Exists in
	the UCSM	later
CSCwh75348	Decommission an APIC causes the message " the node configuration will be wiped out from controller" to display even though the controllers still retain the user configuration.	6.0(1g) and later
CSCwh77285	OpFlex OOM crashes in leaf switches.	6.0(1g) and later
CSCwh78409	The SNMPD service failed on all Cisco APICs after configuring SNMPv3.	6.0(1g) and later
CSCwh81272	The system resets due to a policyelem high availability policy reset.	6.0(1g) and later
CSCwh83273	A Cisco APIC cannot be added to the cluster because the GUI rejects the ID if it is not within the range of 1-7. The Initial Setup Configuration states that the fabric ID valid range is 1-128.	6.0(1g) and later
CSCwh87245	An edmManagedNic or compManagedNic object may be mapped to the wrong server (compHv).	6.0(1g) and later
CSCwh87458	Search Filters in Endpoint - Operational - Client Endpoints do not show up in the endpoint learning filter.	6.0(1g) and later
CSCwh95573	Fault "F4142" is raised when there is inconsistency in FNV and the idmgr database. Even though the addrAssigner in FNV is set to 0 and the corresponding "identContextElement" managed object is missing from the idmgr database, the fault gets raised.	6.0(1g) and later
CSCwh98712	When running " show running-config" from API CLI, the command takes several minutes to complete. Several thousand API requests are seen in access.log querying ptpRsProfile on every static path.	6.0(1g) and later
CSCwi01316	In the following topology: Tenant 1: VRF 1 > EPG A, EPG B. There is an any-to-any Intra VRF instance contract and EPG A and B are providers for an inter-VRF instance contract. VRF 2 > L3Out or EPG. The VRF instance consumes the inter-VRF instance contract. Traffic will unexpectedly get sent to the wrong rule when inter-VRF instance traffic is flowing.	6.0(1g) and later
CSCwi03663	Recent upgraded versions of SCP servers do not support some of the old ciphers or host key algorithms causing SCP to/from APIC to break.	6.0(1g) and later
CSCwi06427	Navigating to FABRIC -> Inventory -> Pod1 -> Operational -> Routes -> IPv6 learned routes results in the following error message:Value is not specified for the argument 'undefined'	6.0(1g) and later
CSCwi09894	In a mini ACI fabric, the physical APIC does not join the cluster after power cycling the entire setup.	6.0(1g) and later
CSCwi12992	After upgrade to ACI 5.2(8), the custom SSL certificate is not installed in the Cisco APICs and the default self-signed SSL certificate is used instead.	6.0(1g) and later

Bug ID	Description	Exists in
CSCwi40671	In a remote leaf switch, when the initial policy download happens, nginx generates a core. The process recovers by itself after a restart. This issue does not have any major functionality impact.	6.0(1g) and later
CSCwc36551	There are alarms raised on Cisco Nexus Dashboard that report memory leakage in the svc_ifc_ae process on the Cisco APICs. On the Cisco Nexus Dashboard side: 'anomalyType': 'high_threshold', 'reason': '[ae] : mem usage above threshold (Usage: 5199.82 MB, High-Threshold: 2560.00 MB) 'mnemonicDescription': 'Memory usage above threshold', 'mnemonicNum': 100481, 'mnemonicTitle': 'ENVIRONMENTAL_MEMORY_HIGH_THRESHOLD',	6.0(1g)

Resolved Issues

Click the bug ID to access the Bug Search tool and see additional information about the bug. The "Fixed In" column of the table specifies the 6.0(1) release in which the bug was first fixed.

Bug ID	Description	Fixed in
CSCwc36551	There are alarms raised on Cisco Nexus Dashboard that report memory leakage in the svc_ifc_ae process on the Cisco APICs. On the Cisco Nexus Dashboard side: 'anomalyType': 'high_threshold', 'reason': '[ae] : mem usage above threshold (Usage: 5199.82 MB, High-Threshold: 2560.00 MB) 'mnemonicDescription': 'Memory usage above threshold', 'mnemonicNum': 100481, 'mnemonicTitle': 'ENVIRONMENTAL_MEMORY_HIGH_THRESHOLD',	6.0(1j)
CSCvy00746	A breakout parent port shows in the drop-down list for the SPAN source even after the port is broken out.	6.0(1g)
CSCvz83636	For a health record query using the last page and a time range, the GUI displays some health records with a creation time that is beyond the time range (such as 24h).	6.0(1g)
CSCwa53478	After migrating a VM between two hosts using VMware vMotion, EPG does not get deployed on the target leaf node. When affected, the fvlfConn managed object corresponding to the missing EPG can be seen on APIC, but it would be missing from the target leaf node when queried.	6.0(1g)
CSCwa58061	When there are more than 40 objects in the tree and you double click on an object in the BGP Peer table, then the tree does not expand because the tree does not have pagination. The APIC tries to load all objects in one query, which is drastically slows the GUI.	6.0(1g)

Bug ID	Description	Fixed in
CSCwa78740	<p>When HBR is enabled on a source EPG's bridge domain and the subnet is configured with the private scope (advertise externally = FALSE), if there is a shared service EPG contract with an L3Out, the L3Out will not publish the subnet or the corresponding /32 host routes because of this private scope.</p> <p>In this scenario, if there is also an explicit ESG leakRoute configured for the same subnet across those VRF instances, the leakRoute is faulted because the route is already shared with an EPG contract, and the leakRoute is installed in the hardware along with a pcTag, then the leakRoute should not be processed and any flags under it should not be considered.</p> <p>But, if this explicit leakRoute has a public scope, the /32 host routes are still published externally out of the L3Out, which should not happen as the leakRoute itself is faulted and bridge domain subnet scope is private.</p>	6.0(1g)
CSCwa90058	When a VRF-level subnet <fvRtSummSubnet> and instP-level subnet <l3extSubnet> with a summary policy is configured for an overlapping subnet, the routes will get summarized by the configuration that was added first. But, the fault on the configuration that was added last will not be shown in the Cisco APIC GUI.	6.0(1g)
CSCwa95297	When a VRF-level subnet, fvRtSummSubnet, exists with a summary policy and an instP level subnet, <l3extSubnet>, with the same subnet as the VRF-level subnet is associated with summary policy, then there won't be any fault seen on the Cisco APIC. The summarization will be done according to the VRF-level subnet <fvRtSummSubnet>.	6.0(1g)
CSCwa99045	VMM domain attachments of floating SVIs configured for dual stack with the same encapsulation and the same VMM domain attachments are not being cleaned up after downgrading from 6.0(1) to an earlier release.	6.0(1g)
CSCwb00781	Importing the routing table of a remote site carries the wrong autonomous system number (ASN).	6.0(1g)
CSCwi34095	<p>App installation fails on the Cisco APIC with the error " Unable to add elasticsearch credentials".</p> <p>This is seen for any app making use of Elasticsearch, such as Nexus Insight Cloud Connector.</p>	6.0(1g)

Known Issues

Click the bug ID to access the Bug Search tool and see additional information about the bug. The "Exists In" column of the table specifies the 6.0(1) releases in which the bug exists. A bug might also exist in releases other than the 6.0(1) releases.

Bug ID	Description	Exists in
CSCvj26666	The " show run leaf spine <nodeld>" command might produce an error for scaled up configurations.	6.0(1g) and later
CSCvj90385	With a uniform distribution of EPs and traffic flows, a fabric module in slot 25 sometimes reports far less than 50% of the traffic compared to the traffic on fabric modules in non-FM25 slots.	6.0(1g) and later
CSCvg39764	When you click Restart for the Microsoft System Center Virtual Machine Manager (SCVMM) agent on a scaled-out setup, the service may stop. You can restart the agent by clicking Start.	6.0(1g) and later

Bug ID	Description	Exists in
CSCvq58953	<p>One of the following symptoms occurs:</p> <p>App installation/enable/disable takes a long time and does not complete.</p> <p>Nomad leadership is lost. The output of the acidiag scheduler logs members command contains the following error:</p> <p>Error querying node status: Unexpected response code: 500 (rpc error: No cluster leader)</p>	6.0(1g) and later
CSCvr89603	The CRC and stomped CRC error values do not match when seen from the APIC CLI compared to the APIC GUI. This is expected behavior. The GUI values are from the history data, whereas the CLI values are from the current data.	6.0(1g) and later
CSCvs19322	Upgrading Cisco APIC from a 3.x release to a 4.x release causes Smart Licensing to lose its registration. Registering Smart Licensing again will clear the fault.	6.0(1g) and later
CSCvs77929	In the 4.x and later releases, if a firmware policy is created with different name than the maintenance policy, the firmware policy will be deleted and a new firmware policy gets created with the same name, which causes the upgrade process to fail.	6.0(1g) and later
CSCvx75380	<p>svcredirDestmon objects get programmed in all of the leaf switches where the service L3Out is deployed, even though the service node may not be connected to some of the leaf switch.</p> <p>There is no impact to traffic.</p>	6.0(1g) and later
CSCvx78018	A remote leaf switch has momentary traffic loss for flushed endpoints as the traffic goes through the tglean path and does not directly go through the spine switch proxy path.	6.0(1g) and later
CSCvy07935	xR IP flush for all endpoints under the bridge domain subnets of the EPG being migrated to ESG. This will lead to a temporary traffic loss on remote leaf switch for all EPGs in the bridge domain. Traffic is expected to recover.	6.0(1g) and later
CSCvy10946	With the floating L3Out multipath recursive feature, if a static route with multipath is configured, not all paths are installed at the non-border leaf switch/non-anchor nodes.	6.0(1g) and later
CSCvy34357	<p>Starting with the 6.0(1) release, the following apps built with the following non-compliant Docker versions cannot be installed nor run:</p> <ul style="list-style-type: none"> • ConnectivityCompliance 1.2 • SevOneAciMonitor 1.0 	6.0(1g) and later
CSCvy45358	The file size mentioned in the status managed object for techsupport "dbgexpTechSupStatus" is wrong if the file size is larger than 4GB.	6.0(1g) and later
CSCvy06118	In the "Visibility and Troubleshooting Wizard," ERSPAN support for IPv6 traffic is not available.	6.0(1g) and later
CSCvy84444	While navigating to the last records in the various History sub tabs, it is possible to not see any results. The first, previous, next, and last buttons will then stop working too.	6.0(1g) and later

Bug ID	Description	Exists in
CSCvz85579	<p>VMMmgr process experiences a very high load for an extended period of time that impacts other operations that involve it.</p> <p>The process may consume excessive amount of memory and get aborted. This can be confirmed with the command "dmesg -T grep oom_reaper" if messages such as the following are reported:</p> <pre>oom_reaper: reaped process 5578 (svc_ifc_vmmgr.)</pre>	6.0(1g) and later
CSCwa78573	<p>When the "BGP" branch is expanded in the Fabric > Inventory > POD 1 > Leaf > Protocols > BGP navigation path, the GUI freezes and you cannot navigate to any other page.</p> <p>This occurs because the APIC gets large set of data in response, which cannot be handled by the browser for parts of the GUI that do not have the pagination.</p>	6.0(1g) and later
N/A	<p>Beginning in Cisco APIC release 4.1(1), the IP SLA monitor policy validates the IP SLA port value. Because of the validation, when TCP is configured as the IP SLA type, Cisco APIC no longer accepts an IP SLA port value of 0, which was allowed in previous releases. An IP SLA monitor policy from a previous release that has an IP SLA port value of 0 becomes invalid if the Cisco APIC is upgraded to release 4.1(1) or later. This results in a failure for the configuration import or snapshot rollback.</p> <p>The workaround is to configure a non-zero IP SLA port value before upgrading the Cisco APIC, and use the snapshot and configuration export that was taken after the IP SLA port change.</p>	6.0(1g) and later
N/A	If you use the REST API to upgrade an app, you must create a new firmware. OSource to be able to download a new app image.	6.0(1g) and later
N/A	In a multipod configuration, before you make any changes to a spine switch, ensure that there is at least one operationally "up" external link that is participating in the multipod topology. Failure to do so could bring down the multipod connectivity. For more information about multipod, see the Cisco Application Centric Infrastructure Fundamentals document and the Cisco APIC Getting Started Guide.	6.0(1g) and later
N/A	With a non-english SCVMM 2012 R2 or SCVMM 2016 setup and where the virtual machine names are specified in non-english characters, if the host is removed and re-added to the host group, the GUID for all the virtual machines under that host changes. Therefore, if a user has created a micro segmentation endpoint group using "VM name" attribute specifying the GUID of respective virtual machine, then that micro segmentation endpoint group will not work if the host (hosting the virtual machines) is removed and re-added to the host group, as the GUID for all the virtual machines would have changed. This does not happen if the virtual name has name specified in all english characters.	6.0(1g) and later
N/A	A query of a configurable policy that does not have a subscription goes to the policy distributor. However, a query of a configurable policy that has a subscription goes to the policy manager. As a result, if the policy propagation from the policy distributor to the policy manager takes a prolonged amount of time, then in such cases the query with the subscription might not return the policy simply because it has not reached policy manager yet.	6.0(1g) and later
N/A	When there are silent hosts across sites, ARP glean messages might not be forwarded to remote sites if a leaf switch without -EX or a later designation in the product ID happens to be in the transit path and the VRF is deployed on that leaf switch, the switch does not forward the ARP glean packet back into the fabric to reach the remote site. This issue is specific to transit leaf switches without -EX or a later designation in the product ID and does not affect leaf switches that have -EX or a later designation in the product ID. This issue breaks the capability of discovering silent hosts.	6.0(1g) and later

Bug ID	Description	Exists in
N/A	Typically, faults are generally raised based on the presence of the BGP route target profile under the VRF table. However, if a BGP route target profile is configured without actual route targets (that is, the profile has empty policies), a fault will not be raised in this situation.	6.0(1g) and later
N/A	MPLS interface statistics shown in a switch's CLI get cleared after an admin or operational down event.	6.0(1g) and later
N/A	MPLS interface statistics in a switch's CLI are reported every 10 seconds. If, for example, an interface goes down 3 seconds after the collection of the statistics, the CLI reports only 3 seconds of the statistics and clears all of the other statistics.	6.0(1g) and later

Virtualization Compatibility Information

This section lists virtualization compatibility information for the Cisco APIC software.

- For a table that shows the supported virtualization products, see the [ACI Virtualization Compatibility Matrix](#).
- For information about Cisco APIC compatibility with Cisco UCS Director, see the appropriate [Cisco UCS Director Compatibility Matrix](#) document.
- This release supports the following additional virtualization products:

Product	Supported Release	Information Location
Microsoft Hyper-V	<ul style="list-style-type: none"> SCVMM 2019 RTM (Build 10.19.1013.0) or newer SCVMM 2016 RTM (Build 4.0.1662.0) or newer SCVMM 2012 R2 with Update Rollup 9 (Build 3.2.8145.0) or newer 	N/A
VMM Integration and VMware Distributed Virtual Switch (DVS)	6.5, 6.7, and 7.0	Cisco ACI Virtualization Guide, Release 6.0(x)

Hardware Compatibility Information

This release supports the following Cisco APIC servers:

Product ID	Description
APIC-L2	Cisco APIC with large CPU, hard drive, and memory configurations (more than 1000 edge ports)
APIC-L3	Cisco APIC with large CPU, hard drive, and memory configurations (more than 1200 edge ports)
APIC-M2	Cisco APIC with medium-size CPU, hard drive, and memory configurations (up to 1000 edge ports)
APIC-M3	Cisco APIC with medium-size CPU, hard drive, and memory configurations (up to 1200 edge ports)

The following list includes general hardware compatibility information:

- For the supported hardware, see the [Cisco Nexus 9000 ACI-Mode Switches Release Notes, Release 16.0\(1\)](#).
- Contracts using matchDscp filters are only supported on switches with "EX" on the end of the switch name. For example, N9K-93108TC-EX.
- When the fabric node switch (spine or leaf) is out-of-fabric, the environmental sensor values, such as Current Temperature, Power Draw, and Power Consumption, might be reported as "N/A." A status might be reported as "Normal" even when the Current Temperature is "N/A."
- First generation switches (switches without -EX, -FX, -GX, or a later suffix in the product ID) do not support Contract filters with match type "IPv4" or "IPv6." Only match type "IP" is supported. Because of this, a contract will match both IPv4 and IPv6 traffic when the match type of "IP" is used.

The following table provides compatibility information for specific hardware:

Product ID	Description
Cisco UCS M4-based Cisco APIC	The Cisco UCS M4-based Cisco APIC and previous versions support only the 10G interface. Connecting the Cisco APIC to the Cisco ACI fabric requires a same speed interface on the Cisco ACI leaf switch. You cannot connect the Cisco APIC directly to the Cisco N9332PQ ACI leaf switch, unless you use a 40G to 10G converter (part number CVR-QSFP-SFP10G), in which case the port on the Cisco N9332PQ switch auto-negotiates to 10G without requiring any manual configuration.
Cisco UCS M5-based Cisco APIC	The Cisco UCS M5-based Cisco APIC supports dual speed 10G and 25G interfaces. Connecting the Cisco APIC to the Cisco ACI fabric requires a same speed interface on the Cisco ACI leaf switch. You cannot connect the Cisco APIC directly to the Cisco N9332PQ ACI leaf switch, unless you use a 40G to 10G converter (part number CVR-QSFP-SFP10G), in which case the port on the Cisco N9332PQ switch auto-negotiates to 10G without requiring any manual configuration.
N2348UPQ	To connect the N2348UPQ to Cisco ACI leaf switches, the following options are available: Directly connect the 40G FEX ports on the N2348UPQ to the 40G switch ports on the Cisco ACI leaf switches Break out the 40G FEX ports on the N2348UPQ to 4x10G ports and connect to the 10G ports on all other Cisco ACI leaf switches. Note: A fabric uplink port cannot be used as a FEX fabric port.
N9K-C9348GC-FXP	This switch does not read SPROM information if the PSU is in a shut state. You might see an empty string in the Cisco APIC output.
N9K-C9364C-FX	Ports 49-64 do not support 1G SFPs with QSA.
N9K-C9508-FM-E	The Cisco N9K-C9508-FM-E2 and N9K-C9508-FM-E fabric modules in the mixed mode configuration are not supported on the same spine switch.
N9K-C9508-FM-E2	The Cisco N9K-C9508-FM-E2 and N9K-C9508-FM-E fabric modules in the mixed mode configuration are not supported on the same spine switch. The locator LED enable/disable feature is supported in the GUI and not supported in the Cisco ACI NX-OS switch CLI.
N9K-C9508-FM-E2	This fabric module must be physically removed before downgrading to releases earlier than Cisco APIC 3.0(1).

Product ID	Description
N9K-X9736C-FX	The locator LED enable/disable feature is supported in the GUI and not supported in the Cisco ACI NX-OS Switch CLI.
N9K-X9736C-FX	Ports 29 to 36 do not support 1G SFPs with QSA.

Miscellaneous Compatibility Information

This release supports the following products:

Product	Supported Release
Cisco NX-OS	16.0(1)
Cisco UCS Manager	2.2(1c) or later is required for the Cisco UCS Fabric Interconnect and other components, including the BIOS, CIMC, and the adapter.
CIMC HUU ISO	<ul style="list-style-type: none"> • 4.2(3e) CIMC HUU ISO (recommended) for UCS C220/C240 M5 (APIC-L3/M3) • 4.2(3b) CIMC HUU ISO for UCS C220/C240 M5 (APIC-L3/M3) • 4.2(2a) CIMC HUU ISO for UCS C220/C240 M5 (APIC-L3/M3) • 4.1(3f) CIMC HUU ISO for UCS C220/C240 M5 (APIC-L3/M3) • 4.1(3d) CIMC HUU ISO for UCS C220/C240 M5 (APIC-L3/M3) • 4.1(3c) CIMC HUU ISO for UCS C220/C240 M5 (APIC-L3/M3) • 4.1(2k) CIMC HUU ISO (recommended) for UCS C220/C240 M4 (APIC-L2/M2) • 4.1(2g) CIMC HUU ISO for UCS C220/C240 M4 (APIC-L2/M2) • 4.1(2b) CIMC HUU ISO for UCS C220/C240 M4 (APIC-L2/M2) • 4.1(1g) CIMC HUU ISO for UCS C220/C240 M4 (APIC-L2/M2) and M5 (APIC-L3/M3) • 4.1(1f) CIMC HUU ISO for UCS C220 M4 (APIC-L2/M2) (deferred release) • 4.1(1d) CIMC HUU ISO for UCS C220 M5 (APIC-L3/M3) • 4.1(1c) CIMC HUU ISO for UCS C220 M4 (APIC-L2/M2) • 4.0(4e) CIMC HUU ISO for UCS C220 M5 (APIC-L3/M3) • 4.0(2g) CIMC HUU ISO for UCS C220/C240 M4 and M5 (APIC-L2/M2 and APIC-L3/M3) • 4.0(1a) CIMC HUU ISO for UCS C220 M5 (APIC-L3/M3) • 3.0(4d) CIMC HUU ISO for UCS C220/C240 M3 and M4 (APIC-L2/M2) • 3.0(3f) CIMC HUU ISO for UCS C220/C240 M4 (APIC-L2/M2) • 2.0(13i) CIMC HUU ISO • 2.0(9c) CIMC HUU ISO • 2.0(3i) CIMC HUU ISO
Network Insights Base, Network Insights Advisor, and Network Insights for Resources	<p>For the release information, documentation, and download links, see the Cisco Network Insights for Data Center page.</p> <p>For the supported releases, see the Cisco Data Center Networking Applications Compatibility Matrix.</p>

- This release supports the partner packages specified in the [L4-L7 Compatibility List Solution Overview](#) document.

- A known issue exists with the Safari browser and unsigned certificates, which applies when connecting to the Cisco APIC GUI. For more information, see the [Cisco APIC Getting Started Guide, Release 6.0\(x\)](#).
- For compatibility with Day-2 Operations apps, see the [Cisco Data Center Networking Applications Compatibility Matrix](#).
- Cisco Nexus Dashboard Insights creates a user in Cisco APIC called cisco_SN_NI. This user is used when Nexus Dashboard Insights needs to make any changes or query any information from the Cisco APIC. In the Cisco APIC, navigate to the **Audit Logs** tab of the **System > History** page. The cisco_SN_NI user is displayed in the User column.

Related Content

See the [Cisco Application Policy Infrastructure Controller \(APIC\)](#) page for the documentation.

The documentation includes installation, upgrade, configuration, programming, and troubleshooting guides, technical references, release notes, and knowledge base (KB) articles, as well as other documentation. KB articles provide information about a specific use case or a specific topic.

By using the "Choose a topic" and "Choose a document type" fields of the APIC documentation website, you can narrow down the displayed documentation list to make it easier to find the desired document.

You can watch videos that demonstrate how to perform specific tasks in the Cisco APIC on the [Cisco Cloud Networking](#) YouTube channel.

Temporary licenses with an expiry date are available for evaluation and lab use purposes. They are strictly not allowed to be used in production. Use a permanent or subscription license that has been purchased through Cisco for production purposes. For more information, go to [Cisco Data Center Networking Software Subscriptions](#).

The following table provides links to the release notes, verified scalability documentation, and new documentation:

Document	Description
Cisco Nexus 9000 ACI-Mode Switches Release Notes, Release 16.0(1)	The release notes for Cisco NX-OS for Cisco Nexus 9000 Series ACI-Mode Switches.
Verified Scalability Guide for Cisco APIC, Release 6.0(1) and Cisco Nexus 9000 Series ACI-Mode Switches, Release 16.0(1)	This guide contains the maximum verified scalability limits for Cisco Application Centric Infrastructure (ACI) parameters for Cisco APIC and Cisco Nexus 9000 Series ACI-Mode Switches.

Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, send your comments to apic-docfeedback@cisco.com. We appreciate your feedback.

Legal Information

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL:

<http://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

© 2022-2023 Cisco Systems, Inc. All rights reserved.