

Cisco nexus 9500 ordering guide

This document contains information related to feature and module-based licensing options for Cisco Nexus switches that run Cisco NX-OS software. Note: The documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product. The following table lists the changes to this document. Date Description November 14, 2023 Updated table 4 and 5 and updated the Cisco Nexus 9000 Series Tier-Based Licenses section. October 31, 2023 Updated Table 2 (added a foot note) and Table 7 (updated foot note). Updated Table 4, 6, and 9 for N9K-C9804. xohi June 28, 2023 · Updated Table 4 to include N9K-C92348GC-X. May 26, 2023 · Updated the Feature-Based Licenses section. April 11, 2023 · Updated Table 7. March 8, 2023 · Updated Tables 4, 6, and 9. <u>cidevigu</u> January 20, 2023 · Removed all 7Y PIDs from August 29, 2023 · Updated Tables 4, 6, and 9. July 28, $2022 \cdot$ Table 11. November 11, 2022 · Updated Table 10 to include NXOS-UPG-L-AD-XF upgrade license. · Updated sub-note 12 under Table 7. September 23, 2022 · Updated Table 9 to include ACI-SEC-XM August 19, 2022 Added support for N9K-C9808. Replaced DCNM with DCNM/NDFC throughout the document. July 1, 2022 · Updated Add-on Licenses in Table 5. · Removed content related to essentials perpetuals licenses. · Updated Figure 1: Cisco Nexus 9000 and 3000 Series NX-OS Switch License Navigator Infographic Removed all references to Cisco ONE and non-Cisco ONE. Updated Table 10 to include platform IDs that support upgrade licenses. Updated Table 4, 5, and 24 to include N9K-C9348D-GX2A and N9K-C9364D-GX2A. April 12, 2022 · Updated Table 4 to include N9K-C9332D-GX2B.



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March 8, 2023 · Updated Tables 4, 6, and 9. January 20, 2023 · Removed all 7Y PIDs from Table 11. November 11, 2022 · Updated Table 10 to include NXOS-UPG-L-AD-XF upgrade license. · Updated sub-note 12 under Table 7. September 23, 2022 · Updated Table 9 to include ACI-SEC-XM August 19, 2022 · Added sub-note 12 under Table 5. · Removed content related to essentials perpetuals licenses. · Updated Figure 1: Cisco Nexus 9000 and 3000 Series NX-OS Software Features Licensing allows you to access specified premium features on your device after you install the appropriate license for that feature.



Preface

This preface describes the audience, organization, and conventions of the Cisco Nexus 5000 Series NX-OS Security Command Reference. It also provides information on how to obtain related documentation.

This preface includes the following sections:

- · Audience, page xi
- · Supported Switches, page xi
- Organization, page xii
- · Document Conventions, page xiii
- Related Documentation, page xiv
- Obtaining Documentation and Submitting a Service Request, page xvi

Audience

This publication is for experienced users who configure and maintain Cisco NX-OS devices.

Supported Switches

- This section includes the following topics:
- Cisco Nexus 5000 Platform Switches, page xi
- Cisco Nexus 5500 Platform Switches, page xii

Cisco Nexus 5000 Platform Switches

 Table 1 lists the Cisco switches supported in the Cisco Nexus 5000 Platform.

 Note

 For more information on these switches, see the Cisco Nexus 5500 Platform and Cisco Nexus 5000 Platform Hardware Installation Guide available at the following URL: http://www.cisco.com/en/US/products/ps9670/tsd_products_support_series_home.html

 Cisco Nexus 5000 Series NX-05 Security Command Reference

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Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product. The following table lists the changes to this document. Date Description November 14, 2023 · Updated Table 2 (added a foot note) and Table 7 (updated foot note). August 29, 2023 · Updated Table 4, 6, and 9 for N9K-C9804. zesofaku June 28, 2023 · Updated Table 4 to include N9K-C92348GC-X. May 26, 2023 · Updated Table 5, and 9. January 20, 2023 · Updated Table 5, and 9. January 20, 2023 · Updated Table 5, and 9. January 20, 2023 · Updated Table 10 to include NXOS-UPG-L-AD-XF upgrade license.

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Tier-Based Licenses Tier-based licensing is available for some Cisco Nexus 3000 and 9000 Series switches. This licensing model applies to both Cisco Application Centric Infrastructure (ACI) and NX-OS standalone architectures where these switches can be deployed. The Release History for Licensing section lists the platforms that support tier-based licensing offers the following benefits: Consistency across ACI and NX-OS licensing (for Cisco Nexus 9000 Series switches). Consistency across ACI and NX-OS license a group of feature licenses as packages: Essentials, Advantage, Premier. Subscription-based license is offered as an Essentials, Advantage, or Premier license package. or Premier license package to Premier) at the time of license renewal. or A perpetual license is offered as an Advantage license package but is not available as an Essentials or Premium license. Note: Several add-on licenses are also available, which can be added to either tier or purchased independently. Along with the infographic below, the Cisco Nexus 9000 and 3000 Series NX-OS Switch License for your needs.

NX-OS License Package features Included in Tier-Based Licenses for Cisco Nexus 9000 and 3000 Series Switches License Package Features Included* Essentials Fabric management features (DCNM/NDFC LAN and PTP) Figure 1. Cisco Nexus 9000 and 3000 Series NX-OS Switch License Navigator Infographic Table 2. Fabric services features (iCAM, ITD, IP fabric for media non-blocking multicast, and smart channel) Routing and switching features (BGP, EIGRP, GRE, IS-IS, MSDP, OSPF, PBR, PIM, SSM, VRF3, VXLAN BGP EVPN, SRv6 (no EVPN)) Telemetry features (NetFlow, FT, FTE, SSX) Advantage All features included in the Essentials package plus the following features: Advanced fabric features (Pervasive Load Balancing and Tenant Routed Multicast) (Enhanced PBR (EPBR)) The Essentials and Advantage packages plus support for Cisco Nexus Dashboard Insights. 3 No license is consumed if default/management VRF is enabled. Enabling additional VRFs will require Essentials NX-OS License Package features Included in Add-On Licenses for Cisco Nexus 9000 and 3000 Series Switches Add-on License Features Security add-on license to Cisco Nexus 9000 and 3000 Series Switches Add-on License Ethernet license. Table 3. (SyncE) support NDB add-on license Nexus Data Broker 4 Beginning with Cisco Nexus Release 9.3(5), Secure VXLAN EVPN Multi-Site using CloudSec is supported on Cisco Nexus 9300-FX2 platform switches. Beginning with Cisco Nexus 9300-FX2 platform switches. Feature support varies by platform and release. See the Nexus Switch Platform Support Matrix to determine which features are supported for your platform. The following options are available when you order an Essentials or Advantage package: Cisco Nexus 9000 Series switches o Essentials or Advantage platform switches. Note: subscription license for DCN (ACI+NX-OS) for 3, 5, or 7 years o Advantage perpetual license for DCN (ACI+NX-OS) o Advantage perpetual license for NX-OS o NX-OS upgrade licenses · Cisco Nexus 3000 Series switches o Essentials or Advantage subscription license for NX-OS for 3, 5, or 7 years o Advantage perpetual license for NX-OS o NX-OS upgrade licenses · Cisco Nexus 3000 Series switches o Essentials or Advantage subscription license for NX-OS for 3, 5, or 7 years o Advantage perpetual license for NX-OS o NX-OS upgrade licenses · Cisco Nexus 3000 Series switches o Essentials or Advantage subscription license for NX-OS for 3, 5, or 7 years o Advantage perpetual license for NX-OS o NX-OS upgrade licenses · Cisco Nexus 3000 Series switches o Essentials or Advantage subscription license for NX-OS for 3, 5, or 7 years o Advantage perpetual license for NX-OS o NX-OS upgrade licenses · Cisco Nexus 3000 Series switches o Essentials or Advantage subscription license for NX-OS for 3, 5, or 7 years o Advantage perpetual license for NX-OS o NX-OS upgrade licenses · Cisco Nexus 3000 Series switches o Essentials or Advantage subscription license for NX-OS for 3, 5, or 7 years o Advantage perpetual license for NX-OS o NX-OS upgrade licenses · Cisco Nexus 3000 Series switches o Essentials or Advantage subscription license for NX-OS for 3, 5, or 7 years o Advantage perpetual license for NX-OS o NX-OS upgrade licenses · Cisco Nexus 3000 Series switches o Essentials or Advantage subscription license for NX-OS for 3, 5, or 7 years o Advantage perpetual license for NX-OS o NX-OS upgrade licenses · Cisco Nexus 3000 Series switches o Essentials or Advantage subscription license for NX-OS for 3, 5, or 7 years o Advantage perpetual license for NX-OS o NX-OS upgrade licenses · Cisco NEXOS o NX-OS upgrade licenses · Cisco NEXOS o NX-OS upgrade license for NX-OS o NX-OS upgrade licenses · Cisco NEXOS o NX-OS upgrade licenses OS Essentials package is offered as subscription only. Essential perpetual license is no longer sold. If you install a subscription-based license, you will be notified 90 days before your licensing contract expires. Note: If the Essentials license expires after the Advantage license is installed, the following message appears: "LIC LICENSE EXPIRED: License expired for feature NXOS ESSENTIALS XF. Feature will run in honor mode." You can ignore this message because the licenses are supported for Cisco Nexus 9300 platform switches beginning with Cisco NX-OS Release 9.2(3). Beginning with Cisco NX-OS Release 7.0(3)I7(7) and 9.3(2), the ACI Premier licenses are supported for Cisco NX-OS to ACI. Any attempt to install these licenses for a prior release will fail. When you downgrade from Cisco NX-OS Release 9.2(3) to an earlier release, the features that use the DCN (ACI+NX-OS) Essentials, Advantage, and add-on licenses continue to work in honor mode in the downgraded version. In addition, the output of the show license usage command continues to include entries for these unsupported licenses.

License Categories and Associated Supported Platforms (Cisco Nexus 9000 Series Switches) 1G Fixed Platform (GF) License 10G/25G/40G/100G Fixed Platform (XF2) License 4-Slot Modular Platform License 8-Slot, 16-Slot Modular Platform License 8-Slot, 16-Slot Modular Platform License 8-Slot Distributed Modular Table 4. Platform License 4-Slot Centralized Modular Platform License 8-Slot Distributed Modular Platform License N9K-C9348GC-FX3 N9K-C9348GC-FX3 N9K-C93180YC-EX N9K-C93180YC-EX N9K-C93180YC-EX N9K-C93180YC-EX N9K-C93180YC-FX N9K-C9318 C93360YC-FX2 N9K-C93180YC-FX2 N9K-C93180YC-FX3 N9K-C93180YC N9K-C9508 N9K-C9516 N9K-C9408 N9K-C9804 N9K-C9808 Note: The Cisco Nexus 9000 Series switches support static routes, switch virtual interfaces (SVIs), and Hot Standby Router Protocol (HSRP) by default without any license. Table 5. PIDs for Subscription Tier-Based Licenses for DCN (ACI+NX-OS) (Cisco Nexus 9000 Series Switches - Fixed Platforms) License 1G Fixed Platforms (GF) 10G/25G/40G/100G Fixed Platforms (XF) 10G/25G/40G/10G 7Y Advantage package C1A1TN9300GF-3Y C1A1TN9300GF-5Y C1A1TN9300XF-5Y C1A1TN930 C1P1TN9300XF2-3Y C1P1TN9300XF2-5Y C1P1TN9300XF2-7Y Add-On Licenses NDB C1-N9K-NDB-3Y C1-N9K-NDB-5Y C1-N9K-NDB-5Y C1-N9K-NDB-7Y C C1-N9K-SEC-XF-7Y C1-N9K-SEC-XF-3Y C1-N9K-SEC-XF-5Y C1-N9K-SEC-XF-7Y Not supported C1-N9K-STRG-XF-5Y C1-N9K-STRG-XF-5Y C1-N9K-STRG-XF-7Y Not supported C1-N9K-STRG-XF-5Y C1-N9K feature. *Security add on license is mandatory for N9K-C9348D-GX2A platform. This platform is targeted for use cases that require MACSec on all ports. # Sync-E add-on licenses are applicable only for Cisco Nexus 9300-FX3 platforms. Table 6. PIDs for Subscription Tier-Based Licenses for DCN (ACI+NX-OS) (Cisco Nexus 9000 Series Switches - Modular Platforms) License 4-Slot Modular Platforms 8- to 16-Slot Modular Platforms 8-Slot Distributed Modular Platforms 8-Slot Distributed Modular Platforms 8-Slot Centralized Modular Platforms 8-Slot Distributed Modular C1E1TN9500M816-7Y C1E1TN9800M8-3Y C1E1TN9800M4-3Y C1A1TN9500M816-7Y C1A1TN9800M8-3Y C1A1TN9800M8-5Y C1A1TN9800M8-7Y C1A1TN9400CM8-3Y C1A1TN9400CM8-5Y C1A1TN9400CM8-7Y C1A1TN9800M4-7Y Premier package7 C1P1TN9500M4-3Y C1P1TN9500M4-5Y C1P1TN9500M4-7Y C1P1TN9500M4-7Y C1P1TN9500M4-7Y C1P1TN9500M8-5Y C1A1TN9800M4-5Y C1A1TN9800M4 C1P1TN9500M816-7Y C1P1TN9800M8-3Y C1P1TN9800M8-5Y C1P1TN9800M8-7Y C1P1TN9400CM8-3Y C1P1TN9400CM8-5Y C1P1TN9400CM8-7Y C1P1TN9800M4-5Y C1P1TN9800M4-7Y Add-On Licenses NDB C1-N9K-NDB-M4-3Y C1-N9K-NDB-M4-5Y C1-N9K-NDB-M4-7Y C1-N9K-NDB-M4-7Y C1-N9K-NDB-M816-3Y C1-N9K-NDB-M816-5Y C1-N9K-NDB-M4-5Y N9K-NDB-M816-7Y Security C1-N9K-SEC-M-3Y C1-N9K-SE N9K-STRG-M-5Y C1-N9K-STRG-M-7Y C1-N9K-STRG-M-3Y C1-N9K-STRG-M-5Y C1-N9K-STRG-M-7Y 7 The ACI Premier license package includes the ACI Essentials and ACI Advantage license packages.

Table 7. PIDs for Perpetual Tier-Based Licenses for DCN (ACI+NX-OS) (Cisco Nexus 9000 Series Switches) License 1G Fixed Platforms (XF) Cisco Nexus 9364C and 9300-GX Platforms (XF) Cisco Nexus 9364C and

Slot Modular Platforms 8-Slot Distributed Modular Platforms 8-Slot Centralized Modular Platforms 4-Slot Distributed Modular Platforms Advantage package NXOS-AD-M4 NXOS-AD-M8-16 NXOS-AD-DM8 Perpetual Tier-Based Licenses for NX-OS (Cisco Nexus 9000 Series Switches - Modular Platforms) License 4-Slot Modular Platforms 8- to 16 NXOS-AD-CM8 NXOS-AD-DM4 Add-On Licenses NDB NDB-MODM-SWT-K9 NDB-MODL-SWT-K9 Security ACI-SEC-XM ACI-SE NX-OS Supported Upgrade Licenses (Cisco Nexus 9000 Series Switches) Upgrade License Description NXOS-UPG-L-AD-XF= NX-OS Upgrade License: Essentials to Advantage (10G+ platforms) NXOS-UPG-L-AD-XF2= NX-OS Upgrade License: license. Table 10. LAN to Advantage (XF2 platforms) NXOS-UPG-ES-ADXF2 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-L-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: LAN to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-L-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-L-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UPG-ES-AD-M4 = NX-OS Upgrade License: Essentials to Advantage (modular 4-slot) NXOS-UP LAN to Advantage (modular 8- to 16-slot) NXOS-UPG-ES-AD-M8= NX-OS Upgrade License: Essentials to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (10G+ platforms) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-UPG-L-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-UPG-L-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-UPG-L-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-UPG-L-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-UPG-L-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-UPG-L-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to Advantage (modular 8- to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to 16-slot) NXOS-ACI-UP-AD-XF= NX-OS Upgrade License: LAN to 16-slot) NXOS-ACI-UP Upgrade License (10G+ Platforms) ACI-UPG-ES-AD-GF= ACI Upgrade License: Ess To Adv (1G Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-ES-AD-GF= ACI Upgrade License: Ess to Adv (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-ES-AD-GF= ACI Upgrade License: Ess to Adv (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-ES-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-ES-AD-GF= ACI Upgrade License: Ess to Adv (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-ES-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-ES-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Platforms) ACI-UPG-B-AD-GF= ACI Upgrade License: Base To Advantage (10G+ Pla AD-XF2 = ACI Upgrade License: Base To Advantage (XF2 10G+ Platforms) ACI-UPG-ES-AD-XF2 = ACI Upgrade Licenses are supported for some Cisco Nexus 3000 Series switches. The -XM licenses apply to modular switches, the -XF licenses apply to switches with less than 6.4 Tbps, and the -XF2 licenses apply to switches with more than 6.4 Tbps. The -XF2 licenses apply to switches with more than 6.4 Tbps. The -XF2 licenses apply to switches with more than 6.4 Tbps. shows as unused (in the output of the show license usage command), and the features become checked out from the -XF2 license. The Advantage licenses to have priority over the Essentials licenses. Table 11. PIDs for Subscription Tier-Based Licenses for NX-OS (Cisco Nexus 3000 Series Switches) License PID Essentials package18 N3K-ES-XF-3Y N3K-ES-XF-5Y N3K-ES-XF2-3Y N3K-ES-XF2-5Y N3K-ES-XM-3Y N3K-ES-XM-PIDs for Perpetual Tier-Based Licenses for NX-OS (Cisco Nexus 3000 Series Switches) License PID Advantage package N3K-AD-XF C3432D-S: N3K-ES-XF2-3Y and N3K-ES-XF2-5Y Table 12. the entire physical device. Therefore, you only require one copy of the license for a device.

A license only supports the listed features.

Licenses may be specific to a particular hardware platform. These are legacy licenses and no longer sold. Any feature that is not included in a license package is bundled with the Cisco NX-OS software and is provided at no extra charge to you. Note: For specific implementation of features, see the Release Notes document and configuration guides for the Cisco Nexus 9000 Series switches. Note: The Cisco Nexus 9000 Series switches support static routes, switch virtual interfaces (SVIs), and Hot Standby Router Protocol (HSRP) by default (without any license). The licenses are independent of each other.

If you want to use features that are covered by different licenses, you must install all the appropriate licenses. The following table lists the feature-based license packages for the Cisco Nexus 9200, 9300-EX, 9300-EX, 9300-FX/FX2/FX3/FXP, and 9500 switches) in Cisco NX-OS mode. Note: In the CCW tool, these licenses are described as legacy NX-OS software licenses.

Table 13.Feature-Based Licenses for the Cisco Nexus 9000 Series in Cisco NX-OS Mode Feature License Product ID Feature Name Enterprise Services Package LAN_ENTERPRISE_SERVICES_PKG N95-LAN1K9 (for Cisco Nexus 9500 Series switches) N93-1G-LAN1K9 (for the Cisco Nexus N9K-C9348GC-FXP switch) N93-LAN1K9 (for Cisco Nexus 9200, 9300-EX, and 9300-FX/FX2 Series switches, except the Cisco Nexus N9K-C9348GC-FXP switch) N93-LAN1K9 (for Cisco Nexus 9364C and 9300-GX switches)N93-LAN1K9 (for Cisco Nexus 9500 Series switches) N93-1G-LAN1K9 (for Cisco Nexus N9K-C9348GC-FXP switch) N93-LAN1K9 (for Cisco Nexus 9364C and 9300-GX switches)Nexus 9200, 9300, 9300-EX, and 9300-FX/FX2 Series switches, except the Cisco Nexus N9K-C9348GC-FXP switch) N93-LAN1K9-XF2 (for the Cisco Nexus 9364C and 9300-GX switches)Open Shortest Path First (OSPF) ProtocolIntermediate System-to-Intermediate System (IS-IS) Protocol (Layer 3 only)NorthoryProtocol Independent Multicast (PIM), which includes sparse mode, bidirectional mode, and Source Specific Multicast (SSM) modeMulticast Source Discovery Protocol (MSDP)Enhanced Interior Gateway Routing Protocol (EIGRP)VRF route leakingVXLAN BGP EVPNNon-blocking multicast (NBM) - for the IP fabric for media solution. Note:The IP fabric for media solution also requires the N93-LAN1K9 or N95-LAN1K9 interAS option BLayer 3 EVPN over segment routing MPLSNextNon-blocking multicast (NBM) - for the IP fabric for media solution also requires the N93-LAN1K9 or N95-LAN1K9 interAS option BLayer 3 EVPN over segment routing MPLS

MPLS Layer 3 VPN · Pervasive Load Balancing (PLB) · Tenant Routed Multicast · VXLAN EVPN Multi-Site · Enhanced PBR (EPBR) Network Services Package NETWORK_SERVICES1K9 N93-SERVICES1K9 · iCAM · Intelligent Traffic Director (ITD) · Non-blocking multicast (NBM) - for the IP fabric for media solution. Note: The IP fabric for media solution also requires the N93-LAN1K9 or N95-LAN1K9 icense for multicast. · Smart channel Note: Beginning with Cisco Nexus NX-OS 9.3(5), Catena is no longer available. However, Catena is available with the Essentials license package of earlier release. FCoE NPV Package FCOE_NPV_PKG N95-FNPV1K9 N93-FNPV1K9 N93-FNPV1K9 FCoE NPV Note: The N93-16Y-SSK9 and N93-48Y-SSK9 licenses also support FCoE NPV. If you install one of these licenses (rather than N95-FNPV1K9), the show license command does not show FCoE NPV in the output. For more information, see the Cisco Nexus 9000 Series NX-OS FC-NPV and FCoE-NPV Configuration Guide.

SAN Switching Package SAN_ENTERPRISE_PKG and FC Port Package FC_PORT_ACTIVATION_PKG N93-16Y-SSK9 (up to 16 ports) N93-48Y-SSK9 (all 48 ports) SAN switching, FC NPV, or FCoE NPV Note: SAN switching Configuration Guide and the Cisco Nexus 9000 Series NX-OS SAN Switching Configuration Guide and the Cisco Nexus 9000 Series NX-OS SAN Switching Configuration Guide and the Cisco Nexus 9000 Series NX-OS SAN Switching Configuration Guide and the Cisco Nexus 9000 Series NX-OS SAN Switching Configuration Guide and the Cisco Nexus 9000 Series NX-OS SAN Switching Configuration Guide and the Cisco Nexus 9000 Series NX-OS SAN Switching Configuration Guide and the Cisco Nexus 9000 Series NX-OS Sec-XF** Macsee Note: Cisco Nexus 9000 Series NX-OS Sec-XF** Macsee Note: Cisco Nexus 9308TC-X24P-UPG= 24-port upgrade license for Cisco Nexus 93108TC-X24 and 93180YC-X24 switches. *The 24-port licenses are hardware licenses. They are independent of any Cisco Nexus 7000 switches and Cisco Nexus 7000 switches and Cisco Nexus 7000 switches. Table 14. Feature-Based License for the Cisco Nexus 7000 Series, which includes Cisco Nexus 7000 switches. Table 14. Feature-Based License for the Cisco Nexus 7000 Series, which includes Cisco Nexus 7000 switches. Table 14. Feature-Based License for the Cisco Nexus 7000 Series, which includes Cisco Nexus 7000 Switches. Table 14. Feature-Based License for the Cisco Nexus 7000 Series, Services Package LAN_ENTERPRISE_SERVICES_PKG N7K-LAN1K9 N77-LAN1K9 N77-LAN1K9 N77-LAN1K9 N77-LAN1K9 N77-LAN1K9 N77-LAN1K9 N77-LAN1K9 N77-LAN

If you require an additional VDC, buy another license (N7K-VDC1K9) which in turn, provides another four VDCs. For Nexus 7700 Series, a single ADV license provides five non-admin VDC. If you require an additional VDC, buy another license (N77-VDC1K9) which in turn, provides another four VDCs. Transport Services Package LAN TRANSPORT SERVICES PKG N7K-TRS1K9 Overlay Transport Virtualization (OTV) Scalable Services Package SCALABLE SERVICES PKG N7K-C7009-XL N7K-C7009-XL N7K-C7010-XL N7K-C7000-XL N7K-C7010-XL N7K-C7000-XL N7K-C7010-XL N7K-C7010the following features: IPv4 routes IPv6 routes ACL entries Enhanced Layer 2 Package ENHANCED LAYER2_PKG N7K-EL21K9 FabricPath support on the F Series module Remote Integrated Service Engine (RISE) Intelligent Traffic Director (ITD) Intelligent CAM Analytics and Machine Learning (iCAM) MPLS Services Package MPLS PKG N7K-MPLS1K9 Multiprotocol Label Switching (MPLS) Layer 2 Virtual Private Network (VPN) Layer 2 Ethernet over MPLS (EoMPLS) Layer 2 Virtual Private LAN Services (VPLS) ACI WAN Interconnect Storage Enterprise Package STORAGE-ENT N7K-SAN1K9 Inter-VSAN routing (IVR) over Fibre Channel and FCoE IVR Network Address Translation (NAT) over Fibre Channel VSAN-based Access Control Fabric Binding for Open Systems The following table lists the feature-based license packages for the Cisco Nexus 6000 Series switches. Table 15. Feature-Based Licenses for the Cisco Nexus 6000 Series Feature License Product ID Feature Name FabricPath Services Package ENHANCED_LAYER2_PKG N6001-EL2-SSK9 N6004-EL2-SSK9 FabricPath FCoE NPV Package FCOE_NPV_PKG N6K-FNPV-SSK9 FCoE NPV Layer 3 Base Services Package LAN_BASE_SERVICES_PKG20 21 N6K-BAS1K9 · Unlimited static routes and a maximum of 256 dynamic routes. Static routes · IGMP v2/v3 · PIMv2 (sparse mode) · VRF Lite · Routed ACL · NAT Layer 3 Enterprise Services Package LAN_ENTERPRISE_SERVICES_PKG 24 25 N6001-LAN1K9 N6004-LAN1K9 N6004-LAN1K9 / N6004-LAN1K9 (includes the following OSPFv2 and OSPFv3 · EIGRP Stub · HSRP22 · VRRP23 · $PBR \cdot$ PIMv2 (all modes) · L3 IS-IS 26 · uRPF · MSDP · Sampled NetFlow · Intelligent Traffic Director (ITD) Network Services Package NETWORK SERVICES PKG N6K-SERVICES1K927 Remote Integrated Services Engine features in addition to the ones under N6K-BAS1K9 license). BGP · Full EIGRP · (RISE) Intelligent Traffic Director (ITD) Storage Protocols Services Package FC_FEATURES_PKG ENTERPRISE_PKG N6001-16P-SSK9 N6004-12Q-SSK9 N6K-16P-SSK928 N6K-20P-SSK929 N6001-64P-SSK9 N6004-96Q-SSK9 · Native Fibre Channel · FC NPV · FC Port Security · Fibre Channel Security Protocol (FC-SP) Authentication VM-FEX Package N6K-VMFEXK9 VM-FEX 20 The LAN BASE SERVICES PKG gives unlimited static routes across all the protocols. 21 Routes above 256 for all protocols are included in the LAN ENTERPRISE SERVICES PKG license. 22 Although this feature can be enabled and configured in the CLI without this license, it will not function until the license is installed. When you configure HSRP in a virtual port channel (vPC) on the Cisco Nexus 6000 platform without installing the LAN_BASE_SERVICES PKG license, it sends an HSRP hello message to the link-local multicast address and enables the Active-Active state. 23 Although this feature can be enabled and configured in the CLI without this license, it will not function until the license is installed.

24 The LAN_BASE_SERVICES_PKG license should be installed in order to use the LAN_ENTERPRISE_SERVICES_PKG license. 25 Routes above 256 for all the protocols included in the LAN_ENTERPRISE_SERVICES_PKG license. 26 L3 IS-IS will be available starting with the Cisco NX-OS Release 7.0(1)N1(1). 27 N6K-SERVICES1K9 is available from Cisco NX-OS Release 7.2(0)N1(1). To use RISE and ITD features with Cisco NX-OS Release 7.1(1)N1(1), use the ENHANCED_LAYER2_PKG license. 28 These licenses are applicable to Cisco Nexus 6004 20 UP LEM only. 29 These licenses are applicable to Cisco Nexus 6004 20 UP LEM only. The following table lists the feature-based license packages for the Cisco Nexus 5600 Series switches. Table 16. Feature-Based Licenses for the Cisco Nexus 5600 Series Feature License Product ID Feature Name FabricPath Services Package ENHANCED_LAYER2_PKG N5672-EL2-SSK9 N56128-EL2-SSK9 N5624Q-EL2-SSK9 N5648Q-EL2-SSK9 N5648Q-EL2-SSK9 Foe NPV Package LAN_BASE_SERVICES_PKG 30 N56-BAS1K9 Layer 3 Base Services Package LAN_BASE_SERVICES_PKG 30 N56-BAS1K9 Layer 3 Base Services Package LAN_BASE_SERVICES_PKG 30 N56-BAS1K9 Layer 3 Base Services Package Unlimited static routes and maximum of 256 dynamic routes of RIPV2 · OSPFv2 and OSPFv3 · EIGRP Stub · HSRP 31 · VRRP32 · IGMP v2/v3 · IGMP v2

Routed ACL NAT Layer 3 Enterprise Services Package LAN_ENTERPRISE_SERVICES_PKG3334 N56-LAN1K9 Layer 3 Enterprise Services Package The N56-LAN1K9 license includes the following features in addition to the ones under the N56-BAS1K9 license. VRF Lite \cdot PIMv2 (sparse mode) · BGP · Full EIGRE L3 IS-IS35 · uRPF · $MSDP \cdot$ Sampled NetFlow · VxLAN Flood and Learn36 · VxLAN EVPN37 · Intelligent Traffic Director (ITD) Network Services Package NETWORK_SERVICES_PKG N56-SERVICES1K938 Remote Integrated Services Engine (RISE) Intelligent Traffic Director (ITD) Storage PIMv2 (all modes) · Protocols Services Package FC FEATURES PKG ENTERPRISE PKG N56-16p-SSK9 N56-12P-SSK9 N56-12P-SSK9 N56-12P-SSK9 N56-12P-SSK9 N56-4Q-SSK9 N56-4Q-SSK9 N56-4Q-SSK9 N56-4Q-SSK9 N56-4Q-SSK9 N56-4Q-SSK9 N56-4Q-SSK9 N56-12P-SSK9 N56-4Q-SSK9 N56-4Q Authentication VM-FEX Package N56-VMFEX9 VM-FEX 30 The LAN BASE SERVICES PKG gives unlimited static routes and a maximum of 256 dynamic routes and a maximum of 256 dynamic routes across all the protocols. 31 Although this feature can be enabled and configured in the CLI without this license, it will not function until the license is installed. 32 Although this feature can be enabled and configured in the CLI without this license, it will not function until the license is installed. 33 The LAN BASE SERVICES PKG license. 34 Routes above 256 for all the protocols included in the LAN ENTERPRISE SERVICES PKG license. 35 L3 IS-IS will be installed. available starting with the Cisco NX-OS Release 7.0(1)N1(1). 36 VXLAN Flood and Learn is supported from Cisco NX-OS Release 7.1(0)N1(1), VXLAN Flood and Learn will require the LAN BASE SERVICES PKG license. From Cisco NX-OS Release 7.2(1)N1(1), VXLAN Flood and Learn will require the LAN BASE SERVICES PKG license. license and the LAN_ENTERPRISE_SERVICES_PKG license only. 37 VXLAN EVPN is supported from Cisco NX-OS Release 7.3(0)N1(1) and will require the LAN_BASE_SERVICES_PKG license. 38 N56-SERVICES1K9 is available from Cisco NX-OS Release 7.2(0)N1(1). To use RISE and ITD features with Cisco NX-OS Release 7.1(1)N1(1), use the ENHANCED LAYER2 PKG license. 39 This license is applicable to Cisco Nexus 5696 20 Port UP LEM only. The prefix of the Product ID number indicates the platform for which the license applies. For example, N5548 indicates that the license is for the Cisco Nexus 5548 switch only, and N5K indicates that the license is for all Cisco Nexus 5000 Series switches. The following table lists the feature-based license packages for the Cisco Nexus 5000 Series and Cisco 5500 Series Platform. Table 17. Feature-Based Licenses for the Cisco Nexus 5000 and Nexus 5500 Series Feature License Product ID Features FabricPath Services Package ENHANCED LAYER2 PKG N5548-EL2-SSK9 N5596-EL2-SSK9 FabricPath FCoE NPV PKG N5010-FNPV-SSK9 N5548-FNPV-SSK9 N5596-FNPV-SSK9 FCoE NPV Layer 3 Base Services Package LAN BASE SERVICES PKG41 N55-BAS1K9 Layer 3 Base Services Package Unlimited static routes and a maximum of 256 dynamic routes · Static Routes · RIPv2 · OSPFv2 and OSPFv3 · EIGRP Stub · HSRP 42 · VRRP 43 · IGMP v_2/v_3 · PIMv2 (sparse mode) · VRF Lite · Routed ACL Laver 3 Enterprise Services Package LAN_ENTERPRISE_SERVICES_PKG 44 45 N55-LAN1K9 Layer 3 Enterprise Services Package N55-LAN1K9 includes the following features in addition to the ones under the N55-BAS1K9 license. BGP · PBR · PIMv2 (all modes) · Full EIGRP · $uRPF \cdot$ Intelligent Traffic Director (ITD) Network Services Package $MSDP \cdot$ NETWORK_SERVICES_PKG N55-SERVICES1K946 Remote Integrated Services Engine (RISE) Intelligent Traffic Director (ITD)47 Storage Protocols Services Package FC_FEATURES_PKG N5010-SSK9 N5020-SSK9 N55-48P-SSK9 N55-48P-SS $NPV \cdot$ FC Port Security · Fibre Channel Security Protocol (FC-SP) Authentication VM-FEX Package N55-VMFEXK9 VM-FEX 41 The LAN BASE SERVICES PKG gives unlimited static routes and a maximum of 256 dynamic routes across all the protocols. 42 Although this feature can be enabled and configured in the CLI without this license, it will not function Binding until the license is installed. 43 Although this feature can be enabled and configured in the CLI without this license, it will not function until the license is installed. 44 The LAN BASE SERVICES PKG license should be installed to use the LAN ENTERPRISE SERVICES PKG license. LAN ENTERPRISE SERVICES PKG license. 46 N55-SERVICES 1K9 is available from Cisco NX-OS Release 7.2(0)N1(1), use the LAN ENTERPRISE SERVICES PKG license. 47 Starting NXOS 7.2(0)N1(1), LAN ENTERPRISE SERVICES PKG package does not contain ITD license

You need to install NETWORK_SERVICES_PKG package for ITD. The following table lists the feature-based license packages for the Cisco Nexus 4000 Series. Table 18. Feature-Based Licenses Product ID Features Basic Storage Services Package IAN_ENTERPRISE_SERVICES_PKG N3K-LAN1K9 BGP EIGRP IS-IS OSPFv2 and OSPFv3 PIM VRP. Faite VXLAN VPN Fabric License Sort to SAS-FAB1K9 InterAs option B MPLS Layer 3 VPN The following table lists the feature-based licenses for the Cisco Nexus 3600 Platform switches. Table 19. Feature-Based Licenses for the Cisco Nexus 3600 Platform Switches Feature License Product ID Features Layer 3 Enterprise Services Package 14P LIC PKG N3K-LAN1K9 BGP Series Switches Feature License Product ID Features 24P Port License Package 24P LIC 24-port License for the Cisco Nexus 3500 Algo Boost License for the Cisco Nexus 3500 Algo Boost License Warp Mode Warp SPAN Static NAT Layer 3 Base Services Package 24P LOP FKG N3548-24P-LIC 24-port Ligner Bervices Package 14N IASE_SERVICES_PKG N3548-ALGK9 Cisco Nexus 3500 Algo Boost License Warp Mode Warp SPAN Static NAT Layer 3 Base Services Package Cisco Nexus 3500 Algo Boost License Warp Mode Warp SPAN Static NAT Layer 3 Base Services Package LAN IASE_SERVICES_PKG N3548-LAN1K9 Layer 3 Enterprise Services Package 16D Features Services Package 16D Features Services Package 14N IASE_SERVICES_PKG 48 N3524-LAN1K9 Layer 3 Enterprise Services Package for Cisco Nexus 3524 Series switches BGP PBR VRF-Lite (IP-VPN) This license requires the Base Services Package LAN_ENTERPRISE_SERVICES_PKG for both Cisco Nexus 3524 and 3548 Platform switches. 49 For Cisco Nexus 3500 Series switches. 49 For Cisco Nexus 3524 and 3548 Platform switches. 49 For Cisco Nexus 3540 Series switches. 49 For Cisco Nexus 3540 Series switches. 49 For Cisco Nexus 3544 Provide PIM Layer 3 Enterprise Services Package LAN_ENTERPRISE_SERVICES_PKG for both Cisco Nexus 3544 Platform switches. 49 For Cisco Nexus 3544 PMC Series Package LAN_ENTERPRISE_SERVICES_PKG for both Cisco Nexus 3544 PMC Series Services

Table 21. Feature-Based Licenses for the Cisco Nexus 3000 Series Feature License Product ID Features 16 Port License Upgrade Package 16P_UPG_PKG N3K-16T-UPG 16-port upgrade license for Cisco Nexus 3172TQ switches. This is the upgrade license to enable 16 ports, and it can only be applied to N3K-C3172TQ-32T. 32 Port License Package 32P_LIC_PKG N3K-32X-LIC Default 32-port license for Cisco Nexus 3172TQ switches. 16 Port License Upgrade Package 16P_UPG_PKG N3064T-16T-UPG 16-port upgrade license for Cisco Nexus 3164T switch. 32 Port License Package 32P_LIC_PKG N3064T-32T-LIC 32-port license for Cisco Nexus 3164T switch. Layer 3 Base Services Package 16P_UPG_PKG N3K-BAS1K9 · EIGRP stub · OSPFv2 (limited routes) · PIMv2 (sparse mode) Note: Only the Cisco Nexus 3016, 3048, 3064, 3132Q, 313

unsupported licenses.

Module-based Licenses Module-based licenses make features available to one module on the physical device, so you need one copy of the license only supports the listed features. Licenses may be specific to a particular hardware platform or module. Any feature not included in a Module-Based Licenses for the Cisco Nexus 7000 Series Module License license package is bundled with the Cisco NX-OS software and is provided at no extra charge to you. This table lists the module license packages for the Cisco Nexus 7000 Series, which includes Cisco Nexus 7000 switches and Cisco Nexus 7700 switches. Table 22. Product ID Features FCoE Services Package (FCOE PKG) N7K-FCOE-F132XP= Fibre Channel over Ethernet (FCoE) for Cisco Nexus 7000 48-port 10G SFP+ (F2) N77-FCOE-F248XP Fibre Channel over Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (SFP+) FCoE F312FQ Fibre Channel over Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) for Cisco Nexus 7000 F3 Series 12-port 40-Gigabit Ethernet (FCoE) f3 Series 1 Cisco Nexus 7000 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7700 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for licenses are independent of each other. If you want to use features that are covered by different licenses, you must install all appropriate licenses, you must install both the Enterprise Services Package license and the Advanced Services Package license. Bundle/Chassisbased Licenses Bundle/Chassis-based licensing makes the Fibre Channel over Ethernet (FCoE) feature available for all supported by that chassis. Note: Bundle/Chassis-based licensing is not supported for the Cisco Nexus 7000 series. This table lists the bundle/chassis-based licenses for the Cisco Nexus 7700 Series. Table 23. Bundle/Chassis-Based Licenses for the Cisco Nexus 7700 Series Bundle/Chassis Product ID Features N7706-FCOE-10G= N77-FCOE-F248XP Fibre Channel over Ethernet (FCoE) for Cisco Nexus 7706 F2 Series 48-port 10-Gigabit Ethernet SFP+ Module (Maximum of 4 modules) N77-FCOE-F348XP Fibre Channel over Ethernet (FCoE) for Cisco Nexus 7706 F3 Series 48-port 10-Gigabit Ethernet SFP+ Module (Maximum of 8 modules) N77-FCOE-F248XP Fibre Channel over Ethernet (FCoE) for Cisco Nexus 7706 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7706 F3 Series 48-port 10-Gigabit Ethernet SFP+ Module (Maximum of 8 modules) N77-FCOE-F348XP Fibre Channel over Ethernet (FCoE) for Cisco Nexus 7706 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7706 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7706 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7706 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for Cisco Nexus 7706 F3 Series 48-port 10-Gigabit Ethernet (FCoE) for 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Honor mode licensing allows you to enable or continue using a feature without having a valid license for that feature. In such a syslog is generated once every 7 days until you acquire the requires LAN_ENTERPRISE_SERVICES PKG license is not installed. System supports honor based licensing so feature will continue to be fully functional. Use 'show license usage ' to find features using missing license.

Licensing Terminology The following terms are used in this document: Licensed feature Permission to use a particular feature through a license file, a hardware object, or a legal contract. This permission is limited to the number of users, number of instances, time span, and the implemented device. Licensed application A software feature that requires a license to be used. License enforcement A mechanism that prevents a feature from being used without first obtaining a license. Node-locked license A license that can only be used on a particular device using the device's unique host ID. Host IDs A unique chassis serial number that is specific to each device.

Software license claim certificate A document entitling its rightful owner to use licensed features on one device as described in that document. Product Authorization Key (PAK) The PAK allows you to obtain a license key from one of the sites listed in the software license claim certificate document. After registering at the specified website, you will receive your license key file and installation instructions through e-mail. License key file A device-specific unique file that specifies the licensed features. Each file contains digital signatures to prevent tampering and modification. License keys are required to use a license file can be deleted from bootflash as the license is copied to the internal file system. If the internal file system becomes corrupted or a supervisor module is replaced after you have installed a license, the license shows as missing although the feature continues to work. In this case, copy the license file (.lic) into bootflash and reinstall it as soon as possible. Evaluation license A temporary license.

Evaluation licenses are time bound (valid for a specified number of days) and are tied to a host ID (device serial number). Note: Temporary licenses with an expiry date are available for evaluation and lab use purposes. They are strictly not allowed to be used in production. Please use a permanent or subscription license that has been purchased through Cisco for production purposes. Permanent license A license that is not time bound is called a permanent license. Grace period The amount of time the features in a license package can continue functioning without a license. Support If you purchased Cisco support through a Cisco reseller, contact the reseller directly. If you purchased support directly from Cisco, contact Cisco Technical Support at this URL: support/tsd_cisco_worldwide_contacts.html Licensing Virtualization Support On the Cisco Nexus 7000 Series, you install and manage licenses on the physical device in the default virtual device context (VDC 1). Licenses apply to features in all VDCs and Virtual Routing and Forwarding instances (VRFs) on the physical device. You do not need to obtain a separate license for each VDC or VRF. For more information on VDCs, see the Cisco Nexus 7000 Series NX-OS Virtual Device Context Configuration Guide.

Licensing High Availability As with other Cisco NX-OS features, the licensing feature also maintains the following high-availability standards: • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license in the device is a nondisruptive process. • Installing any license is a nondisruptive process. • Installi

C1P1TN9500M4-3Y C1P1TN9500M4-5Y C1P1TN9500M816-3Y C1P1TN9500M816-5Y (not ACI) Cisco Nexus NX-OS Release 9.3(5) Introduced for the Cisco Nexus NX-OS Release 9.3(5) Introduced for the Cisco Nexus NX-OS Release 9.3(5) Introduced for the Cisco Nexus NX-OS Release 9.3(5) Introduced Synchronous Ethernet (SyncE) add-on license for the Cisco Nexus 93180YC-FX3S platform switch. ACI-SEC-XF license Cisco Nexus NX-OS Release 9.3(5) Added support for Secure VXLAN EVPN Multi-Site using CloudSec licensing support is available with the ACI-SEC-XF license.

Note For Cisco Nexus NX-OS Release 9.3(5), Secure VXLAN EVPN Multi-Site using CloudSec is supported only on Cisco Nexus 9300-FX2 platform switches, ACI-STRG-XF-3Y, and C1-N9K-STRG-XF-5Y licenses Cisco Nexus NX-OS Release 9.3(3) Introduced for the Cisco Nexus 93180YC-FX platform switches. ACI-STRG, C1-N9K-STRG-XF-5Y licenses Cisco Nexus NX-OS Release 9.3(3) Added support for the Cisco Nexus 3408-S and 3432D-S switches.

N93-LAN1K9-XF2 license Cisco Nexus NX-OS Release 9.3(3) Introduced for the Cisco Nexus 9300-GX switches. NX-OS Advantage license Cisco Nexus 3132Q (excluding the 3132Q-40GE), 3172, 3172PQ, 3172TQ, 31128PQ, 3100-V, 3232C, 3264Q, and 3500 switches. Note The Cisco Nexus 3132Q (excluding the 3132Q-40GE), 3172, 3172PQ, and 3172TQ platform switches support the NX-OS Advantage license only when running in N9K mode. You can view the switch mode using the show system switch-mode command. NXOS-ES-XF2 and NXOS-AD-XF2 licenses Cisco Nexus NX-OS Release 9.3(3) Introduced for the Cisco Nexus 9300-GX switches. NXOS-SEC-XF license Cisco Nexus NX-OS Release 9.3(3) Added support for the Cisco Nexus 9300-GX switches. NXOS-SEC-XF license Cisco Nexus NX-OS Release 9.3(3) Added support for the Cisco Nexus 9300-GX switches. NXOS-SEC-XF license Cisco Nexus NX-OS Release 9.3(3) Added support for the Cisco Nexus 9300-GX switches. C1P1TN9300GF-3Y C1P1TN9300XF-3Y C1P1TN9300XF-3Y C1P1TN9300XF-3Y C1P1TN9300XF-3Y C1P1TN9300XF-3Y C1P1TN9300XF-3Y C1P1TN9300XF-5Y C1P1TN93

NX-OS Advantage license Cisco Nexus NX-OS Release 9.3(1) Introduced for the Cisco Nexus 3132C-Z, 3264C-E, 3636C-R, and 36180YC-R switches. NX-OS Release 9.3(1) Introduced for the Cisco Nexus NX-OS Release 9.3(1) Introduced for the Cisco Nexus NX-OS Release 9.3(1) Introduced for the Cisco Nexus NX-OS Release 9.3(1) Recommended that the -XF2 licenses be purchased for Cisco Nexus 9364C switches. NXOS-SEC-XF license Cisco Nexus NX-OS Release 9.3(1) Added support for the Cisco Nexus 9300 Series switches. NXOS Release 9.2(3) Added support for the Cisco Nexus 9300 platform switches. N3K-LAN2K9 license Cisco Nexus NX-OS Release 9.2(3) Added support for the Cisco Nexus 3464C switch. N9K-STR2K9 license Cisco Nexus NX-OS Release 9.2(3) Added support for the Cisco Nexus 3464C switch. N9K-STR2K9 license Cisco Nexus NX-OS Release 9.2(3) Added support for the Cisco Nexus 3464C switch. N9K-STR2K9 license Cisco Nexus NX-OS Release 9.2(3) Added support for the Cisco Nexus 3464C switch. N9K-STR2K9 license Cisco Nexus NX-OS Release 9.2(3) Added support for the Cisco Nexus 3464C switch. N9K-STR2K9 license Cisco Nexus NX-OS Release 9.2(3) Added support for the Cisco Nexus 3464C switch. N9K-STR2K9 license 0.2(3) Added support for the Cisco Nexus 3464C switch. N9K-STR2K9 license 0.2(2) Added support for the Cisco Nexus 3464C switch. N9K-STR2K9 license 0.2(2) Added support for the Cisco Nexus 3464C switch. N9K-STR2K9 license 0.2(2) Added support for the Cisco Nexus 3464C switch. N9K-STR2K9 license 0.2(2) Added support for the Cisco Nexus 3464C switch. N3K-STR2K9 license 0.2(2) Added support for the Cisco Nexus 3464C switch. N3K-STR2K9 lic

Honor Mode Licensing Cisco Nexus NX-OS Release 8.4(1) Cisco Nexus 7000 Series switches. ENHANCED_LAYER2_PKG license on Cisco Nexus 7000 Series switches. N95-FAB1K9 and N3K-FAB1K9 licenses Cisco NX-OS Release 8.2(1) iCAM feature is available under the ENHANCED_LAYER2_PKG license on Cisco Nexus 7000 Series switches. N95-FAB1K9 and N3K-FAB1K9 licenses Cisco NX-OS Release 7.0(3)F3(3) Added support for the InterAS option B and MPLS Layer 3 VPN features. N3K-LAN1K9 license Cisco NX-OS Release 7.0(3)F3(1) Added support for the Cisco Nexus 3600 platform switches. ACI Premier license packages Cisco Nexus NX-OS Release 7.0(3)I7(7) Introduced for the Cisco Nexus 9300 Series switches. NX-OS Essentials and Advantage licenses Cisco Nexus 3000 and 3600 Series switches. NXOS-ES-XF2, NXOS-AD-XF2, and NXOS-NDB licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(6) Introduced for the Cisco Nexus 9364C switches. NXOS-ES-XF2, NXOS-AD-XF2, and NXOS-NDB licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(6) Introduced for the Cisco Nexus 9364C switches. NXOS-ES-XF2, NXOS-AD-XF2, and NXOS-NDB licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(6) Introduced for the Cisco Nexus 9364C switches. NXOS-ES-XF2, NXOS-AD-XF2, and NXOS-NDB licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(6) Introduced for the Cisco Nexus 9364C switches. NXOS-ES-XF2, NXOS-AD-XF2, and NXOS-NDB licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(6) Introduced for the Cisco Nexus 9364C switches. NXOS-ES-XF2, NXOS-AD-XF2, and NXOS-NDB licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(6) Introduced for the Cisco Nexus 9364C switches. NXOS-ES-XF2, NXOS-AD-XF2, and NXOS-NDB licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(6) Introduced for the Cisco Nexus 9364C switches. NXOS-ES-XF2, NXOS-AD-XF2, and NXOS-NDB licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(6) Introduced for the Cisco Nexus 9364C switches. NXOS-ES-XF2, NXOS-AD-XF2, and NXOS-NDB licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(6) Introduced NA PAC NA PA

for the Cisco Nexus 9364C switch. N93-LAN1K9-XF2 license Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(6) Introduced for the Cisco Nexus 9364C switch. NX-OS Essentials and Advantage licenses and NX-OS upgrade licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(2) Added support for the Cisco Nexus 9000 Series Science Sci

N95-FAB1K9 and N93-FAB1K9 licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(1) Added support for the Pervasive Load Balancing, Tenant Routed Multicast, and VXLAN EVPN Multi-Site features. N93-1G-LAN1K9 license Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(1) Added support for the Cisco Nexus N9K-C9348GC-FXP switch. N95-SERVICES1K9 and N93-SERVICES1K9 Cisco Nexus 9000 Series NX-OS Release 7.0(3)I7(1) Added support for the iCAM feature. N3K-FAB1K9, and P000 Series NX-OS Release 7.0(3)I6(1) Added support for the Layer 3 EVPN over segment routing MPLS feature. N95-

SERVICES1K9 and N93-SERVICES1K10 List of Layor 10 List of

N95-LAN1K9 and N93-LAN1K9 licenses Cisco Nexus 9000 Series NX-OS Release 7.0(3)I2(1) Added support for PIM bidirectional mode and Source-Specific Multicast (SSM) mode.

N6K-SERVICES1K9, N56-SERVICES1K9, and N55-SERVICES1K9 Cisco Nexus 5500, 5600, and 6000 Series NX-OS Release 7.2(0)N1(1) Added these licenses to support the Intelligent Traffic Director (ITD) on the Cisco Nexus 9000 Series NX-OS Release 7.0(3)I1(2) Added these licenses to support the Intelligent Traffic Director (ITD) on the Cisco Nexus 9000 Series NX-OS Release 7.0(3)I1(2) Added these licenses to support the Intelligent Traffic Director (ITD) on the Cisco Nexus 9000 Series NX-OS Release 7.0(3)I1(2) Added these licenses to support the Intelligent Traffic Director (ITD) on the Cisco Nexus 9000 Series NX-OS Release 7.0(3)I1(2) Added VXLAN and BGP eVPN control plane support for the Cisco Nexus 9500 and 9300 Series switches. N95-LAN1K9 license Cisco Nexus 7000 Series NX-OS Release 7.2(0)D1(1) Added licenses for FCoE on F3 Series modules. MPLS Cisco Nexus 7000 Series NX-OS Release 7.2(0)D1(1) Added license for MPLS on Cisco Nexus 7000 Series NX-OS Release 7.2(0)D1(1) Added license for MPLS on Cisco Nexus 7000 Series NX-OS Release 7.2(0)D1(1) Added license for MPLS on Cisco Nexus 7000 Series NX-OS Release 7.2(0)D1(1) Added license for MPLS on Cisco Nexus 7000 Series NX-OS Release 7.0(3)I1(2) Added support for the BGP eVPN control plane for the Cisco Nexus 9300 Series switches and the Cisco Nexus 9000 Series NX-OS Release 6.1(2)I3(1) Added support for policy-based routing. N3K-LAN1K9 license Cisco Nexus 9000 Series NX-OS Release 6.1(2)I2(1) Added support for the Cisco Nexus 9000 Series NX-OS Release 6.1(2)I2(1) Added support for the Cisco Nexus 9000 Series NX-OS Release 6.1(2)I2(1) Added support for the Cisco Nexus 9000 Series NX-OS Release 6.1(2)I2(1) Added support for the Cisco Nexus 9000 Series NX-OS Release 6.1(2)I2(1) Added support for the Cisco Nexus 9000 Series NX-OS Release 6.1(2)I2(1) Added support for the Cisco Nexus 9000 Series NX-OS Release 6.1(2)I2(1) Added support for the Cisco Nexus 9000 Series NX-OS Release 6.1(2)I2(1) Added the license for the Cisco Nexus 9000 Series NX-OS Release 6.1(2)I2(1) Added sup

N95-LAN1K9 license Cisco Nexus 9000 Series NX-OS Release 6.1(2)I1(1) Added the license for the Cisco Nexus 9500 Series switches. N77-LAN1K9 license N77-SAN1K9 license Cisco Nexus 7000 Series NX-OS Release 6.2(2) Added licenses for the Cisco Nexus 7718 switch and the Cisco Nexus 7710 switch. Layer 3 Base Services Package Cisco Nexus 3548 Switch NX-OS Release 5.0(3)A1(1) Added the Cisco Nexus 3548 Layer 3 Enterprise Services Package Cisco Nexus 3548 Layer 3 Enterprise Services Package Cisco Nexus 3548 Switch NX-OS Release 5.0(3)A1(1) Added the Cisco Nexus 3548 Switch NX-OS Release 5.0(3)A1(1) Added the new 3500 Algo Boost License. Layer 3 Enterprise Services Package Cisco Nexus 3548 Switch NX-OS Release 5.0(3)A1(1) Added the new 3500 Algo Boost License.

N7K-C7004-XL license Cisco Nexus 7000 Series NX-OS Release 6.1(2) Added the Cisco Nexus 7004 Scalable Feature License.

VDC and FCoE F2 Series Cisco Nexus 7000 Series NX-OS Release 6.1(1) Added licenses for VDCs and FCoE on F2 Series modules. Removed Cisco TrustSec from the Advanced Services Package. MPLS, LISP, and FCoE Cisco Nexus 7000 Series NX-OS Release 5.2(1) Added licenses for the MPLS, LISP, and FCoE features. Grace period Cisco Nexus 7000 Series NX-OS Release 4.2(1) Automatic checkpoints are created for configured licensed features when the grace period expires. Smart Software Licensing for Cisco Nexus 7000 Series Switches Smart Software Licensing Overview Cisco Smart Licensing is a flexible licensing model that provides you with an easier, faster, and more consistent way to purchase and manage software across the Cisco portfolio and across your organization. And it's secure – you control what users can access. With Smart Licensing you get: • Easy Activation: Smart Licensing establishes a pool of software licenses that can be used across the entire organization—no more PAKs (Product Activation Keys). • Unified Management: My Cisco Entitlements (MCE) provides a complete view into all of your Cisco products and services in an easy-to-use portal, so you always know what you have and what you are using. • License Flexibility: Your software is not node-locked to your hardware, so you can easily use and transfer licenses as needed. To use Smart Licensing at Cisco is a legacy licensing model based on Product Activation Keys (PAK) and the service of the control cisco com/go/licensing overview Traditional licensing at Cisco is a legacy licensing model based on Product Activation Keys (PAK) and the control cisco com/go/licensing overview Traditional licensing at Cisco is a legacy licensing model based on Product Activation Keys (PAK) and the control cisco com/go/licensing overview Traditional licensing at Cisco is a legacy licensing model based on Product Activation Keys (PAK) and the control cisco com/go/licensing at Cisco is a legacy licensing model based on Product Activation Keys (PAK) and the control cisco com/go/licensing a

licenses as needed. To use Smart Licensing, you must first set up a Smart Account on Cisco Software Central (software.cisco.com). For a more detailed overview on Cisco Licensing guide. Traditional Licensing Overview Traditional Licensing at Cisco is a legacy licensing model based on Product Activation Keys (PAK) and Unique Device Identifiers (UDI). On most Cisco NX-OS 7000 Series Switches, capacity needs are assessed prior to obtaining and installing a .tar file on switches to retrieve the UDI. Customers place an order for a PAK, and the PAK is emailed to the user. A combination of them. UDI and PAK is used to receive a license file that is installed in the boot directory of the switch to complete the installation of the Cisco NX-OS software. The License Registration Portal (LRP) is available to help migrate traditional licenses.

To access the LRP, obtain training, and manage licenses, go to . You can convert the traditional license to a Smart License \bullet Converting a Traditional License to a Smart License, go to . You can convert the traditional licensing models are used for the Cisco Nexus 7000 Series Switches—traditional licensing and Smart Software Licensing Description Traditional Licenses and Licensing and Smart Software Licensing Models Two types of licensing and Smart Software Licensing Models Two types of licensing and Smart Software Licensing Models Two types of licensing and Smart Software Licensing Description Traditional Licenses to a Smart License \bullet Converting a Traditional License to a Smart License (Licensing and Smart Software Licensing Models Two types of licensing and Smart Software Licensing Models Two types of licenses in the following ways: \bullet Converting a Traditional License to a Smart License \bullet Converting a Traditional License to a Smart License \bullet Converting a Traditional License to a Smart Software Licensing Models Two types of licensing and Smart Software Licensing Models Two types of licenses and Smart Software Licensing Models Two types of licenses in the following ways: \bullet Converting a Traditional License to a Smart License \bullet Converting a Traditional License to a Smart Software Licensing Models Two types of licensing and Smart Software Licensing Models Two types of licenses in Stance note locked to the product registration upon Configuration upon Configuration in the Smart Software Licensing Models Two types of licenses and Smart Software Licensing Models Two types of licenses and Smart Software Licensing Models Two types of licenses and Smart Software Licensing Models Two types of licenses and Smart Software Licensing Models Two types of licenses and Smart Software Licensing Models Two types of licenses to supported the same time on the Cisco Neves You Series Switches. \bullet Smart Software Licensing Models Two types of licenses and Smart Software Licensing Models Two types of licenses and Smart Soft

Smart Call Home is enabled automatically when you configure Smart Software Licensing.

On Cisco Nexus 7000 Series Switches, Smart Software Licensing is not enabled by default. The Smart Call Home (SCH) server runs on the Cisco Smart Software Manager (CSSM) satellite by default.

You can access this service using the following URL: https:///Transportgateway/services/DeviceRequestHandler Provide this URL as part of Smart Call Home configuration works with the CSSM satellite. For a sample configuration, see Configuration Examples for Smart Software Licensing. Smart Call Home creates a CiscoTAC-1 profile. The associated Smart Call Home messages are sent to the Smart Software Manager only after enabling Smart Call Home. For switches in which Smart Call Home. For switches in which Smart Call Home. For switches in which Smart Call Home is also enabled by default, along with the associated messages.

To disable Smart Software Licensing, see Disabling Smart Software Manager Satellite Smart Software Manager satellite application on your premises to provide a subset of the Smart Software Manager functionality. You can download the satellite application on your premises: Additional References for Smart Software Licensing Table 26. Smart Software Licensing Table 26. Smart Software Manager Satellite Smart Software Manager satellite is a component of Smart Software Manager satellite application on your premises: Additional References for Smart Software Licensing Table 26. Smart Software Manager Satellite Smart Software Manager satellite application and tools for troubleshooting and resolving technical issues with Cisco products and technologies.

To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password. License Registration Port (LRP) documentation Feature History for Smart Software Licensing Table 27. Feature History Feature Name Release Feature Information Smart Software Licensing with Satellite 8.4(2) This feature was introduced. Converting a Traditional License to a Smart License—CLI Version 8.2(1) This feature was introduced. Smart Software Licensing 8.0(1) Smart Software Licensing is a standardized licensing platform that simplifies the Cisco software experience and helps you understand how Cisco software is used across your network. Smart Software Licensing is the next generation licensing platform for Cisco Nexus 7000 Series Switches.

The following commands were introduced in this feature: feature license smart \cdot license smart deregister · license smart enable · license smart register · license smart renew · show license all · show license status \cdot show license summary · show license tech support · show license udi \cdot show license usage Smart Software Licensing for Cisco Nexus 3000 and 9000 Series Switches Smart Software Licensing model that provides you with an easier, faster, and more consistent way to purchase and manage software across the Cisco Portfolio and across your organization. And it's secure you control what users can access. With Smart Licensing you get: • Easy Activation: Smart Licensing establishes a pool of software licenses that can be used across the entire organization—no more PAKs (Product Activation Keys). services in an easy-to-use portal, so you always know what you have and what you are using. • License Flexibility: Your software is not node-locked to your hardware, so you can easily use and transfer licenses as needed. To use Smart Licensing, you must first set up a Smart Account on Cisco Software Central (software.cisco.com). For a more detailed overview on Cisco Licensing, go to cisco.com/go/licensingguide. Smart Software Manager The Cisco Smart Software Manager (CSSM) enables the management of software Manager (CSSM) enables the management of software Manager The Cisco Smart Software Manager The Cisco Smart Software Manager The Cisco Smart Software Manager (CSSM) enables the management of software Manager (CSSM) enables the management of software Manager The Cisco Smart Software Manager (CSSM) enables the management of software Manager The Cisco Smart Software Manager (CSSM) enables the management of software Management (CSSM) enables the management (CSSM) enables the management (CSSM) enables the management (CSSM) enab subscription-based licenses, and out-of-compliance licenses. An active Smart account is required to complete the registration process. To access the Smart Software Manager: • Trusted Unique Identifier—This is the device ID [Secure Unique Device Identifier (SUDI)]. • Organizational Identifier—This is a numerical format to associate a product with a Smart account or Virtual account. Licensing and works in conjunction with the Smart Software Manager to manage software licenses. You can intelligently manage product licenses and get near real-time visibility and reports pertaining to the Cisco licenses. You can intelligently manage product licenses and get near real-time visibility and reports pertaining to the Cisco licenses. Software Manager On-Prem will be installed on your premises to provide a subset of the Smart Software Manager functionality. You can download the application, deploy it, and register it with the Smart Software Manager. You can perform the following functions using the application on your premises: • Activate or register a license. • Get visibility to your company's licenses. • Transfer licenses between company entities. To learn more about Smart Accounts and Virtual Acc maintenance of your Cisco software. If you are requesting a Smart account on behalf of an organization, you must have the authority to represent the request, the request goes through an approval process before you are provided with access to your Smart account. Go to to learn about, set up, and manage a Smart account. A virtual account is a subaccount within a Smart account.

You can define the virtual account's structure based on organizational layout, business function, geography, or any defined hierarchy. Virtual accounts can be created and maintained only by Smart account administrators. Smart License Workflow and States The following illustration shows the workflow for Smart licenses: Figure 2. Smart Licensing Workflow Smart Software Licensing supports the following license states: Table 28. Smart License States State Description Unregistered The Smart license is enabled but not connected to the Cisco Smart Software Manager (CSSM). Before you register the switch with the CSSM, Smart Software Licensing automatically enters the evaluation period. The switch remains in evaluation mode for 90 days. Registered The Smart license is enabled and connected to the CSSM. Authorized The switch has the required license. The CSSM has verified that the reported number of licenses purchased for an entitlement. The authorization is valid for 90 days. The switch sends the entitlement request again every 30 days to renew the authorization. Out of Compliance for one of the following reasons: The number of licenses in use exceeds the total number of licenses purchased for an entitlement of licenses purchased for an extended period of time, usually 90 days. The authorization could expire for one of the following reasons: A network issue prevents the renewal of authorization.

An issue occurs with license compliance. Smart Call Home Overview Use the Smart Call Home feature to communicate with the Smart Software Licensing and Smart Call Home are not enabled by default. The Smart Call Home (SCH) server runs on Cisco Smart Software Manager On-Prem by default. You can access this service using the following URL: //Transportgateway/services/DeviceRequestHandler Provide this URL as part of the Smart Call Home configuration so that the device registration works with CSSM On-Prem. For a sample configuration, see the Configuration Examples for Smart Software Manager only after enabling Smart Call Home. Note: You must configuration avoit the Smart Call Home. Note: You must configuration so that the device registration works with CSSM On-Prem. For a sample configuration, see the Configuration Examples for Smart Software Manager only after enabling Smart Call Home. Note: You must configuration avoit the Smart Call Home. Note: You must configure the DNS client and Configuring VRFs to Send Messages. Traditional Licensing and Isease on Product Activation Keys (PAKs) and Unique Device Identifiers (UDIs). On most Cisco NX-OS switches, capacity needs are assessed prior to obtaining and installing a.ter needs to receive a license installation of the Cisco NX-OS switches: Traditional licensing and Smart Software Licensing models are used for the UDI. Customers place an order for a PAK, and the PAK is emailed to the user. The UDI and PAK are used to receive a license installation of the Cisco NX-OS switches: Traditional licensing and Smart Software Licensing Models Two types of Licensing models are used for the Cisco NX-OS switches: traditional licensing and Smart Software Licensing is abaled to the provide the stallation of the Cisco NX-OS softhar

Beginning with Cisco NX-OS Release 9.3(5), when a term license is reserved and its term has expired, the license is still shown as Authorized with the show license is still shown as Authorized with the show license is reserved and its term has expired, the license is still shown as Authorized with the show license is still shown as Authorized with the show license is still shown as Authorized with the show license is still shown as Authorized with the show license is still shown as Authorized with the show license is still shown as Authorized with the show license usage command. In CSSM, alerts will continue and any new licenses from the same pool added to the virtual account are assigned to the reservation.
 Beginning with Cisco NX-OS Release 9.3(5), the conversion of a traditional license to a Smart License using DLC (Device Led Conversion) on Cisco Nexus 3000 and 9000 Series switches, fails when performing additional subsequent Device Led Conversions.

• Converting a traditional license to a Smart License — DLC fails unless licenses are installed in traditional mode (Cisco NX-OS 9.3(5) and later releases) • After converting a traditional license to a Smart License — DLC on a (On-Prem) device, the device does not receive a pass/fail response from the On-Prem Server. Manual synchronization of the On-Prem Server to CSSM might be required to get the return response to the device. (Cisco NX-OS 9.3(5) and later releases) • Beginning with Cisco NX-OS Release 9.3(5), the conversion of a traditional license to a Smart License using DLC (Device Led Conversion) is not supported on Cisco NX-OS 9.3(5) and later releases) • Beginning with Cisco NX-OS Release 9.3(5), the conversion of a traditional license to a Smart License using DLC (Device Led Conversion) is not supported on Cisco NX-OS 9.3(5) and later releases) • Beginning with Cisco NX-OS 9.3(5) and later releases • Cisco NX-OS 9.3(5) and later rel ance is accomplished in the quickest way possible. Typically, this means that license borrowing is from its immediate parent. • An alternative is considered if no licenses are recalculation for optimization is done. The trigger for a completely optimized pool is a device that is potentially receiving OOC. Additional References for Smart Software Licensing Table 30. Technical Assistance Smart Software Licensing using Policy for Cisco Nexus 3000 and 9000 Series Switches (from Cisco NX-OS Release 10.2(1)F onwards) Software Licensing using Policy (SLP) Overview Smart Licensing Using Policy (SLP) is an enhanced version of Smart Licensing, the objective of which is to provide a licensing solution that does not interrupt the operations of your network and to enable a compliance relationship to account for the hardware and software licenses you SLP is supported starting with Cisco NX-OS Release 10.2(1). The primary benefits of this enhanced licensing model are: Seamless day-0 operations: After a license is ordered, no preliminary steps, such as registration or generation of keys, are required unless you use an export-controlled or enforced license. There are no export controlled or enforced licenses on Cisco NX-OS: Devices that run Cisco NX-OS: Devices that run Cisco NX-OS: Devices that run Cisco NX-OS software have a uniform licensing experience. Visibility and manageability: Tools, telemetry, and product tagging to know what in-use is. Flexible, time series reporting to remain compliant: Easy reporting options are available, whether you are directly or indirectly connected to Cisco Smart Licensing, you must first set up a Smart Account on Cisco Software Central (software.cisco.com). For SLP configuration see the Cisco Smart Licensing, you must first set up a Smart Account on Cisco Software Manager (CSSM) or are in an air-gapped network. To use Smart Licensing, you must first set up a Smart Account on Cisco Software Central (software.cisco.com). Using Policy User Guide. For a more detailed overview on Cisco Smart Software Manager (CSSM) is a portal that enables you to manage all your Cisco software licenses from a centralized location. CSSM helps you manage current requirements and review usage trends to plan for future license requirements. You can access the CSSM Web UI at . Navigate to Manage licenses link. See the Supported Topologies section to know about the different ways in which you can connect to CSSM In CSSM you can:
Create and manage Product Instance Registration
Create and manage Product Instance Registration Tokens. • Transfer licenses between virtual accounts or view licenses. • Transfer, remove, or view product instances. • Run reports against your virtual accounts. • Modify your email notification settings. • View overall account information. Cisco Smart License Utility (CSLU) Cisco Smart License Utility (CSLU) is a reporting utility that provides aggregate licensing workflows. This utility performs the following key functions: • Collects usage reports from the product instance and uploads these usage reports to the corresponding Smart Account or Virtual Account, online or offline, using files Similarly, the RUM report ACK is collected online or offline and sent back to the product instance. Sends authorization code requests to CSSM and receives authorization code requests t connected to CSSM. • Install the Windows application to use CSLU as a standalone tool that is disconnected from CSSM. With this option, the required aggerated usage information is downloaded to a file and then uploaded to CSSM. This is suited for air-gapped networks. Smart Software Manager On-Prem (SSM On-Prem) is an asset manager, which works in conjunction with CSSM. It enables you to administer products and licenses on your premises instead of having to directly connect to CSSM. For more information about SSM On-Prem, see Smart Software Manager On-Prem on the Software Download page Smart Accounts and Virtual Accounts A Smart account provides you with a single location for all smart-account enabled products and licenses. It assists you in speedy procurement, deployment, and maintenance of your Cisco software. If you are requesting a Smart account on behalf of an organization, you must have the authority to represent the requesting organization when creating a Smart account. After submitting the request, the request goes through an approval process before you are provided with access to your Smart account. A virtual account is a subaccount within a Smart account. You can define the virtual account's structure based on organizational layout, business function, geography, or any defined hierarchy. Virtual accounts can be created and maintained only by Smart account administrators. Smart License using Policy Deployment Modes The following figure illustrates the deployment modes of SLP. Figure 3. Smart Licensing using Policy deployment modes Supported Deployment Topologies for SLP Smart licensing using policy supports the following deployment topologies. These topologies can be selected by configuring the transport type after the upgrade. The default transport type will depend on the existing setup before migration. • Product instance connected to CSSM through CSLU. This is the default mode for new deployments and upgrades from PAK based licensing. • Product instance connected directly to CSSM • Product instance connected to CSSM and no CSLU and connected to CSSM and no CSLU is not connected to CSSM and no CSLU is not connected to CSSM. This is used for air-gapped networks. uploaded and downloaded files) • Connected to CSSM through (connected) SSM On-Prem. (Instead of performing license management on cloud using CSSM, customers can do this locally using SSM On-Prem.) SLP Greenfield and Brownfield Deployment Workflow From NX-OS 10.2.1 onwards, Smart License using Policy is the only supported way to manage licenses on the NX-OS platform. When you purchase a new device, Cisco recommends providing your Smart Account (SA/VA) information when placing an order to simplify licence management. Cisco will assign all purchases to the respective account. Once devices are delivered, customers can start using them right away and no device registration is required. The devices will periodically report license consumption to CSSM based on set policy. The standard policy is to report once every 365 days or within 90 days of any change in feature consumption. The following illustration shows the new deployment workflow for Smart license using Policy: Figure 4. Deployment workflow for SLP When you migrate to Smart Licensing using Policy, the product instance will continue to operate without any license reporting method is set based on the licensing using Policy (SLP), devices will continue to use CALL HOME transport type for reporting after the upgrade as well. When you migrate from PAK based licenses to Smart Licensing using Policy (SLP), by default, device will look for a CSLU in the local environment to report license usage. These transport settings can be changed by running the command license smart transport {cslu | callhome | smart | off} For SLP configuration details, see Cisco Smart Licensing Using Policy User Guide, Release10.2(x). Comparison between PAK-based Licensing and Smart License using Policy (SLP) Table 31. Comparison: PAK-Based Licensing and SLP Classic / PAK-based Licensing Smart Licensing using Policy (SLP) This is based on Product Activation Keys (PAKs) and Unique Device Identifiers (UDIs). No activation keys are required. You can consume any software feature and license usage reports are sent to CSSM later based on the reporting policy. Product Activation Key (PAK) licensing needs manual registration of each device. Licenses are ready to use without any manual registration. The capacity and feature needs have to be assessed prior to obtaining the license file. PAK is emailed to you after you place an order. No prior assessment is required to use SLP. Licenses are specific to only one devices. Licenses are applicable to multiple devices. Provides a limited view of the used licenses, devices, software, and services. The UDI and PAK are used to receive a license file that is installed in the switch to complete the installation of the Cisco NX-OS software and these licenses are associated with a unique device and any change in license consumption is reported once every 365 days.

Cisco can also set custom policy for customers to change the reporting frequency. Please talk to your Cisco account team to learn more about custom policy.

Comparison between Smart Licensing and Smart Licensing Policy (SLP) Table 32. Comparison: Smart Licensing Smart Smart Licensing Smart Licensin

There is no SLR/PLR license. Licensing is based on policy. Guidelines and Limitations • CSLU-initiated communication/pull mode is not supported in Cisco NX-OS Release 10.2(1). Refer to 'Guidelines and Limitations' section in Cisco Smart Licensing Using Policy User Guide for more details. Additional Documentation Description Link Cisco Smart Licensing Using Policy User Guide Feature History for Smart Software Licensing using Policy (SLP) 10.2(1) F This feature was introduced.

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: . 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. (1721R) Any Internet Protocol (IP) 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. Learn more • Product overview The Cisco Nexus 9500 8-slot switch Cisco Nexus 9500 16-slot switch Cisco Nexus 9500 Series Cloud-Scale Switch Chassis The Cisco Nexus 9500 Series modular switches support a comprehensive selection of cloud-scale line cards and fabric modules that provides up to 6.4 Terabits per second (Tbps) per slot and each cloud scale fabric module provides up to 1.6 Tbps to each line card slot. Using these cloud-scale line cards the Cisco Nexus 9500 Series switches can be configured with up to. 1. 192 400-Gigabit Ethernet ports (or) 3. 1024 100-Gigabit Ethernet ports (or) 4. 2048 50-Gigabit Ethernet ports (or) Gigabit Ethernet ports (or) 5. 1024 40-Gigabit Ethernet ports (or) 6. 2304 25-Gigabit Ethernet ports (or) 7. 2304 1/10-Gigabit Ethernet ports (or) 7. 2304 1/10platform cloud-scale line cards and fabric modules, built using Cisco ® cloud-scale line cards and fabric modules, built using Cisco ® cloud-scale line cards and fabric modules. These cloud-scale line cards and fabric modules optimized for data-center deployments. Cisco clouds-scale ASICs provide enhanced performance and features that are required to meet the evolving needs of the world's largest cloud-scale data centers. These ASICs not only support foundational L2/L3 networking capabilities but also support enhanced performance and features that are required to meet the evolving needs of the world's largest cloud-scale data centers. integrated line rate security, and real-time streaming telemetry over multispeed Ethernet ports. The latest Cisco® 400-Gigabit cloud-scale ASICs also support Segment Routing over IPv6 (SRv6) and enhanced streaming telemetry capabilities. Table 1. Cisco Nexus 9500 cloud-scale line cards Line Card Type Description 400-Gbps line cards N9K-X9716D-GX: 400-Gigabit Ethernet Line Card • 16-port 400-Gigabit Ethernet Quad Small Form-Factor Pluggable Double Density (QSFP-DD) line card • 100-Gigabit Ethernet Line Card • 36-port 100-Gigabit Ethernet Quad Small Form-Factor Pluggable 28 (QSFP28) line card • Every port is 1x100-, 2x50-, 1x40-, 4x25-, 4x10-, and 1x10-Gigabit Ethernet N9K-X9732C-EX: 100-Gigabit Ethernet Line Card • 32-port 100-Gigabit Ethernet Quad Small Form-Factor Pluggable 28 (QSFP28) line card • Every port is 1x100-, 2x50-, 1x40-, 4x25-, 4x10-, and 1x1/10-Gigabit Ethernet breakout capable * N9K-X9732C-FX: 100-Gigabit Ethernet Line Card • Z-port 100-Gigabit Ethernet Line Card • 32-port 100-Gigabit Ethernet Line Card • 32-port 100-Gigabit Ethernet Line Card • Every port is 1x100-, 2x50, 1x40-, 4x25-, 4x10-, and 1x1/10-Gigabit Ethernet Line Card • Every port is 1x100-, 2x50, 1x40-, 4x25-, 4x10-, and 1x1/10-Gigabit Ethernet Line Card • S-port 100-Gigabit Ethernet Line Card • Every port is 1x100-, 2x50, 1x40-, 4x25-, 4x10-, and 1x1/10-Gigabit Ethernet Line Card • S-port 100-Gigabit E Supports 4+1 FM redundancy N9K-X9736C-EX: 100-Gigabit Ethernet Line Card
Second Small Form-Factor Pluggable 28 (QSFP28) line card
Second Structure Card
Secon Access-Layer and 10/40/100-Gigabit Ethernet Aggregation-Layer Line Card
48-port 1-, 10-, and 25-Gigabit Ethernet SFP+ and 4-port 40/100-Gigabit Ethernet SFP+ and 4-port 40/100-Gigabit Ethernet Aggregation-Layer Line Card
48-port 10-Megabit Ethernet SFP+ and 4-port 40/100-Gigabit Ethernet Aggregation-Layer Line Card
48-port 10-Megabit Ethernet SFP+ and 4-port 40/100-Gigabit Ethernet Aggregation-Layer Line Card
48-port 10-Megabit
48-p and 1/10-Gigabit Ethernet BASE-T and 4-port 40/100-Gigabit Ethernet QSFP28 line card * Breakout capability requires the availability of appropriate breakout capability requires the available support. Table 2. Cisco Nexus 9500 cloud-scale line card use-case summary Line Card/Features Cisco NX-OS Cisco ACI® spine MACSec N+1 FM redundancy X9716D-GX Yes Yes No X9732C-FX Yes No X9732C-FX Yes No X9736C-FX Yes No Cisco Nexus 9500 cloud-scale line card specifications Line card FM required for max bandwidth FM required for N+1 redundancy Performance Packet buffer X9716D-GX 4 N/A 6.4 Tbps 4.3 bpps 160 MB X9732C-EX 4 N/A 6.4 Tbps 4.3 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9732C-FX 4 5# 6.4 Tbps 2.16 bpps 160 MB X9736C-EX 4 N/A 6.4 Tbps 4.3 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9732C-FX 4 5# 6.4 Tbps 2.16 bpps 160 MB X9736C-EX 4 N/A 6.4 Tbps 4.3 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9732C-FX 4 5# 6.4 Tbps 2.16 bpps 160 MB X9736C-EX 4 N/A 6.4 Tbps 4.3 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9732C-FX 4 5# 6.4 Tbps 2.16 bpps 160 MB X9736C-FX 5* N/A 7.2 Tbps 2.4 bpps 160 MB X9736C-FX 5* N/A 7.2 N/A 6.4 Tbps 4.9 bpps 160 MB X97160YC-EX 4 N/A 3.2 Tbps 2.17 bpps 80 MB X9788TC-FX 4 N/A 1.76 Tbps 0.59 bpps 80 MB * To achieve max bandwidth with 5 fabric modules and X9736C-FX cards, the line cards in the chassis must only be the X9736C-FX cards. The X9736C-FX cards supports up to 6.4Tbps when mixed with other line cards and 4 fabric modules. # To achieve N+1 fabric modules and X9732C-FX cards, the line cards in the chassis must only be the X9732C-FX cards. Select EX, FX, and GX line cards in the chassis must only be the X9732C-FX cards. and any additional fabric modules installed will be powered down. Any features or capabilities that require more than four fabric modules and performance The Cisco Nexus 9500 platform is designed as a Clos fabric that interconnects each line card directly with each rear-mounted fabric module. All traffic between the line cards is load balanced across all fabric modules, provides enhanced system reliability and redundancy. The switch continues to operate even in the event of a loss of a fabric module, albeit at a lower capacity, as the remaining fabric modules continue to provide switching capacity to the line cards. The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules: • 4-slot and 8-slot FM-E2 fabric modules: • 4-slot and 8-slot FM-E2 fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules: • 4-slot and 8-slot FM-E2 fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules: • 4-slot and 8-slot FM-E2 fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules: • 4-slot and 8-slot FM-E2 fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the following fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the fabric modules that provide up to 1.6 The Cisco Nexus 9500 Cloud Scale platform supports the fabric modules th that provide up to 800 Gbps capacity per line card slot. • 4-slot, 8-slot, and 16-slot FM-E fabric modules that provide upgradability and investment protection for the Cisco Nexus 9500 Series chassis. All fabric modules installed in a chassis should be of the same type. Table Cisco Nexus 9500 cloud-scale line cards and FM-G Fabric Module Compatibility Line card/FM C9504-FM-G C9508-FM-G X9736C-FX Cisco ACI spine and Cisco NX-OS Cisc and Cisco NX-OS X9732C-FX Cisco NX-OS Cisco NX-OS X9736C-EX Cisco NX-OS Cisco NX-OS X97160YC-EX Cisco NX-OS Cisco NX-OS X9788TC-FX Cisco NX-OS Cisco NX-OS Table 5. Cisco Nexus 9500 cloud-scale line cards and FM-E/E2 Fabric Modules Compatibility Line card/FM C9504-FM-E C9508-FM-E C9516-FM-E C9508-FM-E2 C9516-FM-E2 C951 Cisco NX-OS X9732C-FX Cisco NX-OS Cisco NX 9500 Cloud Scale line cards support several forwarding templates to efficiently allocate onboard memory for varying deployment scenarios. Note: This data sheet specifies hardware capabilities only. Please refer to Cisco ACI or Cisco NX-OS software release notes and appropriate feature documentation for more details. Table 6. Cisco Nexus 9500 Cloud-Scale Line Cards: Product Specifications - Performance and Scale1 Cisco Nexus 9500 Series cloud-scale line cards (X9736C-FX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-FX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9788TC-FX) Cisco Nexus 9500 Series cloud-scale line cards (X9736C-EX, X9736C-EX, X (LPM) route entries IPv4: Upto 2 million IPv6: 1,900 to 1 million (based on prefix length) IPv4: up to 2 million IPv6: 1,900 to 1 million IPv6: 1,900 to 1 million (based on prefix length) IPv4: up to 1 million IPv6: 1,900 to 1 million IPv6: up to 32,000 IPv4: up to 1 million IPv6: 1,900 to 1 million IPv6: 1,900 to 500,000 (based on prefix length) Number of IP host entries IPv4: up to 2 million IPv6: up to 32,000 IPv4: up to 32,000 IPv4: up to 32,000 IPv4: up to 32,000 IPv4: up to 1 million IPv6: 1,900 to 1 million IPv6: 1,900 to 1 million IPv6: 1,900 to 1 million IPv6: up to 32,000 IPv4: up to 3 million IPv6: up to 16,000 Number of MAC address entries Up to 1 million Up to 512,000 Up to 512,000 Number of multicast routes Up to 131,000 Up to 32,000 Without VPC: 4000 to 32,000 Without VPC: 40 8000 to 32,000 With VPC: 4000 to 32,000 Without VPC: 8000 to 32,000 Number of VLANs Up to 512 Up to 512 Up to 32 Up to 32 Up to 32 Up to 32 Number of VLANs Up to 4096 Up to 32,000 Without VPC: 8000 to 32,000 Without VPC: 8000 to 32,000 Number of VLANs Up to 32 Up to 512 Up t of Equal Cost Multipath (ECMP) paths Up to 64 Up Standby Router Protocol (HSRP) groups Up to 490 Up to 490 Up to 490 Up to 490 Number of tunnel endpoints (VTEP) and VXLAN physical servers per VLAN Up to 10,000 Cisco Nexus 9500 Cloud-Scale Line Cards: Product Specifications - Mechanical X9716D-GX X9732C-EX X9736C-EX X9736C-EX X9736C-EX X9788TC-FX Weight 15.2 lb 6.8 kg 12.13 lb 5.5 kg 14.38 lb 6.5 kg 15 lb 6.8 kg 14.77 lb 6.7 kg 12.75 provides the list of optics supported on each line card. Mechanical specifications Table 7. Cisco Nexus 9500 FM-G Cloud-Scale Fabric Modules: Product Specifications - Mechanical N9K-C9504-FM-G Total capacity 6.4 Tbps 12.8 Tbps 1 side intake Port-side intake Port-side intake Port-side intake Table 8. Cisco Nexus 9500 Cloud-Scale FM-E/E2 Fabric Modules: Product Specifications - Mechanical N9K-C9504-FM-E N9K-C9508-FM-E N9K-C9508-FM-E2 N9Kkg) 14.08 lb (6.3 kg) Typical power 455 W 685 W Maximum power 504 W 936 W MTBF hours 551,390 455,270 Hot swappable Yes Yes Airflow Port-side intake Port-side intake Table 9. C9516-FM-E N9K-C9516-FM-E2 Total capacity 3,200 Gbps 6,400 Gbps 12,800 Gbps 12,800 Gbps 12,800 Gbps 12,800 Gbps 10 Gbps 100 Gbps compliance: safety and EMC Specification Description Regulatory compliance Products should comply with CE Markings according to directives 2004/108/EC and 2006/95/EC Safety
UL 60950-1 Second Edition
EMC: Emissions
47CFF Part 15 (CFR 47) Class A EMC: Immunity RoHS The product is RoHS-6 compliant with exceptions for leaded-Ball Grid-Array (BGA) balls and lead press-fit connectors. Ordering information Table 11. Cisco Nexus 9500 Cloud-Scale Line Cards: ordering information Table 11. QSFP-DD cloud-scale line card N9K-X9732C-EX (=) Cisco Nexus 9500 32p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexus 9500 36p 100G QSFP cloud-scale line card N9K-X9732C-FX (=) Cisco Nexu

X97160YC-EX[=) Cisco Nexus 9500 48p 1/10/25G SFP+ plus 4p 100C QSFP cloud-scale line card Table 12. Cisco Nexus 9500 4-slot 1.6Tbps cloud-scale fabric module SYK-C9508-FM-G(=) Cisco Nexus 9500 4-slot 800Gbps cloud-scale fabric module (100G flows) N9K-C9508-FM-E(=) Cisco Nexus 9500 8-slot 1.6Tbps cloud-scale fabric module (50G flows) N9K-C9508-FM-E2(=) Cisco Nexus 9500 4-slot 800Gbps cloud-scale fabric module (100G flows) N9K-C9508-FM-E2(=) Cisco Nexus 9500 8-slot 800Gbps cloud-scale fabric module (100G flows) N9K-C9508-FM-E2(=) Cisco Nexus 9500 16-slot 800Gbps cloud-scale fabric module (100G flows) N9K-C9508-FM-E2(=) Cisco Nexus 9500 16-slot 800Gbps cloud-scale fabric module (100G flows) N9K-C9508-FM-E2(=) Cisco Nexus 9500 16-slot 800Gbps cloud-scale fabric module (100G flows) N9K-C9508-FM-E2(=) Cisco Nexus 9500 16-slot 800Gbps cloud-scale fabric module (100G flows) N9K-C9508-FM-E2(=) Cisco Nexus 9500 16-slot 800Gbps cloud-scale fabric module (100G flows) N9K-C9508-FM-E2(=) Cisco Nexus 9500 16-slot 800Gbps cloud-scale fabric module (100G flows) N9K-C9508-FM-E2(=) Cisco Nexus 9500 16-slot 800Gbps cloud-scale fabric module (100G flows) N9K-C9508-FM-E2(=) Cisco Nexus 9500 tabric module (100G flows) N9K-C9508-FM