



Cisco Nexus 7000 Series Hardware Installation and Reference Guide

For the Cisco Nexus 7004, 7009, 7010, and 7018 Switches

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You can determine whether your equipment is causing interference by turning it off. If the interference stops, it was probably caused by the Cisco equipment or one of its peripheral devices. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the equipment to one side or the other of the television or radio.
- Move the equipment farther away from the television or radio.
- Plug the equipment into an outlet that is on a different circuit from the television or radio. (That is, make certain the equipment and the television or radio are on circuits controlled by different circuit breakers or fuses.)

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Cisco Nexus 7000 Series Hardware Installation and Reference Guide

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New and Changed Information

This chapter provides release-specific information for each new and changed feature in the *Cisco Nexus 7000 Series Hardware Installation and Reference Guide*. The latest version of this document is available at the following Cisco website:

http://www.cisco.com/en/US/docs/switches/datacenter/hw/nexus7000/installation/guide/n7k_hig_book.html

Table 1 summarizes the new and changed features for the *Cisco Nexus 7000 Series Hardware Installation and Reference Guide*, and tells you where they are documented.

Table 1 *New and Changed Features for Release 6.2(8)*

Feature	Description	Changed in Release	Where Documented
Supported optics and cables	Additional optics and cables supported by the 12-port 40-Gigabit Ethernet I/O module (N7K-F312FQ-25) and 6-port 40-Gigabit Ethernet I/O module (N7K-M206FQ-23)	6.2(8)	Chapter 7, “Connecting the Cisco Nexus 7000 Series Switch to the Network”
EPLD images	Updated EPLD images for the NAM and various I/O modules	6.2(8)	Chapter 8, “Managing the Switch Hardware”
10-Mbps support for Cisco Nexus 2248TP-E FEX	Support for 10-Mbps speed for the Cisco Nexus 2248TP-E FEX	6.2(8)	Appendix B, “Transceivers and Module Connectors”





Preface

This preface describes the audience, organization, and conventions of the *Cisco Nexus 7000 Series Hardware Installation and Reference Guide*. It also provides information on how to obtain related documentation.

This preface includes the following sections:

- [Audience, page v](#)
- [Organization, page v](#)
- [Document Conventions, page vi](#)
- [Related Documentation, page xii](#)
- [Obtaining Documentation and Submitting a Service Request, page xiii](#)

Audience

This guide is for experienced network system administrators who configure and maintain Cisco Nexus 7004, 7009, 7010, and 7018 switches.

Organization

This document describes how to install the Cisco Nexus 7004, 7009, 7010, and 7018 switches. For information about installing the Cisco Nexus 7706, 7710, or 7718 switches, see the individual hardware installation guide for each product.

This document is organized as follows:

Chapter	Description
Chapter 1, “Overview”	Provides an overview of the installation process.
Chapter 2, “Installing a Cisco Nexus 7004 Chassis”	Describes how to install the Cisco Nexus 7004 hardware components.
Chapter 3, “Installing a Cisco Nexus 7009 Chassis”	Describes how to install the Cisco Nexus 7009 hardware components.

Chapter	Description
Chapter 4, “Installing a Cisco Nexus 7010 Chassis”	Describes how to install the Cisco Nexus 7010 hardware components.
Chapter 5, “Installing a Cisco Nexus 7018 Chassis”	Describes how to install the Cisco Nexus 7018 hardware components.
Chapter 6, “Installing Power Supplies”	Describes how to install the power supply units in the Cisco Nexus 7000 Series switches.
Chapter 7, “Connecting the Cisco Nexus 7000 Series Switch to the Network”	Describes how to connect a Cisco Nexus 7000 Series switch to AC power and the network.
Chapter 8, “Managing the Switch Hardware”	Describes how to manage the hardware for the Cisco Nexus 7000 Series switch.
Chapter 9, “Troubleshooting”	Describes how to troubleshoot the Cisco Nexus 7000 Series hardware.
Chapter 10, “Installing or Replacing Components”	Describes how to replace Cisco Nexus 7000 Series components during system operations.
Appendix A, “Technical Specifications”	Provides system and site requirements that you should use for planning the installation of the Cisco Nexus 7000 Series switch.
Appendix B, “Transceivers and Module Connectors”	Provides the specifications for the connection devices used to connect the Cisco Nexus 7000 Series switch to the Internet.
Appendix D, “Chassis and Module LEDs”	Describes the switch and module LEDs that indicate system conditions.
Appendix E, “Repacking the Cisco Nexus 7000 Series Switch for Shipment”	Explains how you should repack the Cisco Nexus 7000 Series switch in case you need to ship it.
Appendix F, “Site Preparation and Maintenance Records”	Provides contact information and a table for recording site records.

Document Conventions

Command descriptions use these conventions:

Convention	Description
boldface font	Commands and keywords are in boldface.
<i>italic font</i>	Arguments for which you supply values are in italics.
[]	Elements in square brackets are optional.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Screen examples use these conventions:

<code>screen font</code>	Terminal sessions and information that the switch displays are in screen font.
boldface screen font	Information you must enter is in boldface screen font.
<i>italic screen font</i>	Arguments for which you supply values are in italic screen font.
< >	Nonprinting characters, such as passwords, are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

This document uses the following conventions:



Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.



Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.



Warning

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

Waarschuwing

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

BEWAAR DEZE INSTRUCTIES

Varoitus TÄRKEITÄ TURVALLISUUSOHJEITA

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelemiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

SÄILYTÄ NÄMÄ OHJEET

Attention IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS

Warnung WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

Avvertenza IMPORTANTI ISTRUZIONI SULLA SICUREZZA

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI

Advarsel VIKTIGE SIKKERHETSINSTRUKSJONER

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE

Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES

¡Advertencia! INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES

Varning! VIKTIGA SÄKERHETSANVISNINGAR

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR

Figyelem FONTOS BIZTONSÁGI ELOÍRÁSOK

Ez a figyelmeztető jel veszélyre utal. Sérülésveszélyt rejtő helyzetben van. Mielőtt bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplő figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján kereshető meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!

Предупреждение ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ

警告 重要的安全性说明

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

주의 重要 안전 지침

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이 지시 사항을 보관하십시오.

Aviso **INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. Você se encontra em uma situação em que há risco de lesões corporais. Antes de trabalhar com qualquer equipamento, esteja ciente dos riscos que envolvem os circuitos elétricos e familiarize-se com as práticas padrão de prevenção de acidentes. Use o número da declaração fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham o dispositivo.

GUARDE ESTAS INSTRUÇÕES

Advarsel **VIGTIGE SIKKERHEDSANVISNINGER**

Dette advarselssymbol betyder fare. Du befinder dig i en situation med risiko for legemeskade. Før du begynder arbejde på udstyr, skal du være opmærksom på de involverede risici, der er ved elektriske kredsløb, og du skal sætte dig ind i standardprocedurer til undgåelse af ulykker. Brug erklæringsnummeret efter hver advarsel for at finde oversættelsen i de oversatte advarsler, der fulgte med denne enhed.

GEM DISSE ANVISNINGER

تحذير

إرشادات الأمان الهامة

يوضح رمز التحذير هذا وجود خطر. وهذا يعني أنك متواجد في مكان قد ينتج عنه التعرض لإصابات. قبل بدء العمل، احذر مخاطر التعرض للصدمات الكهربائية وكن على علم بالإجراءات القياسية للحيلولة دون وقوع أي حوادث. استخدم رقم البيان الموجود في أخطر كل تحذير لتحديد مكان ترجمته داخل تحذيرات الأمان المترجمة التي تأتي مع الجهاز. قم بحفظ هذه الإرشادات

Upozorenje VAŽNE SIGURNOSNE NAPOMENE

Ovaj simbol upozorenja predstavlja opasnost. Nalazite se u situaciji koja može prouzročiti tjelesne ozljede. Prije rada s bilo kojim uređajem, morate razumjeti opasnosti vezane uz električne sklopove, te biti upoznati sa standardnim načinima izbjegavanja nesreća. U prevedenim sigurnosnim upozorenjima, priloženima uz uređaj, možete prema broju koji se nalazi uz pojedino upozorenje pronaći i njegov prijevod.

SAČUVAJTE OVE UPUTE

Upozornění DŮLEŽITÉ BEZPEČNOSTNÍ POKYNY

Tento upozorňující symbol označuje nebezpečí. Jste v situaci, která by mohla způsobit nebezpečí úrazu. Před prací na jakémkoliv vybavení si uvědomte nebezpečí související s elektrickými obvody a seznamte se se standardními opatřeními pro předcházení úrazům. Podle čísla na konci každého upozornění vyhledejte jeho překlad v přeložených bezpečnostních upozorněních, která jsou přiložena k zařízení.

USCHOVEJTE TYTO POKYNY

Προειδοποίηση ΣΗΜΑΝΤΙΚΕΣ ΟΔΗΓΙΕΣ ΑΣΦΑΛΕΙΑΣ

Αυτό το προειδοποιητικό σύμβολο σημαίνει κίνδυνο. Βρίσκεστε σε κατάσταση που μπορεί να προκαλέσει τραυματισμό. Πριν εργαστείτε σε οποιοδήποτε εξοπλισμό, να έχετε υπόψη σας τους κινδύνους που σχετίζονται με τα ηλεκτρικά κυκλώματα και να έχετε εξοικειωθεί με τις συνήθειες πρακτικές για την αποφυγή ατυχημάτων. Χρησιμοποιήστε τον αριθμό δήλωσης που παρέχεται στο τέλος κάθε προειδοποίησης, για να εντοπίσετε τη μετάφρασή της στις μεταφρασμένες προειδοποιήσεις ασφαλείας που συνοδεύουν τη συσκευή.

ΦΥΛΑΞΤΕ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ

אזהרה

הוראות בטיחות חשובות

סימן אזהרה זה מסמל סכנה. אתה נמצא במצב העלול לגרום לפציעה. לפני שתעבוד עם ציוד כלשהו, עליך להיות מודע לסכנות הכרוכות במעגלים חשמליים ולהכיר את הנהלים המקובלים למניעת תאונות. השתמש במספר ההוראה המסופק בסופה של כל אזהרה כדי לאתר את התרגום באזהרות הבטיחות המתורגמות שמצורפות להתקן.

שמור הוראות אלה

Opomena VAŽNI BEZBEDNOSNI NAPATCTVIJA

Симболот за предупредување значи опасност. Се наоѓате во ситуација што може да предизвика телесни повреди. Пред да работите со опремата, бидете свесни за ризикот што постои кај електричните кола и треба да ги познавате стандардните постапки за спречување на несреќни случаи. Искористете го бројот на изјавата што се наоѓа на крајот на секое предупредување за да го најдете неговиот период во prevedените безбедносни предупредувања што се испорачани со уредот.

ЧУВАЈТЕ ГИ ОБИЕ НАПАТСТВИЈА

Ostrzeżenie WAŻNE INSTRUKCJE DOTYCZĄCE BEZPIECZEŃSTWA

Ten symbol ostrzeżenia oznacza niebezpieczeństwo. Zachodzi sytuacja, która może powodować obrażenia ciała. Przed przystąpieniem do prac przy urządzeniach należy zapoznać się z zagrożeniami związanymi z układami elektrycznymi oraz ze standardowymi środkami zapobiegania wypadkom. Na końcu każdego ostrzeżenia podano numer, na podstawie którego można odszukać tłumaczenie tego ostrzeżenia w dołączonym do urządzenia dokumencie z tłumaczeniami ostrzeżeń.

NINIEJSZE INSTRUKCJE NALEŻY ZACHOWAĆ

Upozornienie DŮLEŽITÉ BEZPEČNOSTNÉ POKYNY

Tento varovný symbol označuje nebezpečenstvo. Nachádzate sa v situácii s nebezpečenstvom úrazu. Pred prácou na akomkoľvek vybavení si uvedomte nebezpečenstvo súvisiace s elektrickými obvodmi a oboznámte sa so štandardnými opatreniami na predchádzanie úrazom. Podľa čísla na konci každého upozornenia vyhľadajte jeho preklad v preložených bezpečnostných upozorneniach, ktoré sú priložené k zariadeniu.

USCHOVAJTE SI TENTO NÁVOD

Related Documentation

[Cisco Nexus 7000 Series documentation](#) includes the following documents:

Hardware Documents

Cisco Nexus 7000 Series Site Preparation Guide

Cisco Nexus 7000 Series Hardware Installation and Reference Guide

Cisco Nexus 7710 Site Preparation and Hardware Installation Guide

Cisco Nexus 7718 Site Preparation and Hardware Installation Guide

Cisco Nexus 7000 Series Regulatory Compliance and Safety Information

Cisco Nexus 7000 Series Connectivity Management Processor Configuration Guide

Software Documents

The Cisco Nexus 7000 Series switches ship with the Cisco NX-OS software. You can find software documentation for the Cisco NX-OS software at the following URL:

http://www.cisco.com/en/US/products/ps9402/tsd_products_support_series_home.html

The Cisco Data Center Network Manager (DCNM) supports the Cisco Nexus 7000 Series. You can find documentation for DCNM at the following URL:

http://www.cisco.com/en/US/products/ps9369/tsd_products_support_series_home.html

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Overview

This chapter provides an overview of the Cisco Nexus 7000 Series switch and includes the following sections:

- [Cisco Nexus 7000 Series, page 1-1](#)
- [Preparing the Site, page 1-20](#)
- [Safety Guidelines, page 1-21](#)
- [Installation and Connection Guidelines, page 1-21](#)
- [Managing the System Hardware, page 1-22](#)
- [Replacing Components, page 1-22](#)

Cisco Nexus 7000 Series

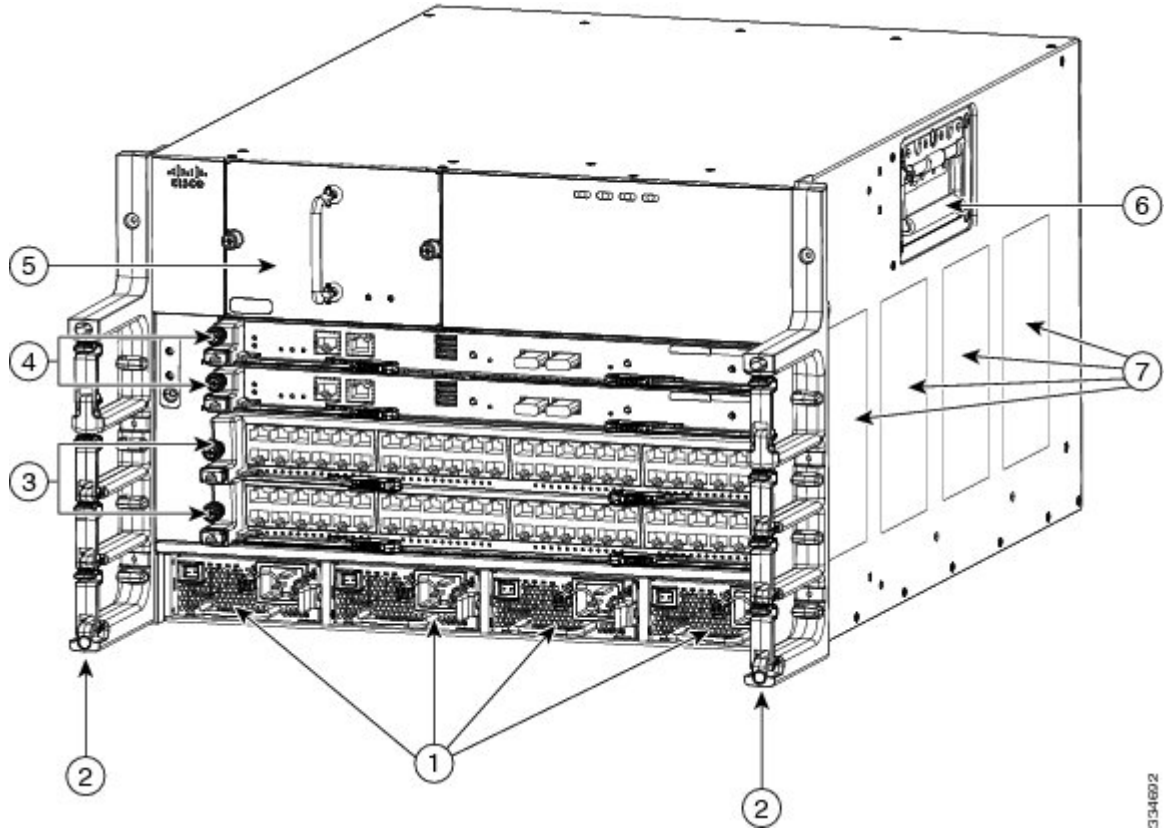
The Cisco Nexus 7000 Series switches are multiprotocol-capable, high-density, and high-performance switches that incorporate Ethernet/IP, virtualization, Layer 4 to Layer 7 services, and low-latency interconnect (LLI) technologies. The Cisco Nexus 7000 Series models are described in the following topics:

- [Cisco Nexus 7004 Switch, page 1-1](#)
- [Cisco Nexus 7009 Switch, page 1-4](#)
- [Cisco Nexus 7010 System, page 1-8](#)
- [Cisco Nexus 7018 System, page 1-13](#)

Cisco Nexus 7004 Switch

The Cisco Nexus 7004 chassis has four slots that allow for one or two supervisor modules and up to two I/O modules. Additionally, the chassis holds a fan tray, up to four power supplies, and cable management frames. Optionally, you can include a door and air filter. [Figure 1-1](#) identifies these features as seen from the front of the chassis.

Figure 1-1 Standard Hardware Features on the Front and Sides of the Cisco Nexus 7004 Chassis



334602

1 Air intake areas for up to four AC or DC power supplies (N7K-AC-3KW or N7K-DC-3KW) or blank filler plates in place of missing power supplies to maintain the designed airflow	5 Fan tray
2 Cable management side frames	6 Handles used for moving the chassis (reduce the chassis weight to less than 120 lbs (54.4 kg) in order to use these handles to lift the chassis)
4 I/O or NAM modules (1 to 2 modules in slots 3 to 4).	7 Air intake areas for supervisor and I/O modules
4 Supervisor modules (1 or 2 modules in slots 1 and 2). These modules are of only one of the following types (if installing two supervisor modules, both modules must be the same type with the same amount of memory): <ul style="list-style-type: none"> • Supervisor 2 (N7K-SUP2) • Supervisor 2 Enhanced (N7K-SUP2E) 	

**Note**

Figure 1-1 shows the Cisco Nexus 7004 chassis as it appears when it is fully configured before including cables for management and network connections. The systems that are not fully configured with the maximum number of supervisor modules, I/O modules, or power supply units have blank panels installed in place of the missing components to maintain the designed airflow for system cooling.

The I/O module slots hold one or two of the following types of modules:

- F2 Series I/O modules
 - 48-port 1-/10-Gigabit SFP+ with XL option and FEX support (N7K-F248XP-25 and N7K-F248XP-25E¹)
 - 48-port 1-/10-GBASE-T with XL option (N7K-F248XT-25E)
- F3 Series I/O modules
 - 12-port 40-Gigabit QSFP+ (N7K-F312FQ-25)
- M1 Series I/O modules
 - 48-port 10/100/1000 with XL option (N7K-M148GT-11L)
 - 48-port 1-Gigabit Ethernet with XL option (N7K-M148GS-11L)
 - 32-port 10-Gigabit Ethernet with XL option and FEX support (N7K-M132XP-12L)
 - 8-port 10-Gigabit Ethernet with XL option (N7K-M108X2-12L)
- M2 Series I/O modules
 - 24-port 10-Gigabit Ethernet with XL option and FEX support (N7K-M224XP-23L)
 - 6-port 40-Gigabit Ethernet with XL option (N7K-M206XP-23L)
 - 2-port 100-Gigabit Ethernet with XL option (N7K-M202XP-23L)
- Network Analysis modules (N7K-SM-NAM-K9)

You must install the Cisco Nexus 7004 chassis in a two- or four-post 19-inch EIA rack that meets the following specifications:

- Mounting rails that conform to the English universal hole spacing as specified in ANSI/EIA-310-D-1992.
- The minimum vertical rack space is 12.25 inches (31.1 cm) or 7 rack units (RU) for a single chassis installation.

Install the Cisco Nexus 7004 chassis at the lowest possible RU on the rack for stability. If there are other devices in the rack, install the heavier chassis below the lighter chassis.

**Warning**

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over. Statement 1048

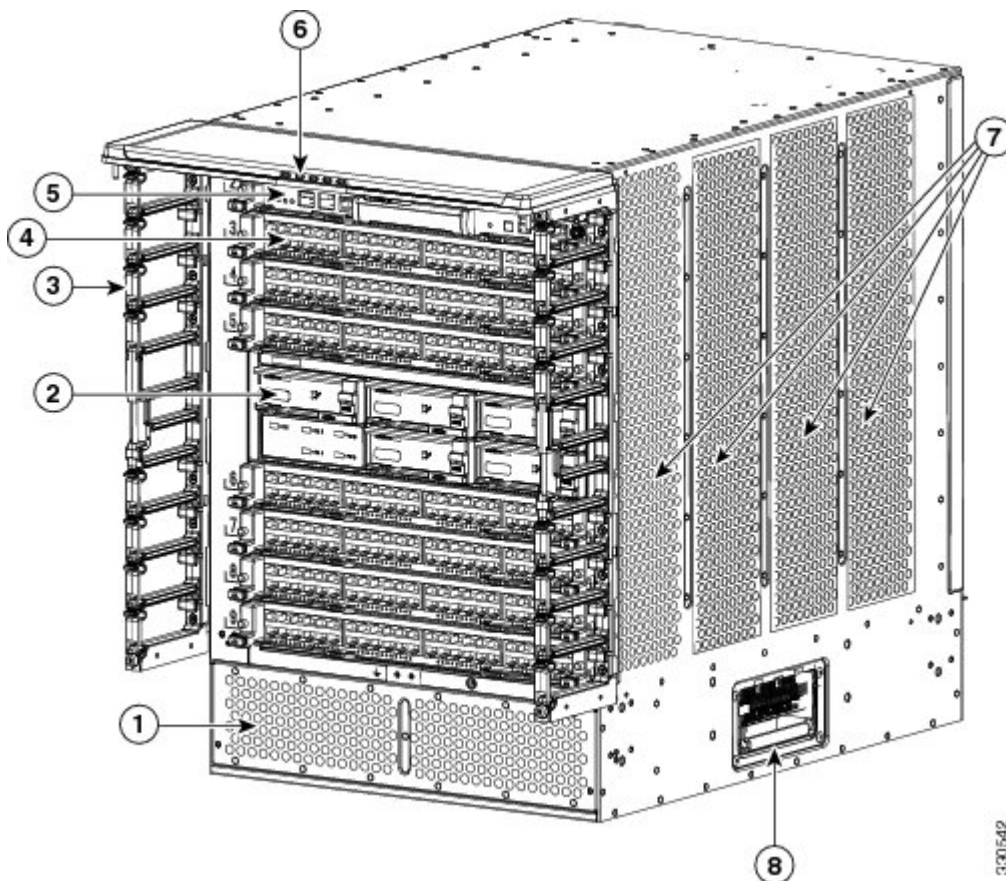
1. The Cisco Nexus F2-Series 48-port 1/10-Gigabit SFP+ module supports all of the standard features of F2 modules and it functions like an F2-series module with Layer 2 and Layer 3 enabled. These modules also support IPv6 DSCP-to-Queue mapping.

Cisco Nexus 7009 Switch

The Cisco Nexus 7009 chassis has 9 slots that allow for one or two supervisor modules and up to seven I/O modules. Additionally, the chassis also holds up to five fabric modules, one fan tray, up to two power supplies, and cable management frames. The chassis also has a front-mount bracket (an alternative center-mount bracket can be ordered) and four positioning handles (two on each side) that you use to position the chassis after you place it on a mechanical lift or bottom-support brackets. Optionally, you can include a door and air intake frame.

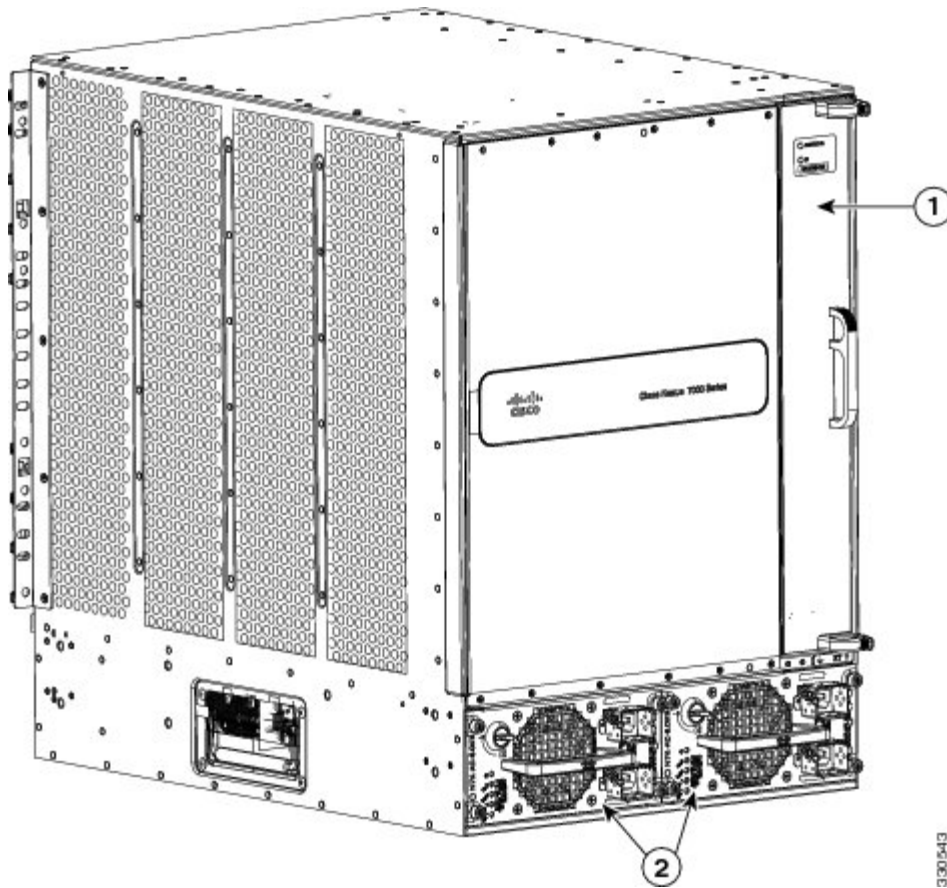
Figure 1-2 identifies the standard features on the front and sides of the Cisco Nexus 7009 chassis, and Figure 1-3 identifies the standard features on the rear of the chassis.

Figure 1-2 Standard Hardware Features on the Front and Sides of the Cisco Nexus 7009 Chassis



1	Air intake area for power supply units	5	Supervisor modules (1 or 2 modules in slots 1 and 2). These modules are of only one of the following types (if installing two supervisor modules, both modules must be the same type with the same amount of memory): <ul style="list-style-type: none">• Supervisor 1 (N7K-SUP1)• Supervisor 2 (N7K-SUP2)• Supervisor 2 Enhanced (N7K-SUP2E)
2	Fabric modules (up to 5) (N7K-C7009-FAB-2)	6	Cable management top hood with LEDs
3	Cable management side frame	7	Air intake areas for supervisor, I/O, and fabric modules
4	I/O or NAM modules (1 to 7 modules in slots 3 to 9).	8	Handles used for adjusting placement of chassis on mechanical lift

Figure 1-3 Standard Hardware Features on the Rear of a Cisco Nexus 7009 Chassis



<p>1 Fan tray (1)</p>	<p>2 Power supplies (1 or 2)—these modules are a combination of the following:</p> <ul style="list-style-type: none"> • 6 kW AC power supply (N7K-AC-6.0KW) • 7.5 kW AC power supply (N7K-AC-7.5KW-INT [international plugs]) (N7K-AC-7.5KW-US [US plugs]) • 6 kW DC power supply (N7K-DC-6.0KW) • Blank filler plate (installed in place of a missing power supply to maintain the designed airflow)
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Note

Figure 1-2 and Figure 1-3 show the Cisco Nexus 7009 chassis as it appears when it is fully configured before including cables for management and network connections. The systems that are not fully configured with the maximum number of supervisor modules, I/O modules, fabric modules, or power supplies have blank panels installed in place of the missing components to maintain the designed airflow for system cooling.

The I/O module slots hold one or two of the following types of modules:

- F1 Series I/O modules
 - 32-port 1- and 10-Gigabit Ethernet I/O modules (N7K-F132XP-15)
 - 48-port 1-/10-GBASE-T with XL option (N7K-F248XT-25E)
- F2 Series I/O modules
 - 48-port 1-/10-Gigabit SFP+ with XL option and FEX support (N7K-F248XP-25 and N7K-F248XP-25E¹)
- F3 Series I/O modules
 - 12-port 40-Gigabit QSFP+ (N7K-F312FQ-25)
- M1 Series I/O modules
 - 48-port 10/100/1000 I/O modules (N7K-M148GT-11)
 - 48-port 10/100/1000 I/O modules with XL option (N7K-M148GT-11L)
 - 48-port 1-Gigabit Ethernet I/O modules (N7K-M148GS-11)
 - 48-port 1-Gigabit Ethernet I/O modules with XL option (N7K-M148GS-11L)
 - 32-port 10-Gigabit Ethernet I/O modules with FEX support (N7K-M132XP-12)
 - 32-port 10-Gigabit Ethernet I/O modules with XL option and FEX support (N7K-M132XP-12L)
 - 8-port 10-Gigabit Ethernet I/O modules with XL option (N7K-M108X2-12L)
- M2 Series I/O modules
 - 24-port 10-Gigabit Ethernet I/O modules with XL option and FEX support (N7K-M224XP-23L)
 - 6-port 40-Gigabit Ethernet I/O modules with XL option (N7K-M206XP-23L)
 - 2-port 100-Gigabit Ethernet I/O modules with XL option (N7K-M202XP-23L)
- Network Analysis Modules (NAMs) (N7K-SM-NAM-K9)

You must install the Cisco Nexus 7009 chassis in a two- or four-post 19-inch EIA rack that meets the following specifications:

- Mounting rails that conform to the English universal hole spacing as specified in ANSI/EIA-310-D-1992.
- The minimum vertical rack space is 24.5 inches (62.2 cm) or 14 rack units (RU) for a single chassis installation (15 RU if you use the bottom support rails, which are required for center-mount installations and optional for front-mount installations).

Install the Cisco Nexus 7009 chassis at the lowest possible RU on the rack for stability. If there are other devices in the rack, install the heaviest chassis below the lighter chassis.



Warning

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over. Statement 1048

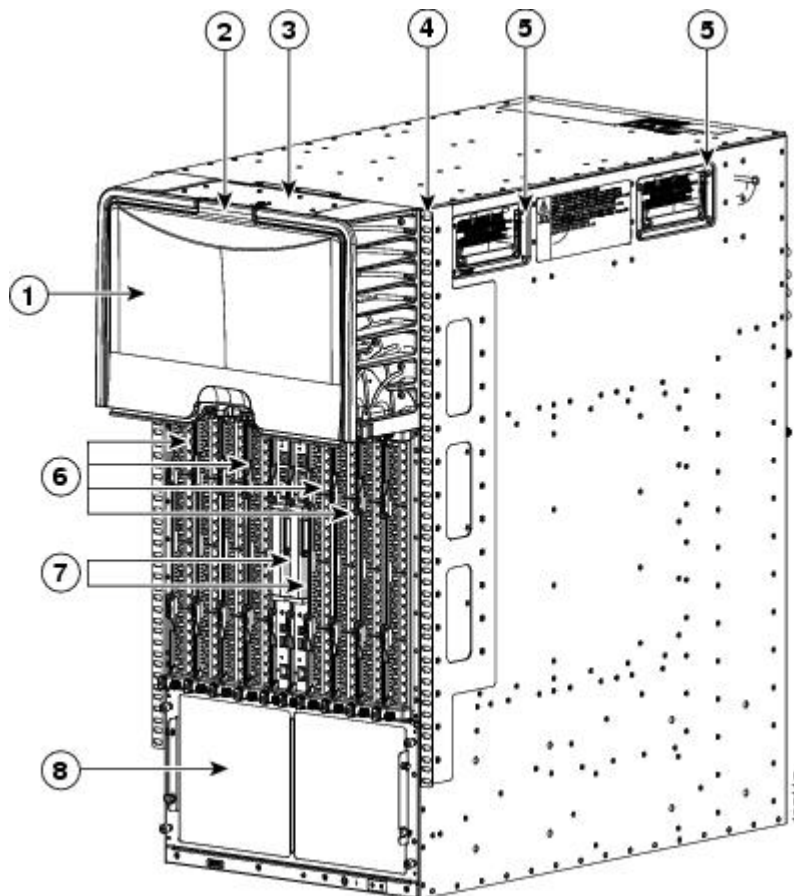
1. The Cisco Nexus F2-Series 48-port 1/10-Gigabit SFP+ module supports all of the standard features of F2 modules and it functions like an F2-series module with Layer 2 and Layer 3 enabled. These modules also support IPv6 DSCP-to-Queue mapping.

Cisco Nexus 7010 System

The Cisco Nexus 7010 chassis has 10 slots that allow for two supervisor modules and up to eight I/O modules. Additionally, the chassis holds up to five fabric modules, two system fan trays, two fabric fan trays, up to three power supplies, and cable management frames. The chassis also has mounting brackets and four positioning handles (two on each side) that you use to install the chassis after you position it on a rack. Optionally, you can include an air filter and mid-frame doors.

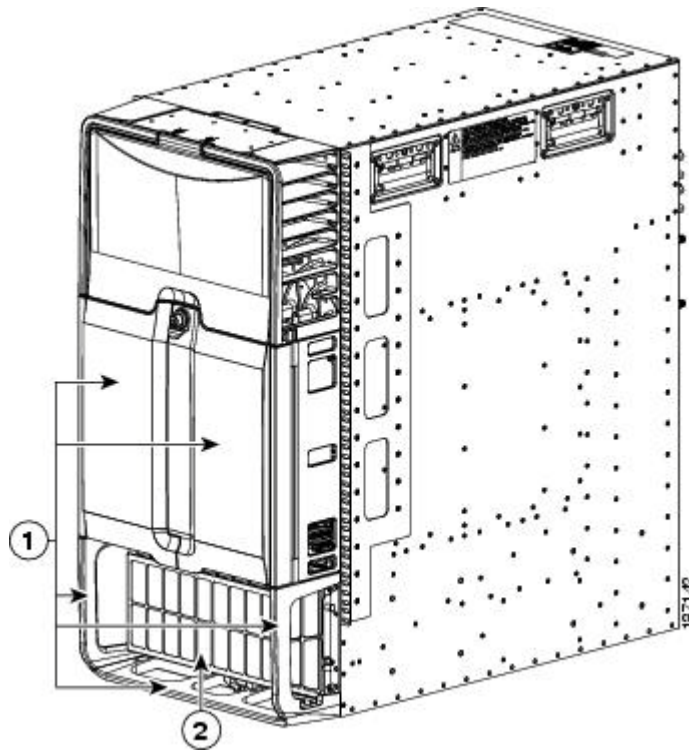
Figure 1-4 identifies the standard features on the front and sides of the Cisco Nexus 7010 chassis, Figure 1-5 identifies the optional features on the front side of the chassis, and Figure 1-6 identifies the standard features on the rear of the chassis.

Figure 1-4 Standard Hardware Features on the Front and Sides of the Cisco Nexus 7010 Chassis



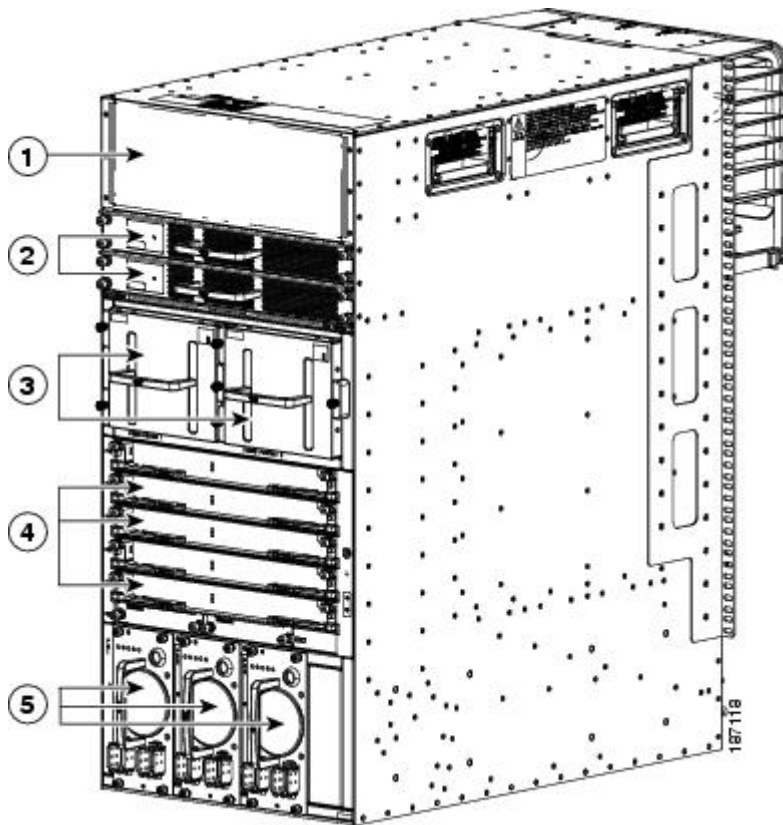
1	Door for the cable management area	5	Handles used to reposition the chassis (do not lift the chassis with these handles—use a mechanical lift)
2	System status LEDs	6	I/O or NAM modules (1 to 8 modules in slots 1 to 4 and 7 to 10).
3	Cable management area (upper routing portion can be removed if necessary)	7	Supervisor modules (1 or 2 modules in slots 5 and 6). These modules are of only one of the following types (if installing two supervisor modules, both modules must be the same type with the same amount of memory): <ul style="list-style-type: none"> • Supervisor 1 (N7K-SUP1) • Supervisor 2 (N7K-SUP2) • Supervisor 2 Enhanced (N7K-SUP2E)
4	Rack-mount bracket (2) (one on each side)	8	Air intake (shown without the optional air filter)

Figure 1-5 Optional Hardware Features on the Front Side of the Cisco Nexus 7010 Chassis



1	Mid-frame door assembly	2	Air filter
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Figure 1-6 Standard Hardware Features on the Back of the Cisco Nexus 7010 Chassis



1	Fan exhaust for the supervisor and I/O modules	4	Fabric modules (up to 5) [N7K-C7010-FAB-1 or N7K-C7010-FAB-2])
2	System fan trays (2) (N7K-C7010-FAN-S) and exhaust for the supervisor and I/O modules	5	Power supply units (up to 3) and exhaust for the power supply units—these modules are a combination of the following:
			<ul style="list-style-type: none"> • 6 kW AC power supply (N7K-AC-6.0KW) • 7.5 kW AC power supply (N7K-AC-7.5KW-INT [international plugs] and N7K-AC-7.5KW-US [US plugs]) • 6 kW DC power supply (N7K-DC-6.0KW) • Blank filler plate (replaces a missing power supply to maintain the designed airflow)
3	Fabric fan trays (2) (N7K-C7010-FAN-F) and exhaust for the fabric modules		



Note

Figure 1-4 and Figure 1-6 show the Cisco Nexus 7000 Series chassis as it appears when it is fully configured before including cables for connections to the Internet and the console. The systems that are not fully configured with the maximum number of supervisor modules, I/O modules, fabric modules, or power supplies have blank filler panels installed in place of the missing components to maintain the designed airflow for system cooling.

The I/O module slots hold one or two of the following types of modules:

- F1 Series I/O modules
 - 32-port 1- and 10-Gigabit Ethernet I/O modules (N7K-F132XP-15)
 - 48-port 1-/10-GBASE-T with XL option (N7K-F248XT-25E)
- F2 Series I/O modules
 - 48-port 1-/10-Gigabit SFP+ with XL option and FEX support (N7K-F248XP-25 and N7K-F248XP-25E¹)
- F3 Series I/O modules
 - 12-port 40-Gigabit QSFP+ (N7K-F312FQ-25)
- M1 Series I/O modules
 - 48-port 10/100/1000 I/O modules (N7K-M148GT-11)
 - 48-port 10/100/1000 I/O modules with XL option (N7K-M148GT-11L)
 - 48-port 1-Gigabit Ethernet I/O modules (N7K-M148GS-11)
 - 48-port 1-Gigabit Ethernet I/O modules with XL option (N7K-M148GS-11L)
 - 32-port 10-Gigabit Ethernet I/O modules with FEX support (N7K-M132XP-12)
 - 32-port 10-Gigabit Ethernet I/O modules with XL option and FEX support (N7K-M132XP-12L)
 - 8-port 10-Gigabit Ethernet I/O modules with XL option (N7K-M108X2-12L)
- M2 Series I/O modules
 - 24-port 10-Gigabit Ethernet I/O modules with XL option and FEX support (N7K-M224XP-23L)
 - 6-port 40-Gigabit Ethernet I/O modules with XL option (N7K-M206XP-23L)
 - 2-port 100-Gigabit Ethernet I/O modules with XL option (N7K-M202XP-23L)
- Network Analysis Modules (NAMs) (N7K-SM-NAM-K9)

You must install the Cisco Nexus 7010 system chassis in a four-post 19-inch EIA rack that meets the following specifications:

- Mounting rails that conform to the English universal hole spacing as specified in ANSI/EIA-310-D-1992.
- The minimum vertical rack space is 36.75 inches (93.3 cm) or 21 rack units (RU) for a single chassis installation and 73.5 inches (186.6 cm) or 42 rack units for a dual-chassis installation. We recommend that you use a 45 RU rack for a dual-chassis installation.

If you install one chassis, install it at the lowest possible RU on the rack for stability, as shown in [Figure 1-7](#). If you install two chassis in the same rack, install the bottom chassis first and then install the other chassis on top as shown in [Figure 1-8](#).

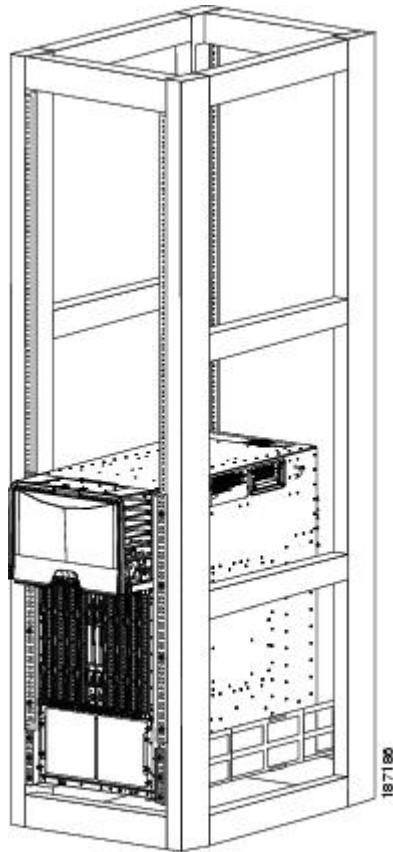


Warning

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over. Statement 1048

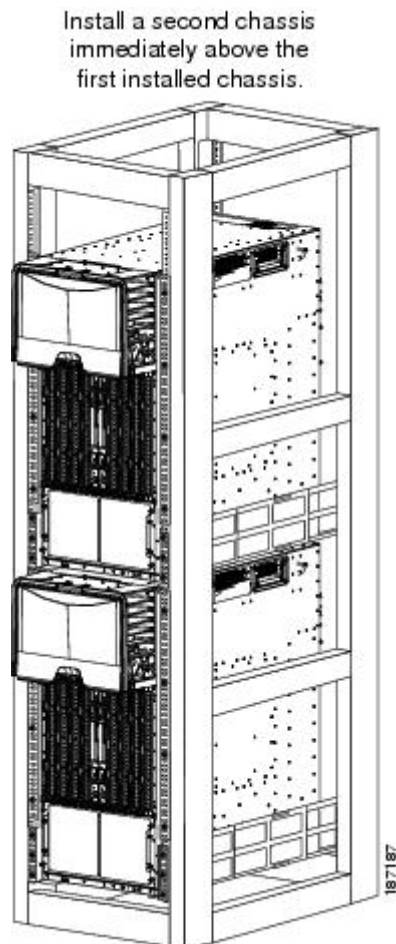
1. The Cisco Nexus F2-Series 48-port 1/10-Gigabit SFP+ module supports all of the standard features of F2 modules and it functions like an F2-series module with Layer 2 and Layer 3 enabled. These modules also support IPv6 DSCP-to-Queue mapping.

Figure 1-7 One Cisco Nexus 7010 Chassis Installed in a Four-Post Rack



Install the first chassis at the bottom of the rack for maximum stability.

Figure 1-8 Two Cisco Nexus 7010 Chassis Installed in a Four-Post Rack

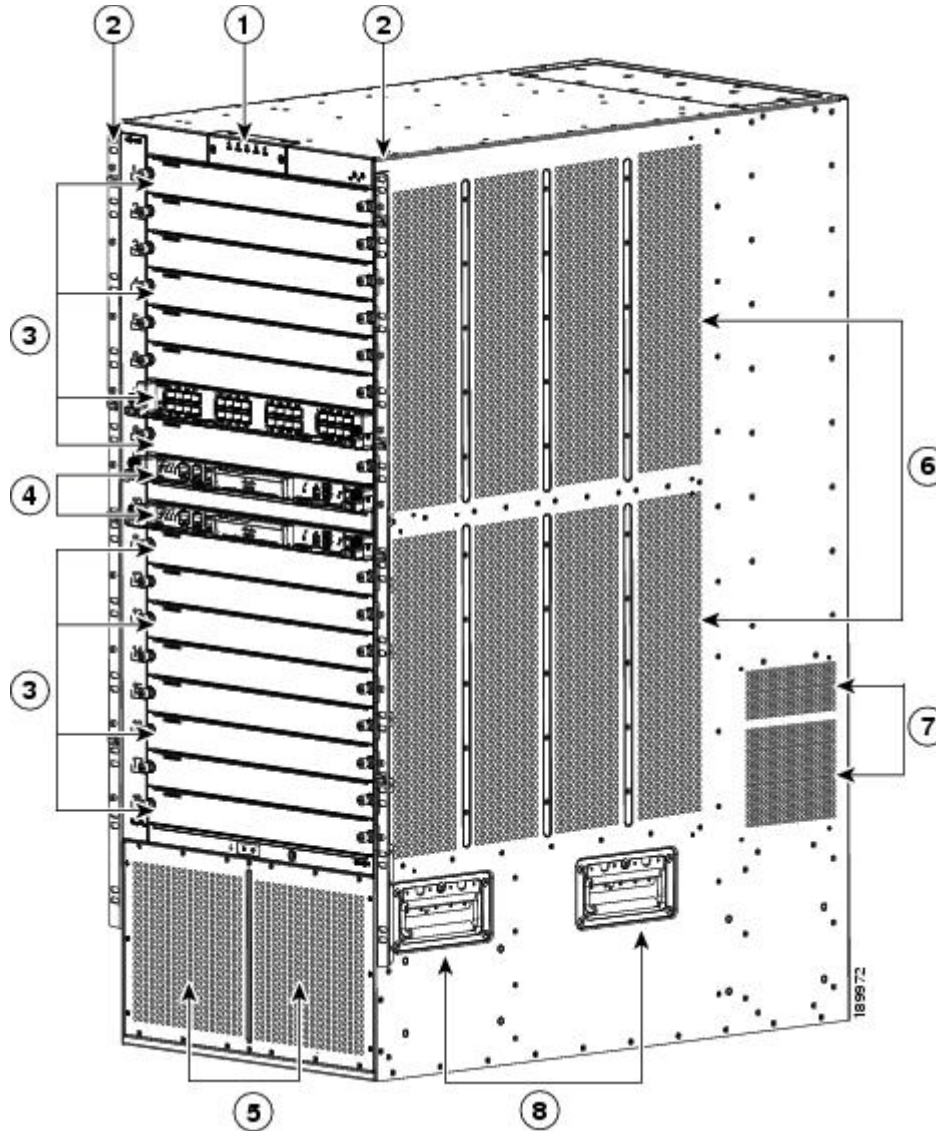


Cisco Nexus 7018 System

The Cisco Nexus 7018 chassis has 18 slots that allow for two supervisor modules and up to 16 I/O modules. The chassis also holds up to five fabric modules, two fan trays, up to four power supplies, and a cable management system. The chassis also has a mounting bracket and four positioning handles (two on each side) that you use to install the chassis after you position it on a rack. Optionally, you can include a front door to protect the I/O cable connections.

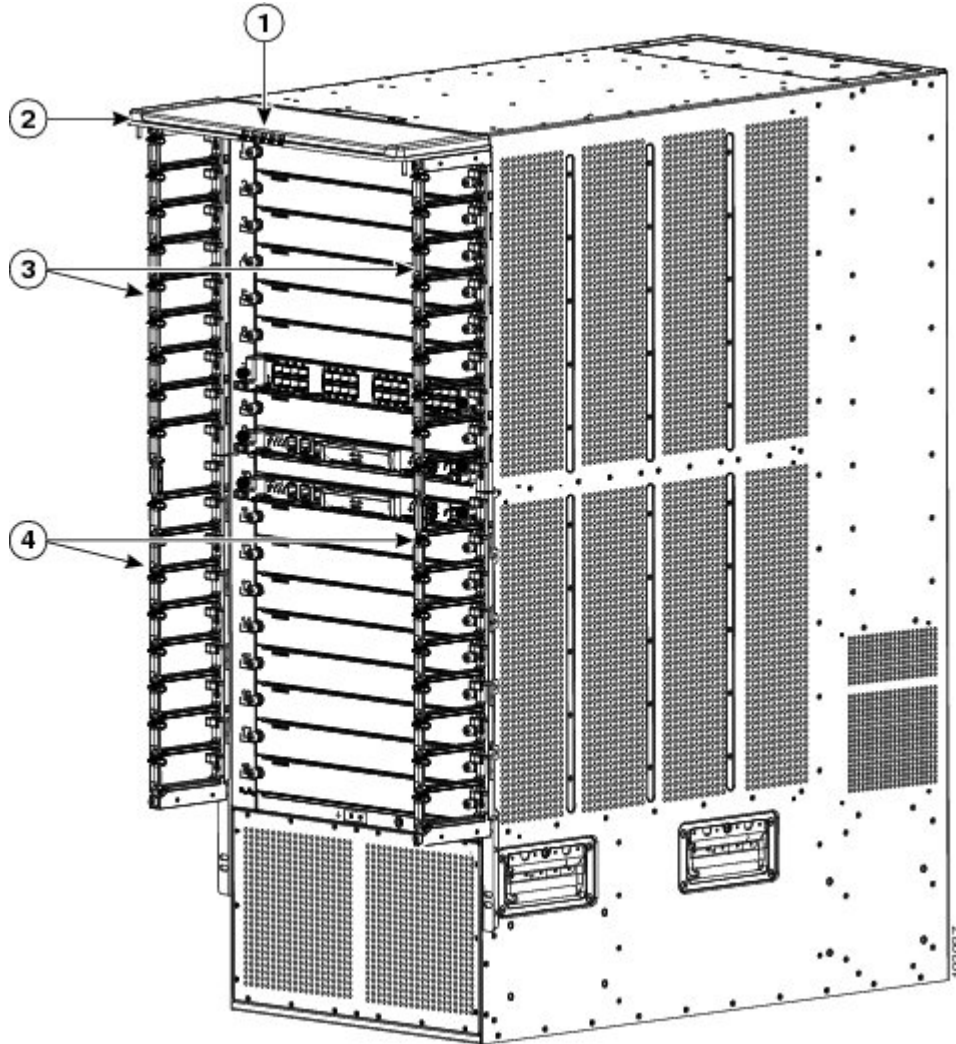
[Figure 1-9](#) identifies the standard features on the front and sides of the Cisco Nexus 7018 chassis, [Figure 1-10](#) identifies the components of the cable management system, [Figure 1-11](#) identifies the optional feature on the front side of the chassis, and [Figure 1-12](#) identifies the standard features on the rear of the chassis.

Figure 1-9 Standard Hardware Features on the Front and Sides of the Cisco Nexus 7018 Chassis



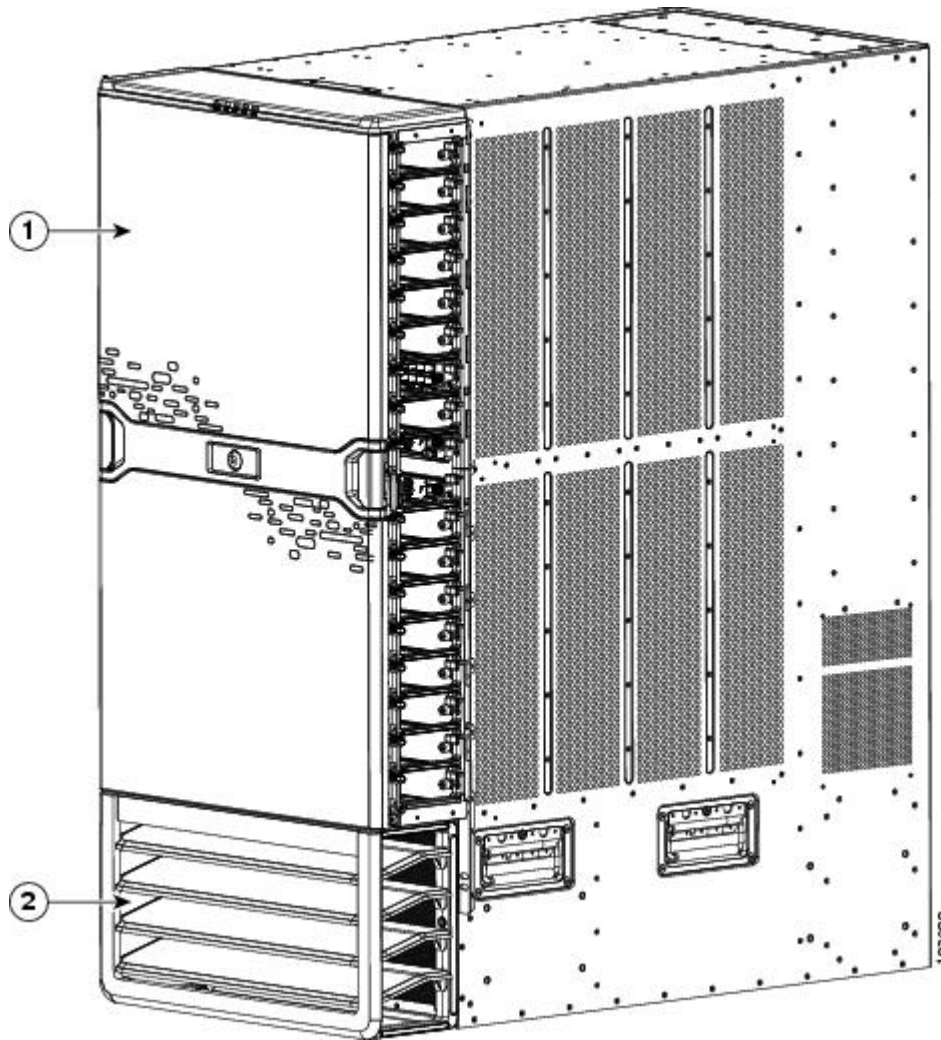
1	System status LEDs	5	Air intake for power supply units
2	Rack-mount brackets (2)	6	Air intake for the supervisor modules and I/O modules
3	I/O or NAM modules (1 to 16 in slots 1 to 8 and slots 11 to 18).	7	Air intake for fabric modules
4	Supervisor modules (1 or 2 modules in slots 1 and 2). These modules are of only one of the following types (if installing two supervisor modules, both modules must be the same type with the same amount of memory): <ul style="list-style-type: none"> Supervisor 1 (N7K-SUP1) Supervisor 2 (N7K-SUP2) Supervisor 2 Enhanced (N7K-SUP2E) 	8	Handles used to reposition the chassis (do not lift the chassis with these handles—use a mechanical lift)

Figure 1-10 Cable Management System for the Cisco Nexus 7018 Chassis



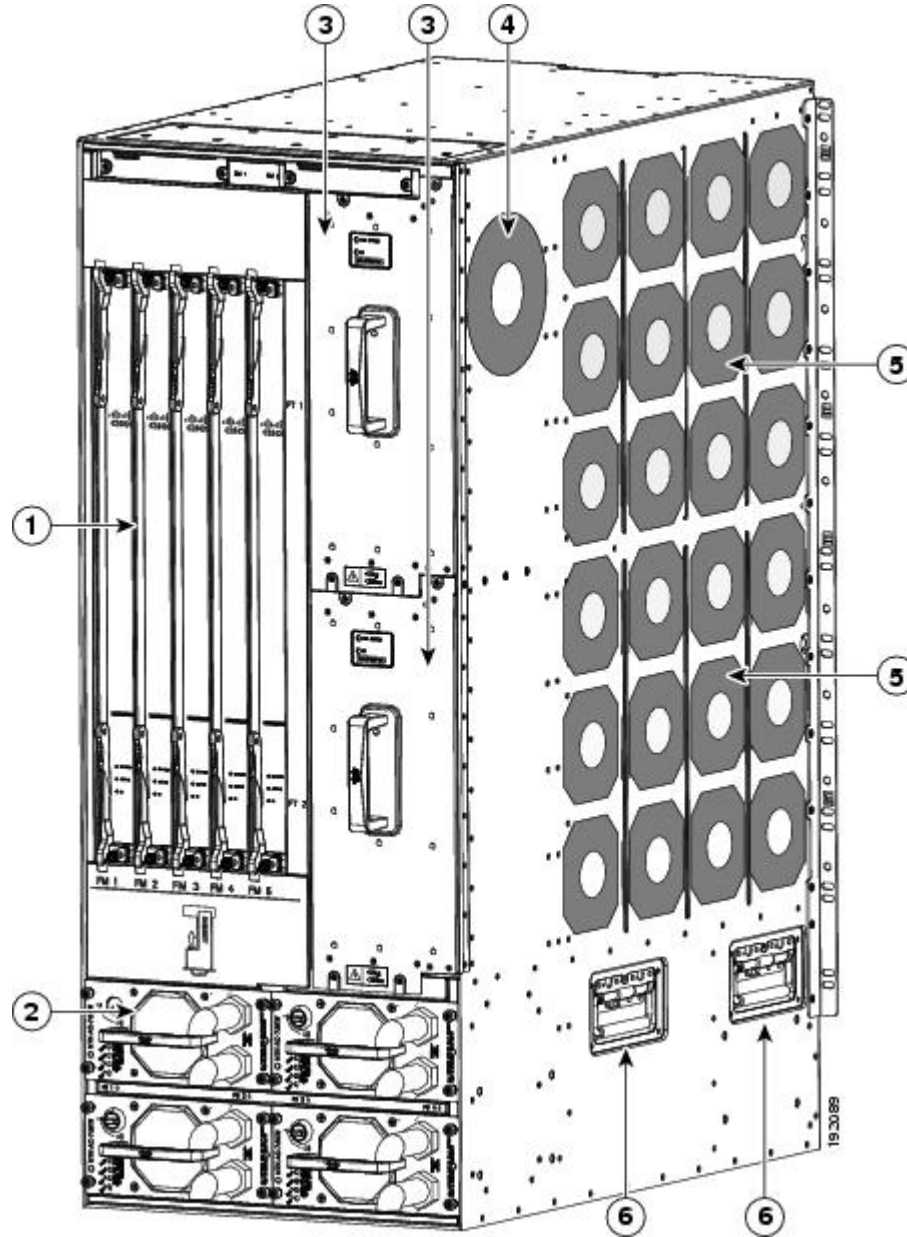
1	System status LEDs (these LEDs show the system status displayed by the chassis LEDs)	3	Upper cable management assemblies
2	Top hood	4	Lower cable management assemblies

Figure 1-11 Optional Front Door for the Cisco Nexus 7018 Chassis



1	Front doors	2	Air intake frame for power supply units
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Figure 1-12 Standard Hardware Features on the Back of the Cisco Nexus 7018 Chassis



1	Fabric modules (up to 5) (N7K-C7018-FAB-1 or N7K-C7018-FAB-2)	4	Fan exhaust for fabric modules
2	Power supply units (up to 4)—these modules are a combination of the following: <ul style="list-style-type: none"> • 6 kW AC power supply (N7K-AC-6.0KW) • 7.5 kW AC power supply (N7K-AC-7.5KW-INT [international plugs]) (N7K-AC-7.5KW-US [US plugs]) • 6 kW DC power supply (N7K-DC-6.0KW) • Blank filler plate (replaces missing power supplies to maintain the designed airflow) 	5	Fan exhaust for supervisor and I/O modules
3	Fan trays for cooling the supervisor, I/O, and fabric modules	6	Handles used to reposition the chassis (do not lift the chassis with these handles—use a mechanical lift)

**Note**

Figure 1-9 and Figure 1-12 show the Cisco Nexus 7018 chassis as it appears when it is fully configured before including cables for connections to the Internet and the console. The systems that are not fully configured with the maximum number of supervisor modules, I/O modules, fabric modules, or power supplies have blank panels installed in place of the missing components to maintain the designed airflow for system cooling.

The I/O module slots hold one or two of the following types of modules:

- F1 Series I/O modules
 - 32-port 1- and 10-Gigabit Ethernet I/O modules (N7K-F132XP-15)
 - 48-port 1-/10-GBASE-T with XL option (N7K-F248XT-25E)
- F2 Series I/O modules
 - 48-port 1-/10-Gigabit SFP+ with XL option and FEX support (N7K-F248XP-25 and N7K-F248XP-25E¹)
- F3 Series I/O modules
 - 12-port 40-Gigabit QSFP+ (N7K-F312FQ-25)
- M1 Series I/O modules
 - 48-port 10/100/1000 I/O modules (N7K-M148GT-11)
 - 48-port 10/100/1000 I/O modules with XL option (N7K-M148GT-11L)
 - 48-port 1-Gigabit Ethernet I/O modules (N7K-M148GS-11)
 - 48-port 1-Gigabit Ethernet I/O modules with XL option (N7K-M148GS-11L)
 - 32-port 10-Gigabit Ethernet I/O modules with FEX support (N7K-M132XP-12)
 - 32-port 10-Gigabit Ethernet I/O modules with XL option and FEX support (N7K-M132XP-12L)
 - 8-port 10-Gigabit Ethernet I/O modules with XL option (N7K-M108X2-12L)

1. The Cisco Nexus F2-Series 48-port 1/10-Gigabit SFP+ module supports all of the standard features of F2 modules and it functions like an F2-series module with Layer 2 and Layer 3 enabled. These modules also support IPv6 DSCP-to-Queue mapping.

- M2 Series I/O modules
 - 24-port 10-Gigabit Ethernet I/O modules with XL option and FEX support (N7K-M224XP-23L)
 - 6-port 40-Gigabit Ethernet I/O modules with XL option (N7K-M206XP-23L)
 - 2-port 100-Gigabit Ethernet I/O modules with XL option (N7K-M202XP-23L)
- Network Analysis Modules (NAMs) (N7K-SM-NAM-K9)

You must install the Cisco Nexus 7018 chassis in a four-post 19-inch EIA rack that meets the following specifications:

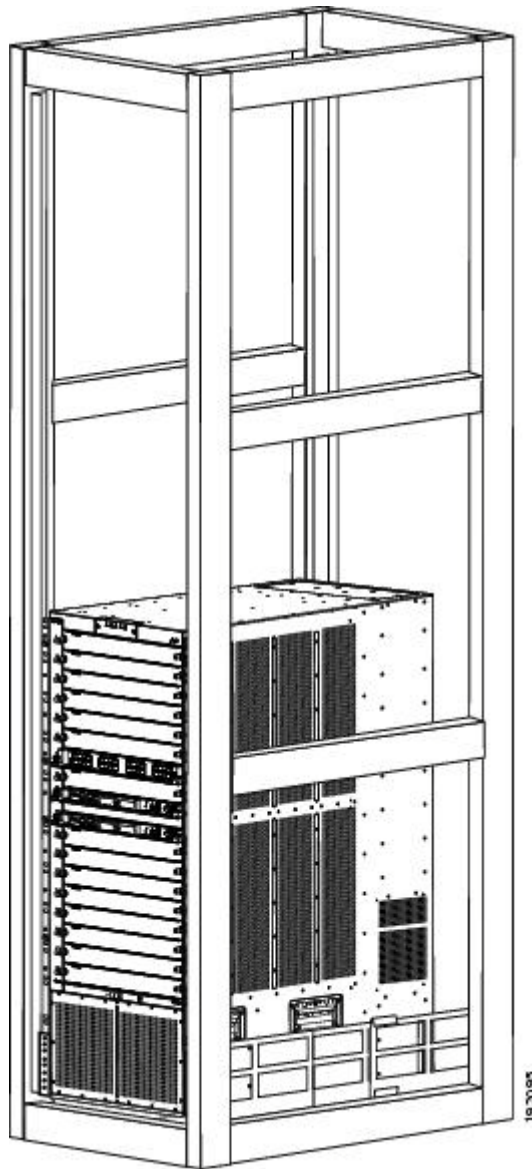
- Mounting rails that conform to the English universal hole spacing as specified in ANSI/EIA-310-D-1992.
- The minimum vertical rack space is 43.75 inches (111.1 cm) or 25 rack units (RU) for a single chassis installation and 87.5 inches (222.2 cm).

Install the Cisco Nexus 7018 chassis at the lowest possible RU on the rack for stability, as shown in [Figure 1-13](#). If there is another device in the rack, install the heaviest one at the bottom.

**Warning**

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over. Statement 1048

Figure 1-13 Cisco Nexus 7018 Chassis Installed in a Four-Post Rack



Preparing the Site



Warning

Installation of the equipment must comply with local and national electrical codes. Statement 1074

Before you can install a Cisco Nexus 7000 Series system, you must prepare the site for the installation. You must make sure that the altitude, temperature, humidity, air quality, airflow, electromagnetic and radio frequency interference, floor structure, power, and earth grounding of the installation site all meet the requirements of the Cisco Nexus 7000 Series system that you are installing. In addition, you must set up a rack or cabinet that can hold the number of chassis that you are installing. To see the general

requirements for this system, see [Appendix A, “Technical Specifications.”](#) To see detailed information about preparing the data center for the installation, see the *Cisco Nexus 7000 Series Site Preparation Guide*.

Safety Guidelines



Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.
Statement 1030

The prerequisites listed for any procedure are required conditions that you must verify before you start that procedure. If the prerequisites have not been met, you must satisfy those requirements before carrying out the procedure.

Safety warnings appear in this publication wherever procedures present conditions that could endanger you or others installing this system. Adhering to these warnings and following their recommended actions are required actions for these procedures. For regulatory compliance and safety information on these warnings, see the *Cisco Nexus 7000 Series Regulatory Compliance and Safety Information* document.

Installation and Connection Guidelines

After you fully prepare the site as specified in the *Cisco Nexus 7000 Series Site Preparation Guide*, install a two-post 19-inch EIA rack for Cisco Nexus 7004 and 7009 chassis or a four-post 19-inch EIA rack for all chassis. To install the system, you must make sure that you have the proper mounting brackets (front-mount or center-mount brackets) installed on the chassis, move the chassis to the rack, elevate it to the lowest possible RU for that chassis, and fasten the chassis to the rack. With the chassis fastened to the rack, you can ground the chassis, install its cable management frames, install the optional door and optional air filter, and connect the switch to the console and network. For detailed instructions on installing a Cisco Nexus 7000 Series switch, see the following chapters:

- [Chapter 2, “Installing a Cisco Nexus 7004 Chassis”](#)
- [Chapter 2, “Installing a Cisco Nexus 7004 Chassis”](#)
- [Chapter 3, “Installing a Cisco Nexus 7009 Chassis”](#)
- [Chapter 4, “Installing a Cisco Nexus 7010 Chassis”](#)
- [Chapter 5, “Installing a Cisco Nexus 7018 Chassis”](#)
- [Chapter 6, “Installing Power Supplies”](#)

For detailed instructions on connecting the switch to the console and network, see [Chapter 7, “Connecting the Cisco Nexus 7000 Series Switch to the Network.”](#)



Caution

Do not use the handles on the side of the chassis to lift the Cisco Nexus 7009, 7010, or 7018 chassis or a fully loaded Cisco Nexus 7004 chassis (you can use these handles to lift a Cisco Nexus 7004 chassis if you remove the power supplies so that the chassis weighs less than 120 pounds [52 kg]). For the Cisco Nexus 7009, 7010, and 7018, use these handles only for adjusting the position of the chassis while the chassis rests on a platform or bottom-support rails.

If you are replacing Fabric 1 modules with Fabric 2 modules (Cisco Nexus 7010 and 7018 models only), you must replace all of the Fabric 1 modules with Fabric 2 modules or the Fabric 2 modules will perform like Fabric 1 modules. If you power up a switch with both Fabric 1 and Fabric 2 modules installed, only the Fabric 2 modules will power up.

**Note**

The Cisco NX-OS software may require 8 GB of memory, depending on the software version you use and the software features that you enable. If your switch has Supervisor 1 modules with only 4 GB of memory, then you might need to upgrade the modules to 8 GB of memory by using the 8 GB supervisor upgrade kit (N7K-SUP1-8GBUPG=). This upgrade is not needed for switches that have at least 8 GB of memory (which includes Supervisor 1 modules with 8 GB and all Supervisor 2 and Supervisor 2E modules). To verify the amount of memory installed in the supervisor modules or to upgrade the memory, see the [“Upgrading Memory for Supervisor 1 Modules” section on page 10-29](#).

Managing the System Hardware

After the Cisco Nexus 7000 Series system is installed and operating, you can use the Cisco NX-OS operating system to manage the system hardware. These management functions include displaying system and module information, setting the power supply modes, and managing module functions. For more information about these functions, see [Chapter 8, “Managing the Switch Hardware.”](#)

Replacing Components

While the Cisco Nexus 7000 Series system is operational, you can replace any one of the following components if they are redundant:

- Power supply
- Supervisor module
- Fabric module (Cisco Nexus 7009, 7010, and 7018 models only)
- I/O modules
- Fan trays

For detailed information on replacing these components, see [Chapter 10, “Installing or Replacing Components.”](#)



Installing a Cisco Nexus 7004 Chassis

This chapter describes how to install a new or relocated Cisco Nexus 7004 chassis in a rack or cabinet. For information about installing other Cisco Nexus 7000 Series chassis or power supplies, see the following chapters:

- [Chapter 3, “Installing a Cisco Nexus 7009 Chassis”](#)
- [Chapter 4, “Installing a Cisco Nexus 7010 Chassis”](#)
- [Chapter 5, “Installing a Cisco Nexus 7018 Chassis”](#)
- [Chapter 6, “Installing Power Supplies”](#)

This chapter includes the following sections:

- [Preparing to Install the Switch, page 2-1](#)
- [Installing the Chassis, page 2-4](#)
- [Grounding the Cisco Nexus 7004 Chassis, page 2-9](#)
- [Installing the Cable Management Frames, page 2-11](#)
- [Installing USB Storage Media in a Supervisor 2 or 2E Module, page 2-12](#)
- [Installing the Air Filter, page 2-13](#)

Preparing to Install the Switch

This section includes the following topics:

- [Required Tools, page 2-2](#)
- [Installing a Rack or Cabinet, page 2-2](#)
- [Unpacking and Inspecting a New Switch, page 2-3](#)



Note

You must set up one two- or four-post, 19-inch EIA rack or cabinet before you can install the Cisco Nexus 7004 chassis. Make sure that you order the rack or cabinet and have it delivered before installing the chassis.

Required Tools

Before you install the Cisco Nexus 7004 chassis into a rack, make sure that you have the Cisco Nexus 7004 Accessory Kit (see the “[Cisco Nexus 7004 Switch Accessory Kit](#)” section on page C-1 for the contents list) and the following equipment, which are not provided by Cisco:

- Mechanical lift capable of lifting 150 pounds (68 kg)



Note This lift is required only if moving or lifting a fully loaded chassis that weighs at least 120 pounds (54.4 kg). If you remove the power supplies, the chassis weighs 93 pounds (42.2 kg) or less and you can manually lift it with two persons.

- Number 1 Phillips-head screwdriver with torque capability
- 3/16-inch flat-blade screwdriver
- Crimping tool
- Wire stripping tool
- Tape measure and level
- Grounding wire—Use a wire size that meets local and national installation requirements. Depending on the power supply and system, a 12 AWG to 6 AWG copper conductor is required for U.S. installations. We recommend that you use commercially available 6 AWG wire. The length of the grounding wire depends on the proximity of the switch to proper grounding facilities.



Note

For a list of tools required to assemble and secure the two- or four-post rack or cabinet, see the documentation that the manufacturer shipped with the rack or cabinet.

Installing a Rack or Cabinet

Before you install the Cisco Nexus 7004 chassis, you must install a standard two- or four-post, 19-inch EIA data center rack (or a cabinet that contains such a rack) that meets the requirements listed in the *Cisco Nexus 7000 Series Site Preparation Guide*. To maximize safety, you should do the following for the rack:

- Bolt the rack to the concrete subfloor before moving the Cisco Nexus 7004 chassis onto it.



Warning

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over. Statement 1048

- If the rack has bonded construction, connect it to the earth ground to enable you to easily ground the system components that you install and to ground your ESD wrist strap. This step minimizes the chance of electrostatic discharge when you handle ungrounded components while working with them.

Be sure that the rack includes AC power receptacles with the amperage required for the power supplies that you will be installing in the chassis. For 3-kW power supplies, you must have 20-A circuits.



Warning

Take care when connecting units to the supply circuit so that wiring is not overloaded. Statement 1018

For instructions on setting up the rack, see the documentation that the manufacturer shipped with the rack.

Unpacking and Inspecting a New Switch



Caution

When you handle the Cisco Nexus 7004 chassis or its components, you must follow ESD protocol at all times to prevent ESD damage. This protocol includes but is not limited to wearing an ESD wrist strap that you connect to the earth ground.

Before you install a new Cisco Nexus 7004 chassis, you need to unpack and inspect it to be sure that you have all the items that you ordered and verify that the switch was not damaged during shipment. If anything is damaged or missing, contact your customer representative immediately.



Tip

Do not discard the shipping container when you unpack the Cisco Nexus 7004 system. Flatten the shipping cartons and store them with the pallet used for the system. If you need to move or ship the system in the future, you will need these containers. For repacking instructions, see [Appendix E, “Repacking the Cisco Nexus 7000 Series Switch for Shipment.”](#)

To inspect the shipment, follow these steps:

Step 1

Compare the shipment to the equipment list that is provided by your customer service representative and verify that you have received all of the ordered items. The shipment should include boxes for the following:

- System chassis, which includes the following installed components:
 - 2 supervisor modules
 - 1 or 2 I/O modules
 - 1 fan tray
 - 2 to 4 power supply units
 - Blank filler plates for any missing supervisor modules, I/O modules, or power supply modules
- Cisco Nexus 7004 system accessory kit
To see a list of what is in the accessory kit, see the [“Cisco Nexus 7004 Switch Accessory Kit” section on page C-1.](#)
- Cable management frames
- Front door (optional)
- Air filter (optional)

Step 2

Check the contents of each box or package for damage.

Step 3

If you notice any discrepancies or damage, send the following information to your customer service representative by E-mail:

- Invoice number of the shipper (see the packing slip)
- Model and serial number of the missing or damaged unit

- Description of the problem and how it affects the installation
-

Installing the Chassis

This section describes how to install the Cisco Nexus 7004 chassis in a rack or cabinet. These installation steps include checking for installation prerequisites, setting up the center-mount brackets if needed, removing the power supplies from the chassis if lifting the chassis manually, and installing the chassis in a rack. When you finish this task, you can connect the chassis to the earth ground, install the cable management frames, install the front door (optional), and reinstall any removed power supplies.



Caution

You must use a mechanical lift whenever lifting a device over 120 pounds (54.4 kg). A fully loaded chassis can weigh up to 137 pounds (62 kg). If you prefer to lift the chassis manually, you must remove the power supplies and use at least two persons to lift it.

This section includes the following topics:

- [Prerequisites for Installing the Chassis, page 2-4](#)
- [Installing the Center-Mount Brackets, page 2-5](#)
- [Installing the Chassis in a Rack, page 2-6](#)

Prerequisites for Installing the Chassis

Before you install the chassis, you must make sure that the following items are available for the installation:

- Data center ground is accessible where you are installing the Cisco Nexus 7004 chassis.
- Two- or four-post, 19-inch EIA rack or cabinet that includes such a rack.

For more information on the rack or cabinet, see the [“Installing a Rack or Cabinet” section on page 2-2](#).



Warning

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over. Statement 1048

**Warning**

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack. Statement 1006

- Center-mount brackets (2) and M4 x 6 mm screws (12) if you need to center the chassis on the rack. If you are mounting the front of the chassis on to the rack (typical installation), then you do not need the center-mount brackets.

Installing the Center-Mount Brackets

Before you install a Cisco Nexus 7004 chassis, you need to determine whether you need to mount the front of the chassis or the center of the chassis to the rack. The chassis is already set up for mounting its front to the rack, but you can include center-mount brackets to position the front of the chassis 5.7 inches (14.4 cm) in front of the rack.

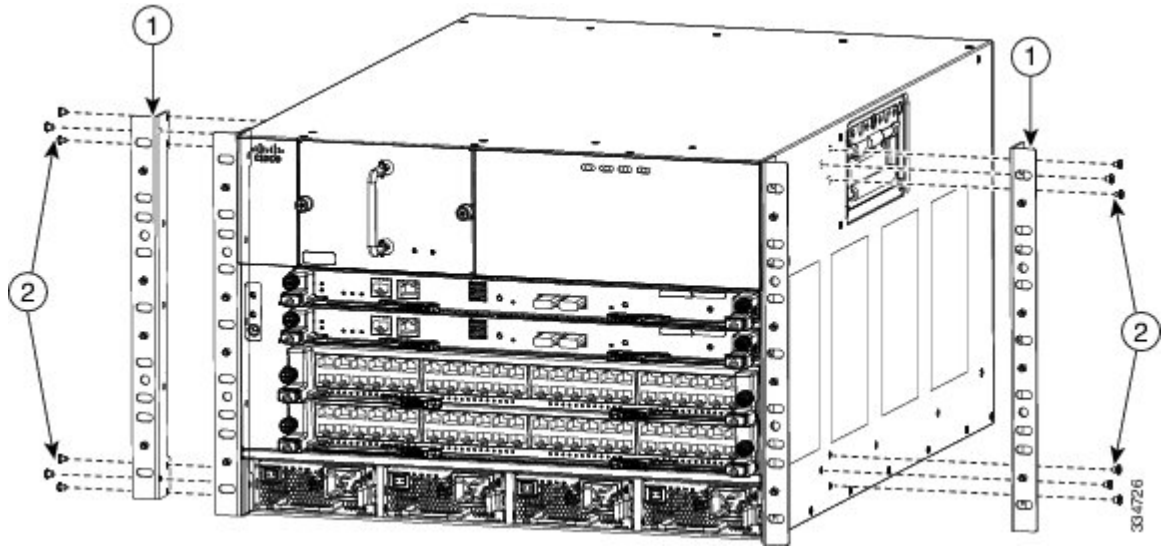
**Note**

If you need to install the center-mount brackets, you must separately order the Cisco Nexus 7009 Rack Mount Kit (part number is N7K-C7004-RMK).

To install the center-mount brackets on the chassis, follow these steps:

- Step 1** Align one of two center-mount brackets so that its six screw holes align to six screw holes on the side of the chassis as shown in [Figure 2-1](#).

Figure 2-1 Installing Center-Mount Brackets on the Chassis



1	Center mount bracket (left and right versions)	2	Six M4 x 6 mm screws for each bracket
---	--	---	---------------------------------------

- Step 2** Use a Phillips-head screw driver to secure the bracket to the chassis with the six M4 x 6 mm screws. Tighten each screw to 11.5 to 15 in-lbs (1.3 to 1.7 N·m).
- Step 3** Repeat steps 1 and 2 to install the other center-mount bracket on the other side of the chassis.

Installing the Chassis in a Rack

Before you install the chassis in the rack, you must determine how you are going to lift the chassis to its position on the rack. You can either lift the chassis with a mechanical lift and slide it on top of another installed Cisco Nexus 7004 chassis, or you can lighten the chassis and lift it manually into position with a couple of people. To lighten the chassis for lifting, you can remove the power supplies so that the chassis weighs no more than 93 pounds (42 kg) and can be lifted by two people.

After lifting the chassis into position, you fasten it to the rack, and replace any power supplies that you might have removed earlier.

To install a Cisco Nexus 7004 chassis in a two- or four-post rack or cabinet, follow these steps:

- Step 1** Prepare the chassis for moving by doing one of the following:



Warning

To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules (such as power supplies, fans, or cards); these types of handles are not designed to support the weight of the unit. Statement 1032

**Caution**

To move the chassis, either use the chassis handles (one found on each side) or push on the sides or edges of the chassis without touching any of the modules or module handles.

- To move the chassis with a mechanical lift, position the lift at the elevation of the chassis on its shipping pallet (or no more than 0.25 inches [0.64 cm] below the level of the pallet) and use two persons to push the chassis fully onto the lift.
- To move the chassis manually, remove the power supplies as explained in one of the following sections and then use two persons to lift the chassis:
 - To remove an AC power supply, see the [“Removing a 3-kW AC Power Supply Unit During Operations”](#) section on page 10-3.
 - To remove a DC power supply, see the [“Removing a 3-kW DC Power Supply Unit During Operations”](#) section on page 10-9.

**Note**

We do not recommend that you remove any of the supervisor modules, I/O modules, or the fan tray to make the chassis easier to lift because that removal can put those modules at risk of being damaged. If you do remove any of those modules, be sure to have antistatic pads or antistatic bags to hold these modules until you are ready to reinstall them in the chassis.

Step 2

Lift the chassis to its position on a rack in one of the following ways:

- If you use a mechanical lift, position the chassis next to the front of another Cisco Nexus 7004 chassis already installed in the rack, elevate the new chassis to the level of the installed chassis (or no more than 0.25 inches [0.64 cm] above the installed chassis, use two persons to align the back side of the new chassis to the opening between the two front posts of the rack and push the chassis into the installed chassis until the chassis mounting brackets come in contact with the rack mounting rails.
- If you are lifting the chassis manually, use two or more persons to move the back end of the chassis through the front posts until the chassis mounting brackets come in contact with the mounting rails on the rack, lift the chassis to the lowest possible RU for it on the rack, and align the screw holes in the chassis mounting brackets to the rack mounting rails.

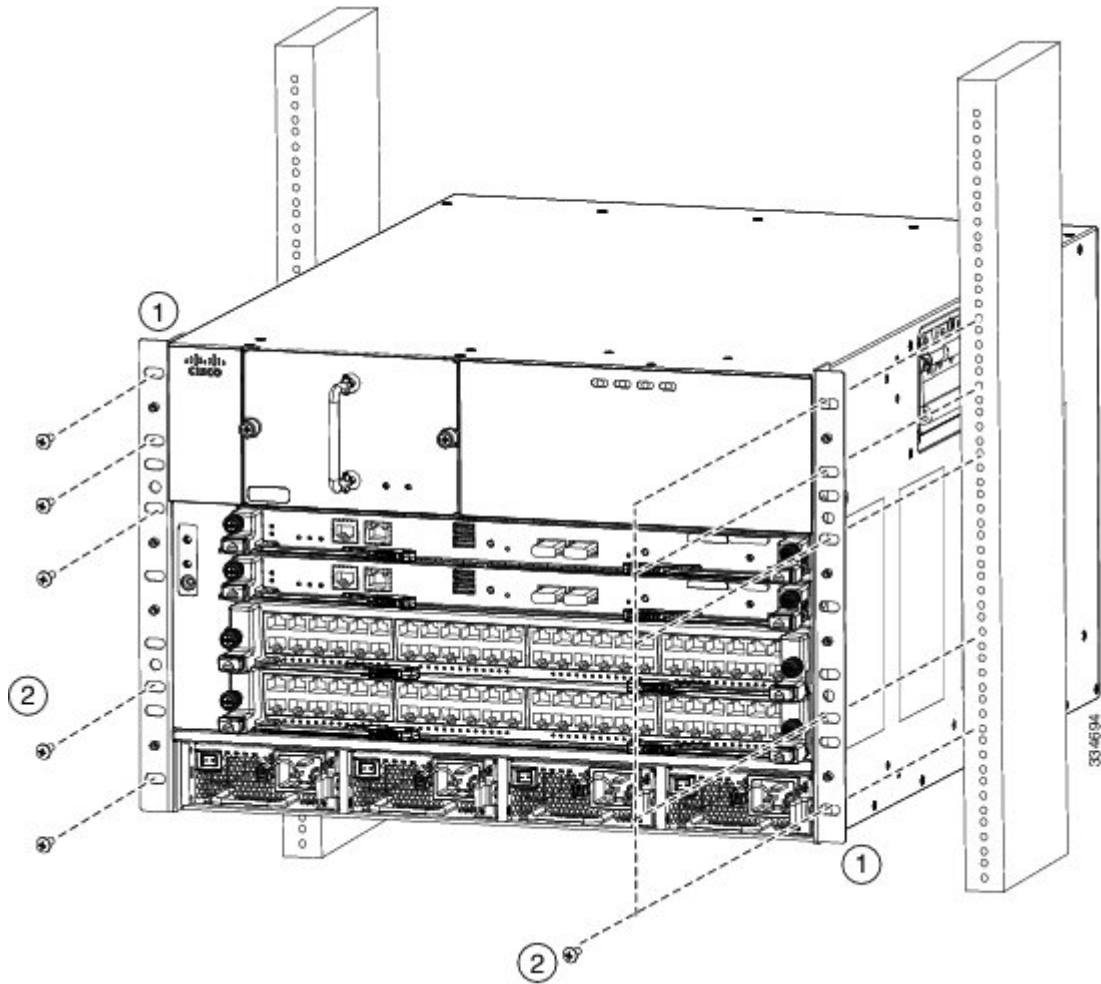
**Caution**

Use two persons to lift the chassis by using the handle on each side of the chassis. Do not use the handles on any of the modules installed on the chassis to lift or move the chassis—these handles are for only removing or installing the modules.

Step 3

Use five M6 x 19 mm screws (or 12-24 x 3/4 inch screws) to fasten each side of the chassis to the rack. Tighten each of the 10 screws to 40 in. lbs (4.5 N.m) (see [Figure 2-2](#)).

Figure 2-2 Mounting the Cisco Nexus 7004 Chassis on a Rack



1 Handles used to adjust the chassis placement or to lift a chassis that weighs less than 120 pounds (54.4 kg).	2 Five M4 x 6 mm Phillips-head screws used to attach each front-mount or center-mount bracket to a mounting rail (use a total of 12 screws for two brackets).
--	--

Step 4 If you removed any power supplies, replace them as explained in one of the following sections:

- To install an AC power supply unit, see the [“Installing a 3-kW AC Power Supply Unit During Operations”](#) section on page 10-3.
- To install a DC power supply unit, see the [“Installing a 3-kW DC Power Supply Unit During Operations”](#) section on page 10-10.

Grounding the Cisco Nexus 7004 Chassis

The Cisco Nexus 7004 switch is fully grounded as soon as you connect the chassis and the power supplies to the earth ground in the following ways:

- You connect the chassis to either a grounded and fully bonded rack or to the data center ground. This ground connection is active even when the power supplies are not installed.



Note The system ground, also referred to as the network equipment building system (NEBS) ground, provides additional grounding for EMI shielding requirements and for the low-voltage supplies (DC-DC converters) on the modules. This grounding system is active even when the AC power cables are not connected to the system.

- You connect the AC power supplies to the earth ground automatically when you connect an AC power supply to an AC power source.
- You connect the DC power supplies to the earth ground before connecting the power supplies to the DC power source (see the [“Connecting a DC Power Supply Directly to DC Power Sources”](#) section on page 6-10).

This section includes the following topics:

- [Prerequisites for Grounding the Chassis, page 2-9](#)
- [Connecting the System Ground, page 2-9](#)
- [Connecting Your ESD Wrist Strap to the Chassis, page 2-11](#)

Prerequisites for Grounding the Chassis

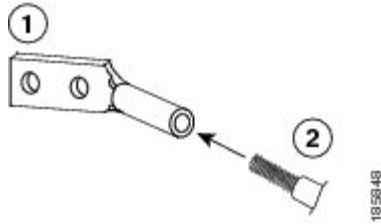
Before you can ground the chassis, you must have a connection to the earth ground for the data center building. If you installed the Cisco Nexus 7004 chassis into a bonded rack (see the rack manufacturer’s instructions for more information) that now has a connection to the data center earth ground, you can ground the chassis by connecting its grounding port to the rack. Otherwise, you must connect the chassis grounding port directly to the data center ground.

Connecting the System Ground

After you have moved the chassis into the rack or cabinet, you are ready to connect the system to the data center earth ground. After you ground the chassis, you can ground your ESD wrist strap by connecting it to the chassis.

To connect the system ground to the data center earth ground, follow these steps:

- Step 1** Use a wire-stripping tool to remove approximately 0.75 inch (19 mm) of the covering from the end of the grounding wire.
- Step 2** Insert the stripped end of the grounding wire into the open end of the grounding lug as shown in [Figure 2-3](#).

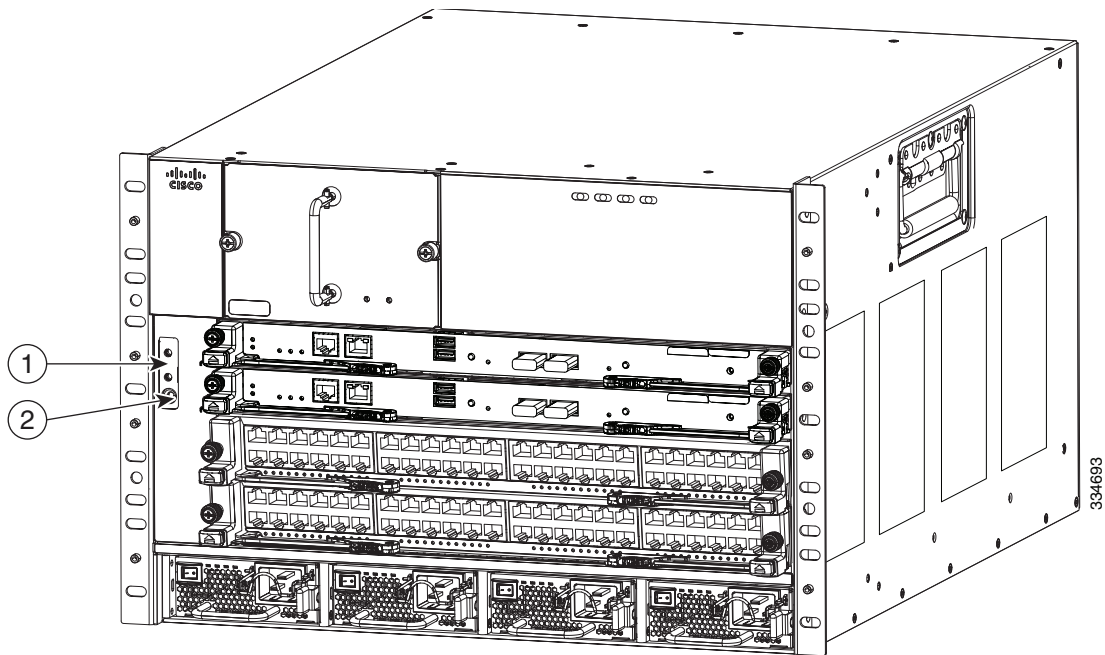
Figure 2-3 Inserting the Grounding Wire in the Grounding Lug

1	NRTL listed 45-degree grounding lug	2	Grounding cable with 0.75 in. (19 mm) of insulation stripped from the end
---	-------------------------------------	---	---

- Step 3** Use the crimping tool to crimp the lug to the grounding wire. Verify that the ground wire is securely attached to the ground lug by attempting to pull the wire out of the crimped lug.
- Step 4** Remove the adhesive label from the system grounding pad on the chassis, secure the grounding wire lug to the grounding pad with two M4 screws, and tighten the screws to 11.5 to 15 in-lb (1.3 to 1.7 N·m). Callout 1 in [Figure 2-4](#) shows the location of the grounding pad on the front side of the chassis.



Note Be sure that the grounding lug and wire do not block the ESD port by positioning the lug and wire connection above the grounding port.

Figure 2-4 Grounding Pad and ESD Port Locations on the Cisco Nexus 7004 Chassis

1	Grounding pad	2	ESD port
---	---------------	---	----------

- Step 5** Prepare the other end of the grounding wire and connect it to an appropriate grounding point in your site to ensure an adequate earth ground for the switch. If the rack is grounded, connect the grounding wire as explained in the documentation provided by the vendor for the rack.
-

Connecting Your ESD Wrist Strap to the Chassis

After you connect the chassis to the data center earth ground, you can ground your ESD wrist strap by plugging it into the ESD port shown by Callout 2 in [Figure 2-4 on page 2-10](#).

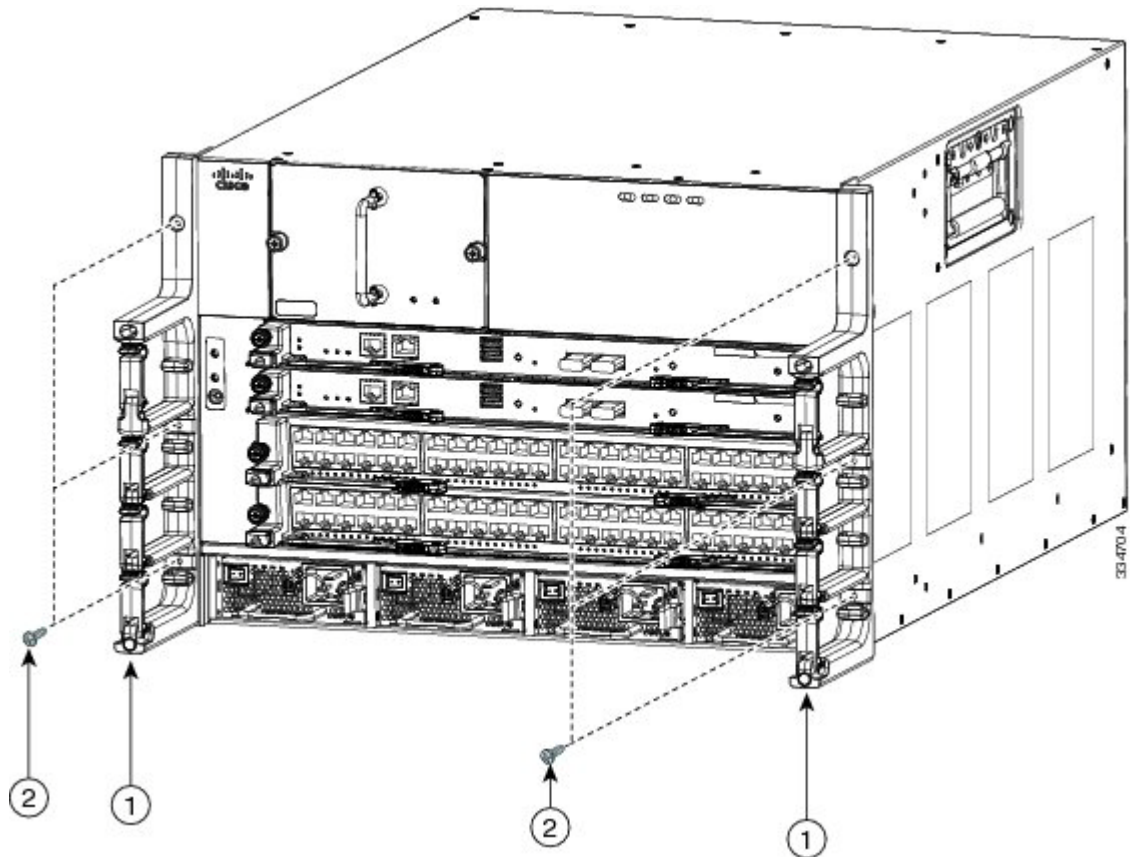
Installing the Cable Management Frames

After you have fastened the chassis to the rack, you can fasten the cable management frames to the front of the chassis.

To fasten the cable management frames to the chassis, follow these steps:

- Step 1** Align the guide pin on one of the two cable management frames to a guide-pin hole of the same size on the front-mounting bracket that is already attached to the chassis. The top of the frame should be at the same level as the top of the chassis (see [Figure 2-5](#)).

Figure 2-5 Installing the Cable Management Frames on a Cisco Nexus 7004 Chassis



1	Guide pins on the cable management frame aligned to two holes in the front-mount bracket.	2	Three M3 x 10 mm screws used to fasten the frame to the chassis (total of six screws for two frames).
----------	---	----------	---

Step 2 Fasten the frame to the chassis with three M3 x 10 mm screws (see Callout 2 in Figure 2-5). Tighten the screws to 5 to 7 in-lb (0.56 to 0.79 N.m).

Step 3 Repeat Steps 1 and 2 to install the other cable management frame to the chassis.

Installing USB Storage Media in a Supervisor 2 or 2E Module

Each Supervisor 2 or 2E module on a Cisco Nexus 7004 switch has a USB drive installed in the LOG FLASH reader. The Slot0 port is left empty, but you can optionally install a USB drive in the that port. To allow this storage media to function with the USB port, you must make sure that it is either already formatted for the port before installing it or format it after installing it.



Note The LOG FLASH and Slot0 USB ports use different formats for their data.

To install storage media in a supervisor module, follow these steps:

-
- Step 1** Insert the USB drive in the LOG FLASH or SLOT0 port.
- Step 2** Wait for the reader or port LED to turn green and for a message to appear on the console as follows:
- If you are installing a USB drive into the log flash reader, the message will end with “logflash:online.”
 - If you are installing a USB drive into the expansion flash reader, the message will end with “slot0:online.”
 - If you see an “offline” message or do not see a message, either the USB drive is not fully inserted or it is improperly formatted.
- Make sure that the USB drive is fully inserted inside the reader. If it is fully inserted, either format the card (see the *Cisco Nexus 7000 Series NX-OS Fundamentals Configuration Guide*) or replace the USB drive with another that is properly formatted for the reader.
-

Installing the Air Filter

The Cisco Nexus 7004 air filter is an optional feature (part number N7K-C7004-FAN=). To install an air filter, follow these steps:

-
- Step 1** Place the air filter over the air intake area on the right side of the chassis and align the eight screw holes in the filter to screw holes in the chassis.
- Step 2** Fasten the air filter to the chassis using eight M3 x 5 mm screws that came with the air filter. Tighten the screws to 5 to 7 in-lb (0.56 to 0.79 N.m).
-



Installing a Cisco Nexus 7009 Chassis

This chapter describes how to install a new or relocated Cisco Nexus 7009 chassis in a rack or cabinet. For information about installing other Cisco Nexus 7000 Series chassis or power supplies, see the following chapters:

- [Chapter 2, “Installing a Cisco Nexus 7004 Chassis”](#)
- [Chapter 4, “Installing a Cisco Nexus 7010 Chassis”](#)
- [Chapter 5, “Installing a Cisco Nexus 7018 Chassis”](#)
- [Chapter 6, “Installing Power Supplies”](#)

This chapter includes the following sections:

- [Preparing to Install the Switch, page 3-1](#)
- [Installing the Bottom-Support Rails on the Rack, page 3-4](#)
- [Installing the Chassis, page 3-11](#)
- [Grounding the Cisco Nexus 7009 Chassis, page 3-19](#)
- [Installing the Cable Management Frames, page 3-24](#)
- [Installing the Front Door and Air Intake Frame, page 3-27](#)
- [Installing Storage Media in a Supervisor Module, page 3-35](#)

Preparing to Install the Switch

This section includes the following topics:

- [Required Tools, page 3-2](#)
- [Installing a Rack or Cabinet, page 3-2](#)
- [Unpacking and Inspecting a New Switch, page 3-3](#)



Note

You must set up a two- or four-post, 19-inch EIA rack or cabinet before you can install the Cisco Nexus 7009 chassis. Make sure that you order the rack or cabinet and have it delivered before installing the chassis.

Required Tools

Before you install the Cisco Nexus 7009 chassis into a rack, make sure that you have the following tools and equipment:

- Mechanical lift capable of lifting 300 pounds (136 kg)
- Number 1 Phillips screwdriver with torque capability
- 3/16-inch flat-blade screwdriver
- Crimping tool
- Wire stripping tool
- Tape measure and level
- Grounding cable



Note

These tools and equipment do not ship with the chassis.

Additional tools and equipment, such as an electrostatic discharge (ESD) wrist strap, that you will also need to install the Cisco Nexus 7009 chassis, are included in the Cisco Nexus 7009 accessory kit. To see what is included in the accessory kit, see the [“Cisco Nexus 7009 Switch Accessory and Optional Kits” section on page C-3](#).



Caution

When you handle the Cisco Nexus 7009 chassis or its components, you must follow ESD protocol at all times to prevent ESD damage. This protocol includes but is not limited to wearing an ESD wrist strap that you connect to the earth ground.



Note

For a list of tools required to assemble and secure the rack or cabinet, see the documentation that the manufacturer shipped with the rack or cabinet.

Installing a Rack or Cabinet

Before you install the Cisco Nexus 7009 chassis, you must install a qualified two- or four-post, 19-inch EIA data center rack (or a cabinet that contains such a rack) that meets the requirements listed in the *Cisco Nexus 7000 Series Site Preparation Guide*. To maximize safety, you should do the following for the rack:

- Bolt the rack to the concrete subfloor before moving the Cisco Nexus 7009 chassis onto it.



Warning

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over. Statement 1048

- If the rack has bonded construction, connect it to the earth ground to enable you to easily ground the system components that you install and to ground your ESD wrist strap. This step minimizes the chance of electrostatic discharge when you handle ungrounded components before you install them.

If you are using AC power, be sure that the rack includes AC power receptacles with the amperage required for the power supply units that you will be installing in the chassis. If you are installing 6-kW power supply units, you must have 20-A circuits. If you are installing 7.5-kW power supply units, you must have 30-A circuits.

If you are using DC power, be sure that the DC power supply is grounded and that there is direct access to the facility DC power or indirect access through a power interface unit (PIU). You must connect the DC power supply to the earth ground before connecting it to the facility DC power.

**Warning**

Take care when connecting units to the supply circuit so that wiring is not overloaded. Statement 1018

For instructions on setting up the rack, see the documentation that the manufacturer shipped with the rack.

Unpacking and Inspecting a New Switch

Before you install a new Cisco Nexus 7009 chassis, you need to unpack and inspect it to be sure that you have all the items that you ordered and verify that the switch was not damaged during shipment. If anything is damaged or missing, contact your customer representative immediately.

**Tip**

Do not discard the shipping container when you unpack the Cisco Nexus 7009 system. Flatten the shipping cartons and store them with the pallet used for the system. If you need to move or ship the system in the future, you will need these containers.

To inspect the shipment, follow these steps:

Step 1 Compare the shipment to the equipment list provided by your customer service representative and verify that you have received all of the ordered items. The shipment should include boxes for the following:

- System chassis, which includes the following installed components:
 - 2 supervisor modules
 - 1 to 7 I/O modules
 - 3 to 5 fabric modules
 - 1 fan tray
- 1 to 2 power supply units
The power supply units are shipped with the chassis but are boxed separately.
- Cisco Nexus 7009 system accessory kit
To see a list of what is in the accessory kit, see the [“Cisco Nexus 7009 Switch Accessory and Optional Kits”](#) section on page C-3.
- Cable management frames
 - Left and right cable management frames
 - Top hood
- Center-mount kit (optional—must be ordered separately for center-mount installations)
 - Left and right center-mount bottom-support rails

- Left and right center-mount vertical mounting brackets
 - Door and air intake frame (optional)
- Step 2** Check the contents of each box or package for damage.
- Step 3** If you notice any discrepancies or damage, send the following information to your customer service representative by e-mail:
- Invoice number of the shipper (see the packing slip)
 - Model and serial number of the missing or damaged unit
 - Description of the problem and how it affects the installation
-

Installing the Bottom-Support Rails on the Rack

You can use the following two types of bottom-support rails to install and hold a Cisco Nexus 7009 chassis to its rack:

- Front-mount bottom-support rails
- Center-mount bottom-support rails (part number N7K-C7009-CMK)

Typically, you use the two front-mount bottom-support rails in the Bottom Support Kit (part of the Cisco Nexus 7009 Accessory Kit or ordered separately as part number N7K-C7009-BSK). If you additionally ordered the Center Mount Kit (part number N7K-C7009-CMK) for centering the chassis on a two-post rack, you will receive an additional kit with two center-mount bottom support rails and two center-mount rail mounting brackets. You must install either the front-mount bottom-support rails or the center-mount bottom-support rails before installing the chassis.



Note

If you are installing three Cisco Nexus 7009 chassis with front-mount brackets in a 42-RU rack and you can safely position the bottom chassis at the lowest RU using a mechanical lift, you can fasten the chassis directly to the rack or cabinet with the maximum number of screws. After you install the bottom chassis, you can slide the additional chassis onto the fully installed lower chassis (without using additional bottom-support rails) and then fasten the upper chassis to the rack. This process enables you to install three 14-RU Cisco Nexus 7009 chassis in a 42-RU rack. If you do not need to install three chassis in a 42 RU rack, we recommend that you always install each chassis on its own set of bottom-support rails.



Note

When you install a Cisco Nexus 7009 chassis with center-mount brackets, you must always install the chassis onto center-mount bottom-support rails.



Caution

Do not remove the center-mount brackets when a chassis is installed on them. They are required at all times for holding a center-mount chassis to the rack.

The prerequisites, tools, and process for installing the bottom-support rails are included in the following topics:

- [Prerequisites for Attaching the Bottom-Support Rails, page 3-5](#)
- [Required Tools and Equipment, page 3-5](#)

- [Attaching the Front-Mount Bottom-Support Rails, page 3-6](#)
- [Attaching the Center-Mount Bottom-Support Rails, page 3-8](#)

Prerequisites for Attaching the Bottom-Support Rails

Before you can attach the bottom-support rails, you must fully install the rack or cabinet and use bolts to anchor the rack to the concrete subfloor. To maximize the stability of the rack, install everything as low as possible on the rack with heavier items below lighter items. Be sure that there is 15 RU available for installing the Cisco Nexus 7009 chassis (14 RU) and its bottom-support rack (1 RU).

Required Tools and Equipment

You need the following tools and equipment to attach the bottom-support rails:

- Number 1 Phillips-head screwdriver with torque capability.
- One of the following types of bottom-support rails:
 - Front-mount bottom-support rails (shipped with the Bottom-Support Kit, which is found in the accessory kit or ordered separately [part number N7K-C7009-BSK])
 - Center-mount bottom-support rails (not shipped with the chassis unless special ordered [part number N7K-C7009-CMK])

[Table 3-1](#) lists the items in the Bottom-Support Kit and [Table 3-2](#) lists the items in the Center-Mount Kit.

Table 3-1 *Bottom-Support Kit Contents*

Part Description	Quantity
Front-mount bottom-support rails	2
Crossbar	1
12-24 x 3/4 in. Phillips screws	20
M6 x 19 mm Phillips screws	20
M4 x 8 mm Phillips screws	2

Table 3-2 *Center-Mount Kit Contents*

Part Description	Quantity
Center-mount rack mounting brackets	2
Center-mount bottom-support rails	2
Crossbar	1
12-24 x 3/4 in. Phillips screws	20
M6 x 19 mm Phillips screws	20
M4 x 8 mm Phillips screws	2

Attaching the Front-Mount Bottom-Support Rails

To maximize the stability of the rack, you should install the chassis as low as possible on the rack. Install the heaviest chassis first at the bottom of the rack. If you install a second chassis in the same rack, install it immediately above the lower chassis if there is enough vertical space.



Warning

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- **This unit should be mounted at the bottom of the rack if it is the only unit in the rack.**
 - **When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.**
 - **If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.** Statement 1006
-

To attach the front-mount bottom-support rails to a two- or four-post EIA rack, follow these steps:

Step 1

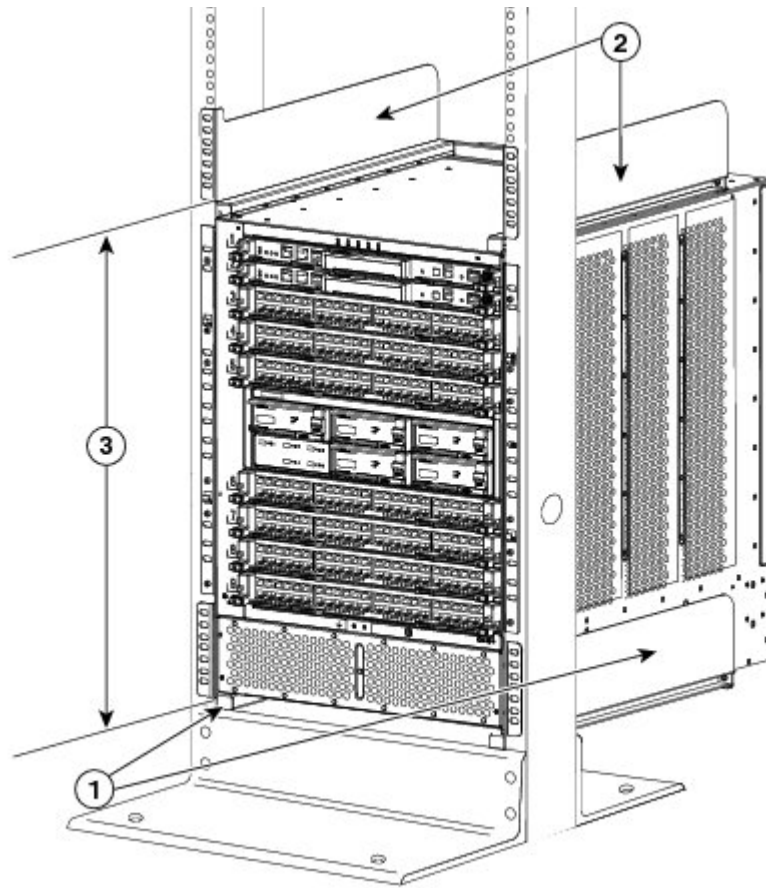
Position one of the two front-mount bottom-support rails at the lowest possible RU on the rack. If you are installing a chassis above another Cisco Nexus 7009 chassis, position the rail 26.25 inches (66.7 cm) (15 RU) above the bottom-support rails for the lower chassis as shown in [Figure 3-1](#).



Note

When installing the chassis without bottom-support rails, you can skip this step.

Figure 3-1 Positioning the Front-Mount Bottom-Support Rails

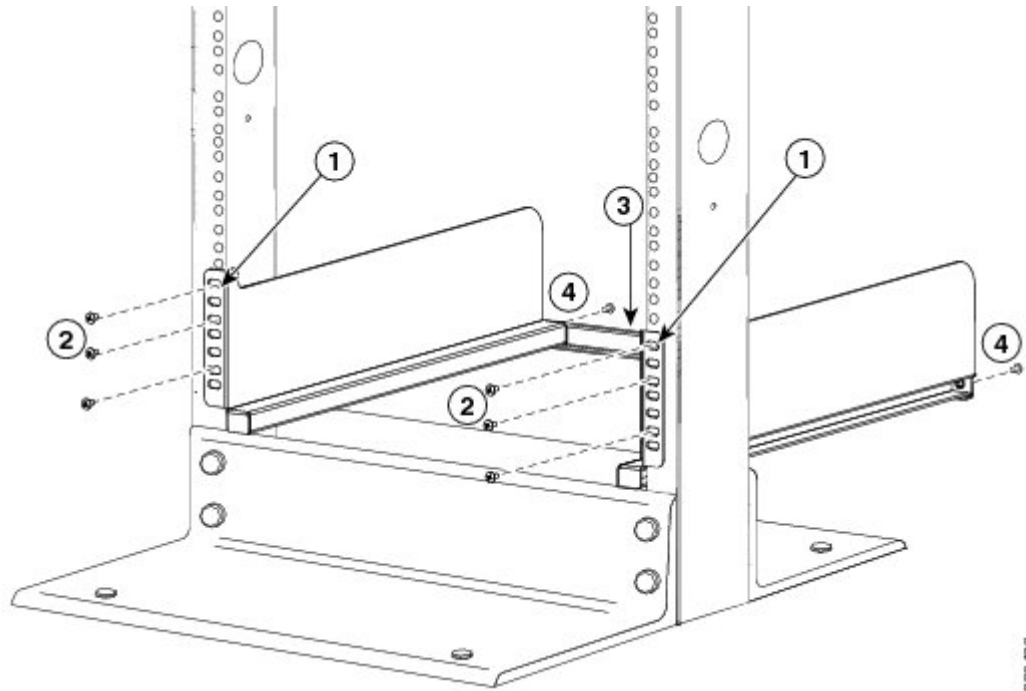


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1	For the heaviest Cisco Nexus 7009 chassis to be installed in the rack, position two front-mount bottom-support rails at the lowest RU on the rack.	3	The distance between the bottom-support rails must be at least 26.25 inches (66.7 cm) (15 RU) for each Cisco Nexus 7009 chassis.
2	For the next lightest Cisco Nexus 7009 chassis to be installed in the rack, position two front-mount bottom-support rails immediately above the first installed chassis.		

Step 2 Use a Phillips screwdriver to screw in two or three (three are recommended if you have three screw holes) M6 x 19 mm or 12-24 x 3/4 in. Phillips screws on the front end of each bracket (using a total of 6 screws for both brackets) as shown in [Figure 3-2](#).

Figure 3-2 Attaching a Front-Mount Bottom-Support Rail to a Rack



1	Left and right front-mount bottom-support rails positioned at the lowest possible RU	3	Crossbar
2	Two sets of two or three M6 x 19 mm Phillips screws or two sets of two or three 12-24 x 3/4 in. Phillips screws	4	M4 x 8 mm Phillips screws (2)

Step 3 Align the crossbar to the lower back of the two bottom-support rails and use two M4 x 8 mm screws to attach it to each rail (one screw for each rail).

Attaching the Center-Mount Bottom-Support Rails

To maximize the stability of the rack, you should install the chassis as low as possible on the rack. Install the heaviest chassis first at the bottom of the rack. If you install a second chassis in the same rack, install it immediately above the lower system if there is enough vertical space.

**Warning**

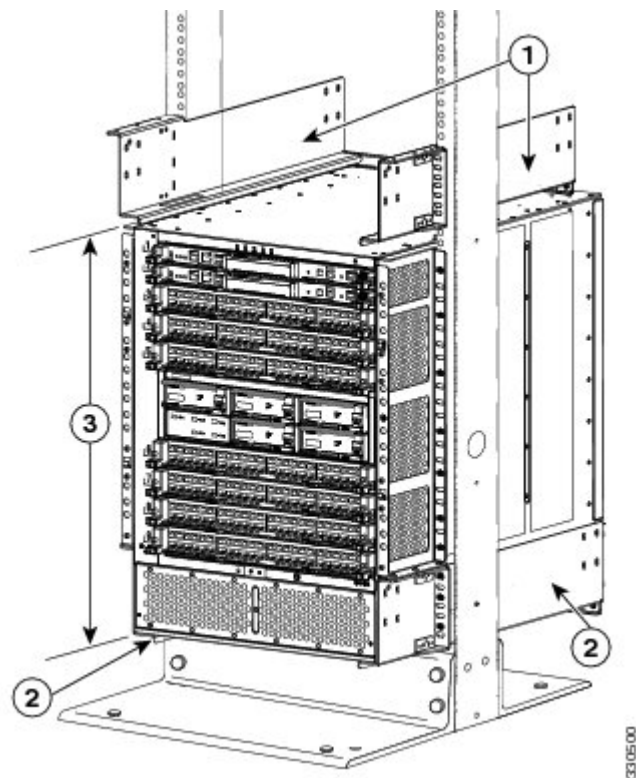
To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack. Statement 1006

To attach the center-mount bottom-support rails to a two- or four-post EIA rack, follow these steps:

- Step 1** Position one of the two center-mount brackets at the lowest possible RU. If you are installing a chassis above another Cisco Nexus 7009 chassis, position the rail 26.25 inches (66.7 cm) (15 RU) above the center-mount bottom-support rails for the lower chassis as shown in [Figure 3-3](#).

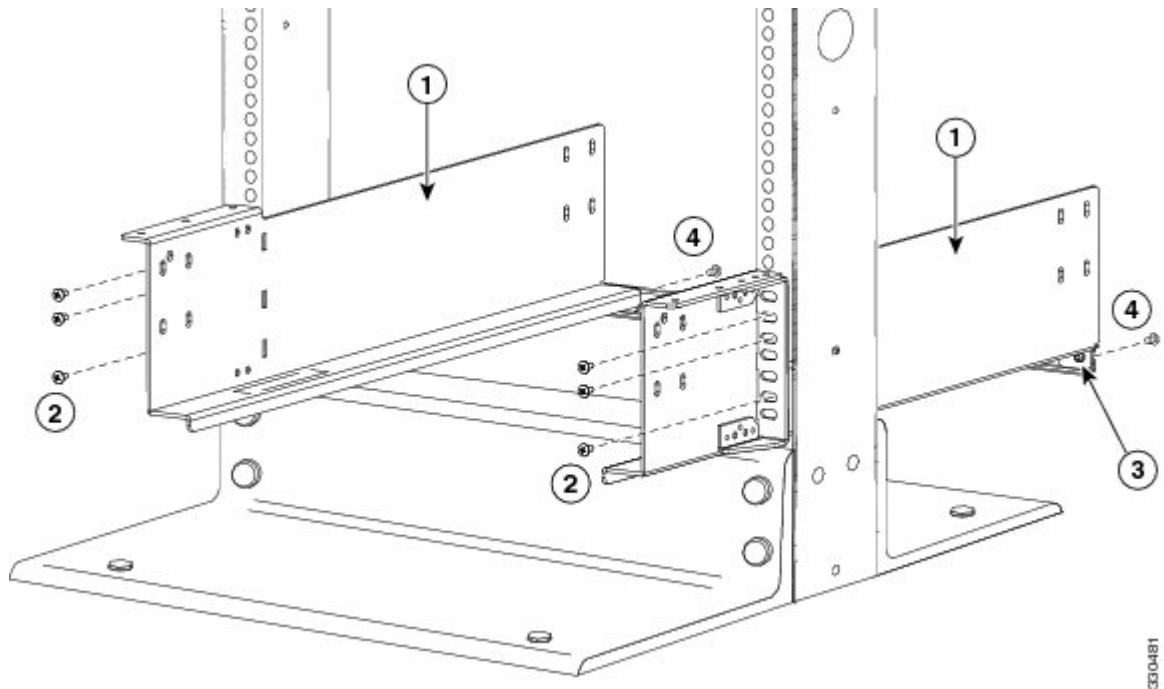
Figure 3-3 Positioning the Center-Mounted Bottom-Support Rails



1	For the first and heaviest Cisco Nexus 7009 chassis installed in a rack, position two center-mount bottom-support rails at the lowest RU on the rack.	3	Allow at least 26.25 inches (66.7 cm) (15 RU) for each Cisco Nexus 7009 system.
2	For the second Cisco Nexus 7009 chassis installed in a rack, position two center-mount bottom-support rails immediately above the first installed switch.		

Step 2 Use a Phillips screwdriver to screw in two or three (three are recommended if you have three screw holes) M6 x 19 mm or 12-24 x 3/4 inch Phillips screws on each bracket (using a total of 6 screws for both brackets) as shown in [Figure 3-4](#).

Figure 3-4 Attaching a Center-Mount Bottom-Support Rail to a Rack



1	Left and right center-mount bottom-support rails	3	Crossbar
2	Two sets of 3 M6 x 19 mm Phillips screws or two sets of 3 12-24 x 3/4 in. Phillips screws	4	M4 x 8 mm Phillips screws (2)

Step 3 Align the crossbar to the lower back of the two bottom-support rails and use two M4 x 8 mm screws to attach it to each rail (one screw for each rail).

Installing the Chassis

This section describes how to install the Cisco Nexus 7009 chassis in a rack or cabinet. Depending on your data center requirements, you can choose to mount the front of the chassis to a rack or cabinet (standard method of mounting the chassis), or you can choose to mount the center of the chassis to a rack or cabinet. To mount the center of the chassis, you must order the center-mount brackets separately from the chassis.

This section includes the following topics:

- [Prerequisites for Installing the Chassis, page 3-11](#)
- [Required Tools and Equipment, page 3-12](#)
- [Mounting the Chassis by its Front Brackets, page 3-13](#)
- [Mounting the Chassis by its Center Brackets, page 3-15](#)

Prerequisites for Installing the Chassis

Before you install the chassis, you must make sure that the following items are available for the installation:

- Data center ground that is accessible where you are installing the Cisco Nexus 7009 chassis.
- Two- or four-post, 19-inch EIA rack or cabinet that includes such a rack. These installation instructions show how to install the chassis in a two-post rack. You follow the same steps for installing the chassis on the front two posts of a four-post rack or cabinet.

For more information on the rack or cabinet, see the [“Installing a Rack or Cabinet”](#) section on [page 3-2](#).



Warning

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over. Statement 1048

- Bottom-support rails that are installed in the rack or cabinet—You must already have two front-mount bottom-support rails or two center-mount bottom-support rails attached to the lowest possible rack unit on the chassis.

For more information, see the [“Installing the Bottom-Support Rails on the Rack”](#) section on [page 3-4](#).

- Two front-mount brackets attached to the chassis. If you are mounting the chassis at its center to the rack or cabinet, you must also have two center-mount brackets, in the center-mount kit, which you order separately from the Cisco Nexus 7009 chassis.

**Warning**

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack. Statement 1006

- Cisco Nexus 7009 chassis and its components that are accounted for and undamaged.
For more information, see the [“Unpacking and Inspecting a New Switch”](#) section on page 3-3.

Required Tools and Equipment

You need the following tools and equipment to install the Cisco Nexus 7009 chassis:

- Mechanical lift capable of lifting at least 300 pounds (136 kg)

**Caution**

You must use a mechanical lift whenever lifting a device over 120 pounds (55 kg).

- Number 1 Phillips-head screwdriver with torque capability
- Rack-mount kit (shipped with the Cisco Nexus 7009 system accessory kit)

[Table 3-3](#) lists the items in the rack-mount kit.

Table 3-3 Contents for the Rack-Mount Kit

Part Description	Quantity
12-24 x 3/4 in. Phillips screws	20
M6 x 19 mm Phillips screws	20
Front-mount bottom-support rails	2
Crossbar	1
M4 x 8 mm Phillips screws	2

**Note**

You should also have at least two persons to push the chassis, which can weigh up to 300 pounds (136 kg), onto and off the mechanical lift and rack.

- If you are going to mount the center of the chassis to the rack or cabinet, you must also have the optional center-mount kit. [Table 3-4](#) lists the items in the center-mount kit.

Table 3-4 Contents for the Optional Center-Mount Kit

Part Description	Quantity
Center-mount bottom-support rails	2
Center-mount bracket	2

Mounting the Chassis by its Front Brackets

To install a Cisco Nexus 7009 chassis by its front brackets to a rack or cabinet, follow these steps:

- Step 1** Load the chassis onto a mechanical lift as follows:
- Position the mechanical lift next to the shipping pallet that holds the chassis.
 - Elevate the lift platform to the level of the bottom of the chassis (or no more than 0.25 inches [0.635 cm] below the bottom of the chassis).
 - Use at least two persons to slide the chassis fully onto the lift so that the side of the chassis touches or is close to the vertical rails on the lift. Make sure that the front and rear of the chassis are unobstructed so you can easily push the chassis into the rack.



Warning

To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules (such as power supplies, fans, or cards); these types of handles are not designed to support the weight of the unit. Statement 1032

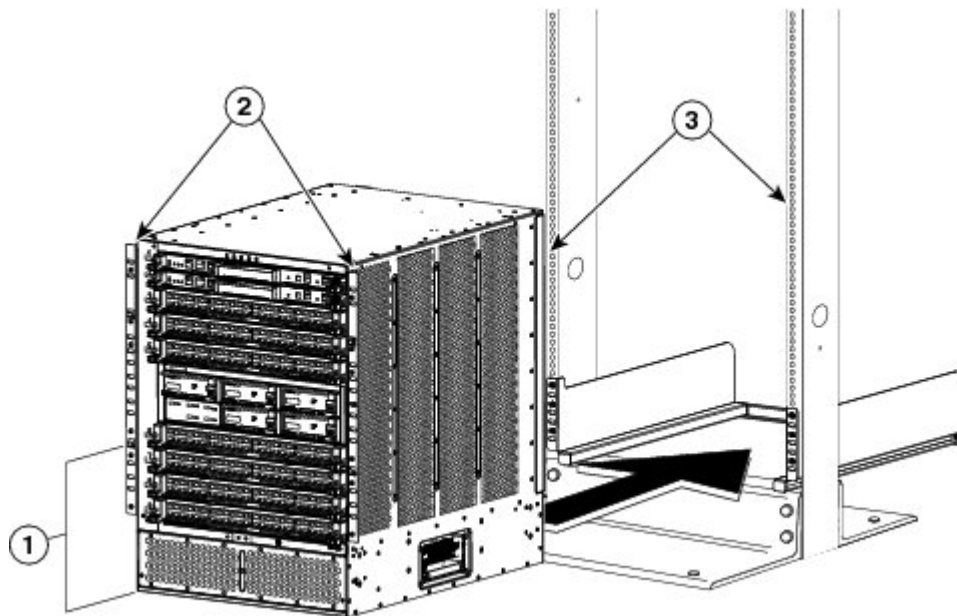


Caution

To lift the chassis, use a mechanical lift. Use the handles on the side of the chassis for only repositioning the chassis after it is already on the mechanical lift or in the rack or cabinet.

- Step 2** Use the mechanical lift to move and align the rear of the chassis to the front of the rack or cabinet. Make sure that the bottom of the chassis is elevated to the height of the bottom-support rails or no more than 0.25 inch (0.635 cm) above the bracket.
- Step 3** Use at least two persons to push the chassis onto the installed bottom-support rails until the front mount brackets come in contact with the rack rails. Push the lower half of the front side of the chassis so that the back side enters the rack first, and push until the chassis vertical front-mounting brackets or center-mounting brackets come in contact with the front of the rack. (See [Figure 3-5](#).)

Figure 3-5 Moving a Cisco Nexus 7009 Chassis onto a Rack (Front-Mount Installation)



1	Push the lower half of the front side of the chassis	3	Rack with vertical mounting rails
2	Front-mounting brackets		

Step 4 Make sure that the screw holes in the chassis mounting brackets align with the screw holes in the vertical mounting rails.

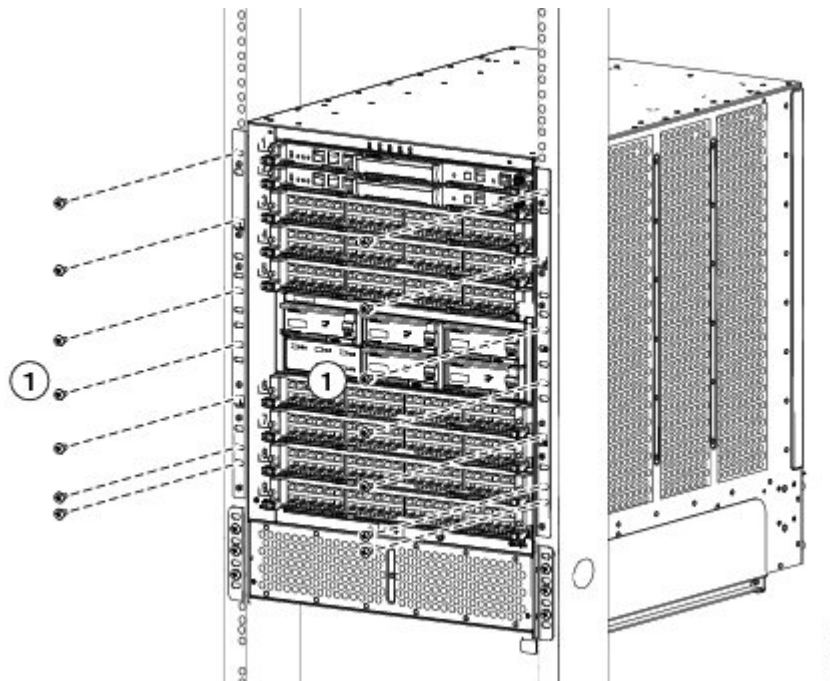


Tip

To adjust the placement of the chassis so that the screw holes in the chassis mounting brackets align with the screw holes in the vertical mounting rails, use the chassis handles shown in [Figure 3-6](#).

Step 5 Use a Phillips screwdriver to screw in seven to eight M6 x 19-mm or 12-24 x 3/4-inch screws in each of the two chassis vertical mounting brackets (use a total of 12 to 14 screws for each of two mounting brackets) as shown in [Figure 3-6](#).

Figure 3-6 Attaching the Front of the Cisco Nexus 7009 Chassis to the Rack



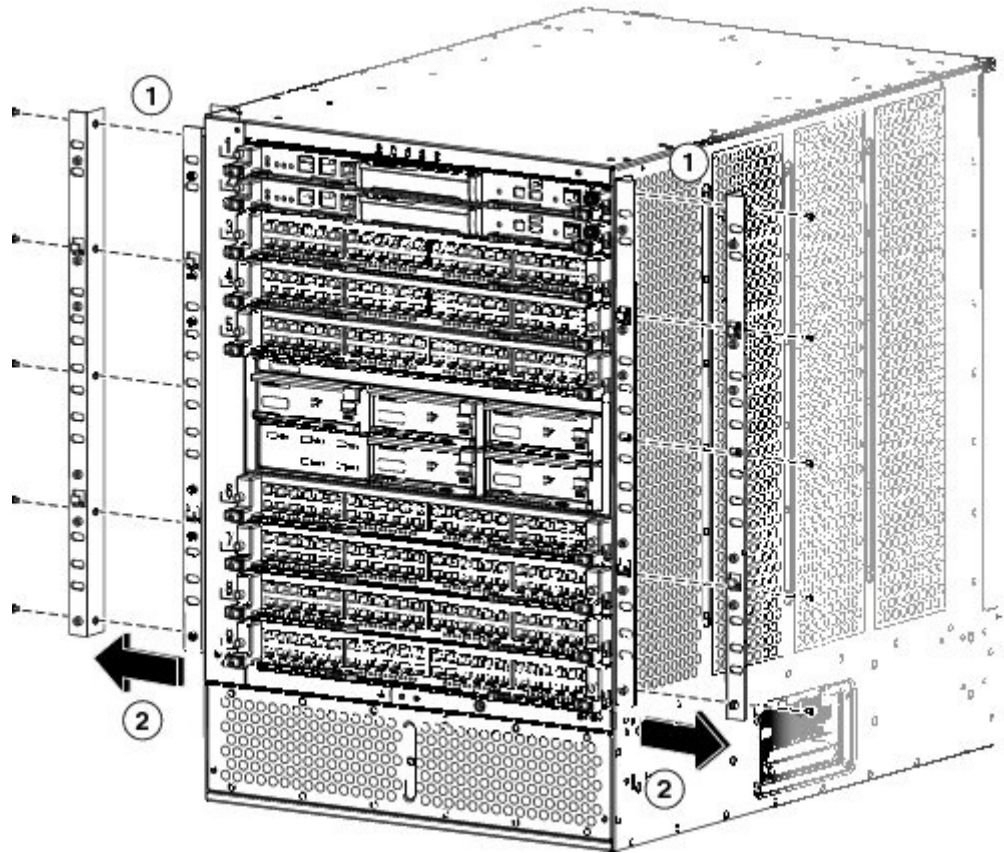
- | | |
|----------|--|
| 1 | Seven to eight M6 x 19 mm or 10-24 x 3/4 in. Phillips screws used to attach each side bracket to a front mounting rail (use a total of eight screws) |
|----------|--|

Mounting the Chassis by its Center Brackets

To install a Cisco Nexus 7009 chassis by its optional center bracket to a rack or cabinet, follow these steps:

- Step 1** Follow these steps to replace the front-mount bracket on the chassis with center-mount brackets:
- a. Remove the two front-mount brackets from the chassis by unscrewing the five screws that hold each bracket to the front sides of the chassis (see [Figure 3-7](#)).

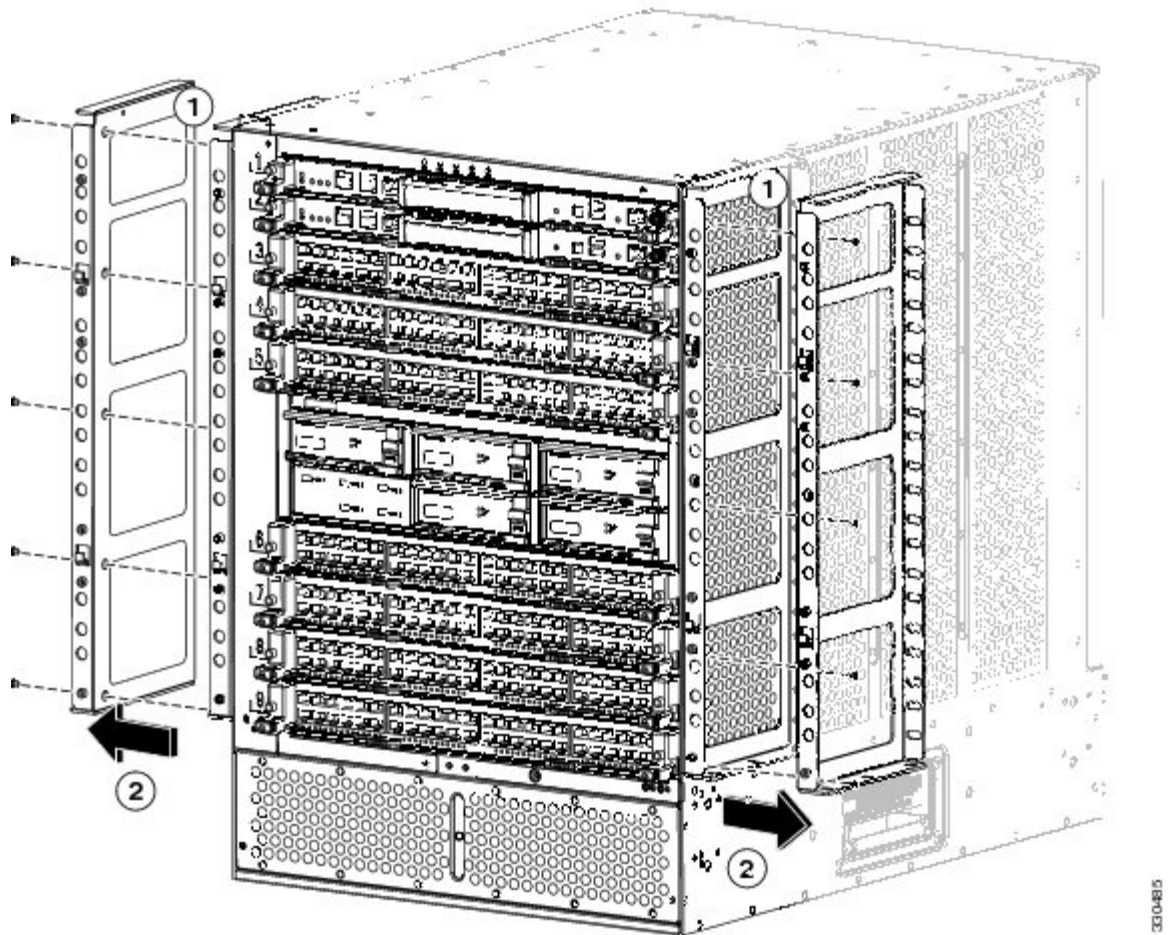
Figure 3-7 Removing the Front-Mount Brackets



1	Remove five screws from each bracket	2	Remove the bracket from the chassis
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- b. Position the center-mount bracket so that its five screw holes are aligned to the five screw holes used for the front-mount bracket (see [Figure 3-8](#)).

Figure 3-8 Attaching Center-Mount Brackets to the Chassis



<p>1 Position the center-mount bracket with its five screw holes aligned to the five screw holes in the chassis.</p>	<p>2 Fasten the bracket to the chassis using five screws previously used to hold a front-mount bracket to the chassis.</p>
---	---

- c. Fasten the bracket to the chassis with the five screws previously removed from the front-mount bracket.
- d. Repeat Steps b and c for attaching the other center-mount bracket to the other side of the chassis.

Step 2 Load the chassis onto a mechanical lift as follows:

- a. Position the mechanical lift next to the shipping pallet that holds the chassis.
- b. Elevate the lift platform to the level of the bottom of the chassis (or no more than 0.25 inches [0.635 cm] below the bottom of the chassis).
- c. Use at least two persons to slide the chassis fully onto the lift so that the side of the chassis touches or is close to the vertical rails on the lift. Make sure that the front and rear of the chassis are unobstructed so you can easily push the chassis into the rack.

**Warning**

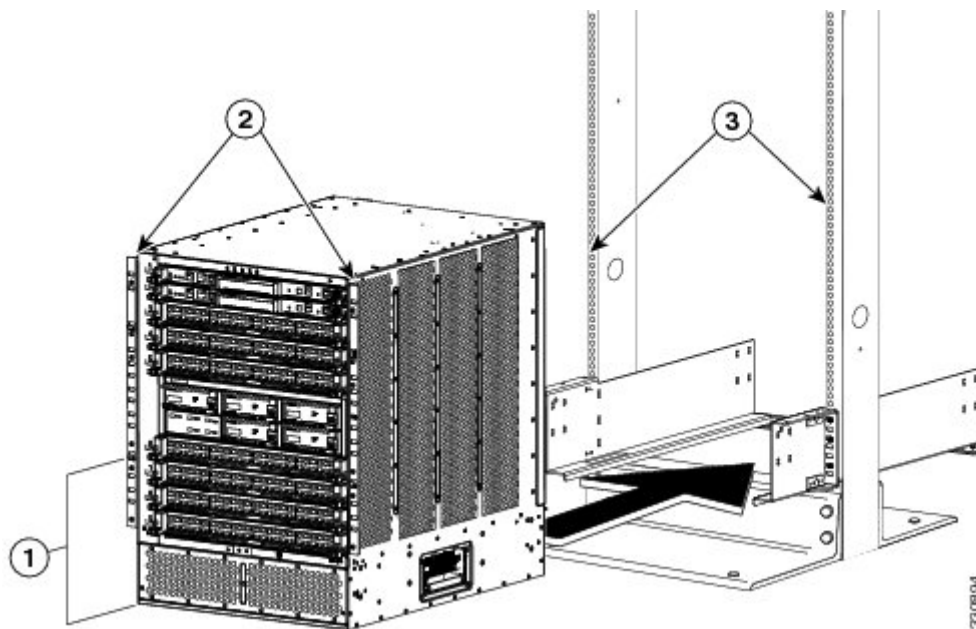
To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules (such as power supplies, fans, or cards); these types of handles are not designed to support the weight of the unit. Statement 1032

**Caution**

To lift the chassis, use a mechanical lift. Use the handles on the side of the chassis for only repositioning the chassis after it is already on the mechanical lift or in the rack or cabinet.

- Step 3** Use the mechanical lift to move and align the rear of the chassis to the front of the rack or cabinet. Make sure that the bottom of the chassis is elevated to the height of the bottom-support rails or no more than 0.25 inch (0.635 cm) above the bracket.
- Step 4** Use at least two persons to push the chassis onto the installed bottom-support rails until the front-mount brackets come in contact with the rack rails. Push the lower half of the front side of the chassis so that the back side enters the rack first, and push until the chassis vertical front-mounting brackets or center-mounting brackets come in contact with the front of the rack. (See [Figure 3-9](#).)

Figure 3-9 Moving a Cisco Nexus 7009 Chassis onto a Rack (Center-Mount Installation)



1	Push the lower half of the front side of the chassis	3	Rack with vertical mount rails
2	Center-mount brackets		

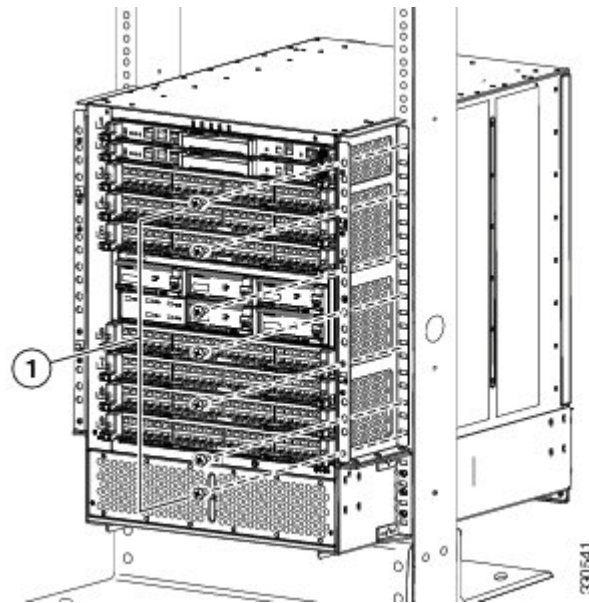
- Step 5** Make sure that the screw holes in the chassis mounting brackets align with the screw holes in the vertical mounting rails.

**Tip**

To adjust the placement of the chassis so that the screw holes in the chassis mounting brackets align with the screw holes in the vertical mounting rails, use the chassis handles shown in [Figure 3-6](#).

- Step 6** Use a Phillips screwdriver to screw in seven to eight M6 x 19-mm or 12-24 x 3/4-inch screws in each of the two chassis vertical mounting brackets (use a total of 12 to 14 screws for each of two mounting brackets) as shown in [Figure 3-10](#).

Figure 3-10 Attaching the Center-Mounted Cisco Nexus 7009 Chassis to the Rack



1	Seven to eight M6 x 19 mm or 10-24 x 3/4 in. Phillips screws used to attach each side bracket to a front mounting rail (use a total of eight screws)	
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Grounding the Cisco Nexus 7009 Chassis

If you are using AC power supply units, the Cisco Nexus 7009 system is grounded through the AC power supply cables and one of two grounding connections on the chassis. The AC power supply cables provide a connection to an earth ground whenever you connect the AC power to the system. The system ground, also referred to as the network equipment building system (NEBS) ground, provides additional grounding for EMI shielding requirements and for the low-voltage supplies (DC-DC converters) on the modules. This grounding system is active even when the AC power cables are not connected to the system. You establish this ground by connecting one of the two grounding pads on the chassis to the rack (if it is connected to an earth ground) or directly to the earth ground for the data center building.

If you are using DC power supply units, you must connect each DC power supply unit to the earth ground before connecting the DC power source to the DC power supply units. You also connect the chassis to the NEBS ground for EMI shielding requirements and for the low-voltage supplies on the modules.

This section includes the following topics:

- [Prerequisites for Grounding the Chassis](#), page 3-20

- [Required Tools and Equipment, page 3-20](#)
- [Connecting the System Ground, page 3-20](#)
- [Connecting Your ESD Wrist Strap to the Chassis, page 3-23](#)

Prerequisites for Grounding the Chassis

Before you can ground the chassis, you must have a connection to the earth ground for the data center building. If you installed the Cisco Nexus 7009 chassis into a bonded rack (see the rack manufacturer's instructions for more information) that now has a connection to the data center earth ground, you can ground the chassis by connecting its grounding ports to the rack. Otherwise, you must connect the chassis grounding ports directly to the data center ground.

Required Tools and Equipment

To connect the system ground, you need the following tools and materials:

- Grounding lug—A two-holed standard barrel lug that supports up to 6 AWG wire. This lug is supplied with the Cisco Nexus 7009 system accessory kit.
- Grounding screws—Two M4 x 8 mm (metric) pan-head screws. These screws are shipped with the Cisco Nexus 7009 accessory kit.
- Grounding wire—Not supplied with the Cisco Nexus 7009 system accessory kit. This wire should be sized to meet local and national installation requirements. Depending on the power supply and system, a 12 AWG to 6 AWG copper conductor is required for U.S. installations. We recommend that you use commercially available 6 AWG wire. The length of the grounding wire depends on the proximity of the switch to proper grounding facilities.
- Number 1 Phillips-head screwdriver with torque capability.
- Crimping tool to crimp the grounding wire to the grounding lug.
- Wire-stripping tool to remove the insulation from the grounding wire.

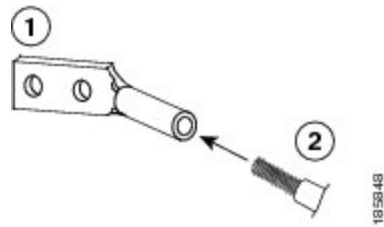
Connecting the System Ground

After you have moved the chassis into the rack or cabinet, you are ready to connect the system to the data center earth ground. After you ground the chassis, you can ground your ESD wrist strap by connecting it to the chassis.

To connect the system ground to the data center earth ground, follow these steps:

-
- Step 1** Use a wire-stripping tool to remove approximately 0.75 inch (19 mm) of the covering from the end of the grounding wire.
 - Step 2** Insert the stripped end of the grounding wire into the open end of the grounding lug as shown in [Figure 3-11](#).

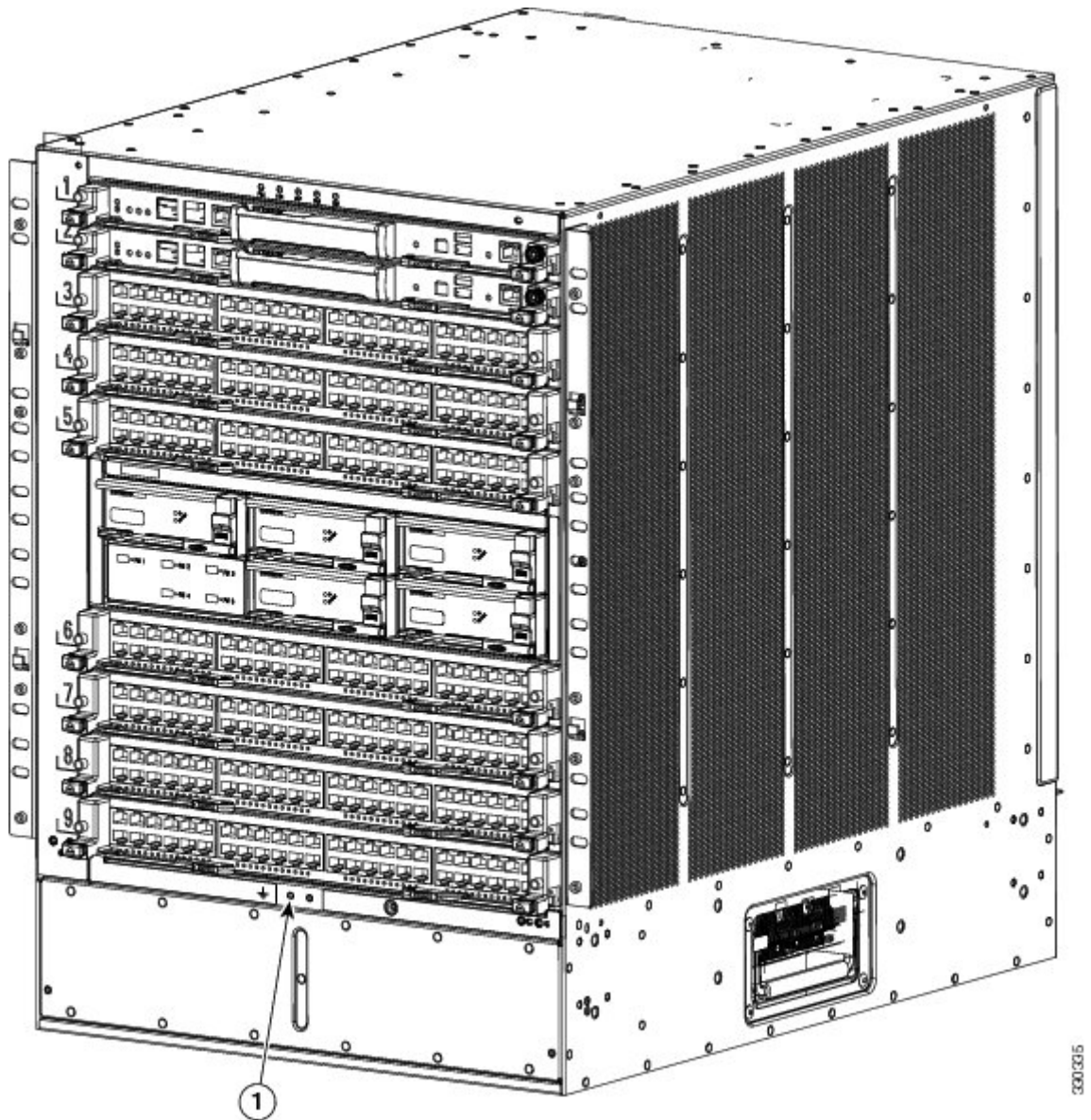
Figure 3-11 Inserting the Grounding Wire in the Grounding Lug



1	NRTL listed 45-degree grounding lug	2	Grounding cable with 0.75 in. (19 mm) of insulation stripped from the end
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- Step 3** Use the crimping tool to crimp the lug to the grounding wire. Verify that the ground wire is securely attached to the ground lug by attempting to pull the wire out of the crimped lug.
- Step 4** Remove the adhesive label from one of the two system grounding pads, and secure the grounding wire lug to the grounding pad with two M4 screws. [Figure 3-12](#) shows the location of the grounding pads on the front side of the chassis. Ensure that the grounding lug and the grounding wire do not interfere with other switch hardware or rack equipment.

Figure 3-12 Grounding Pad on the Front of the Cisco Nexus 7009 Chassis



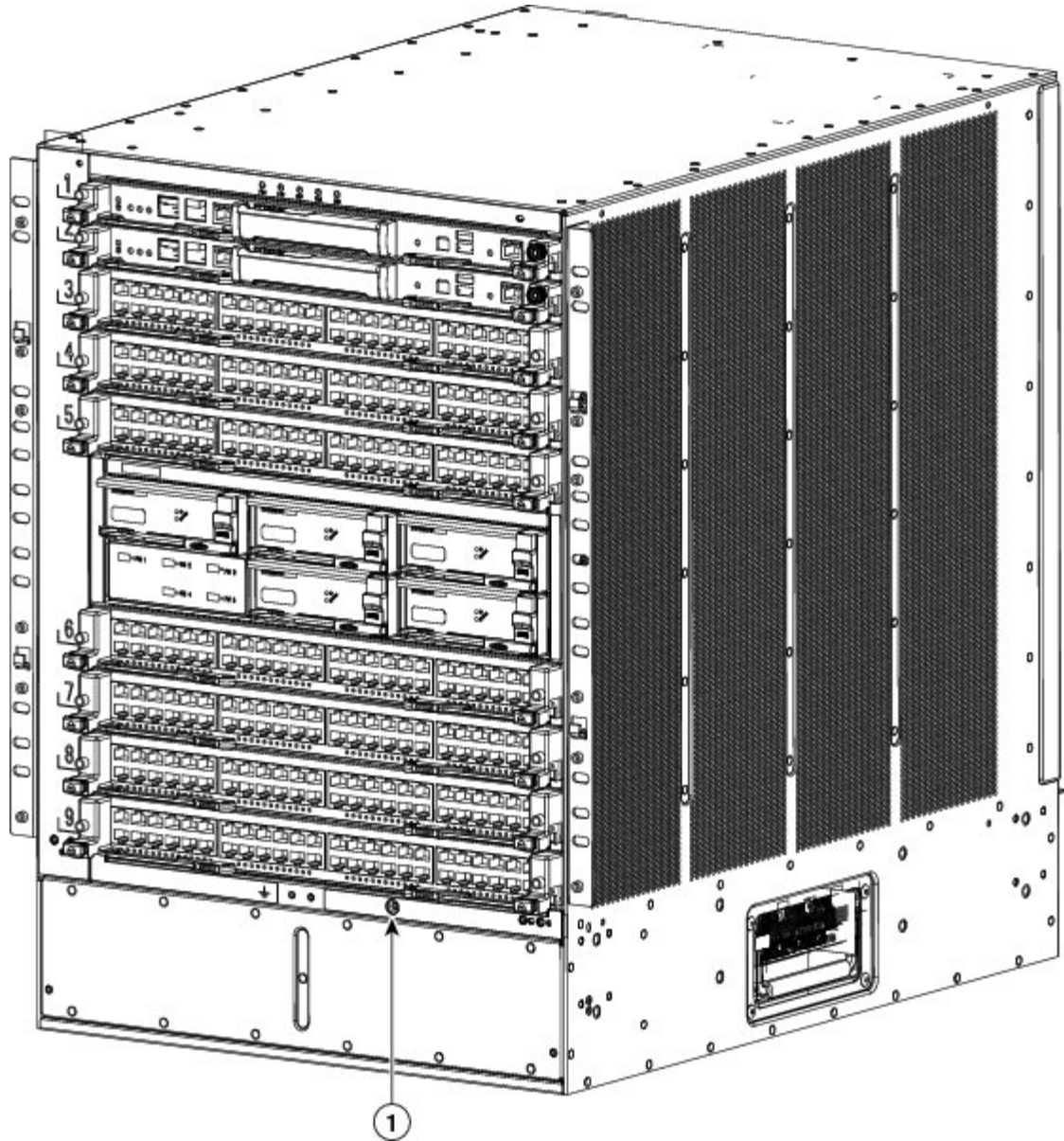
1	Grounding pad
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Prepare the other end of the grounding wire and connect it to an appropriate grounding point in your site to ensure an adequate earth ground for the switch. If the rack is grounded, connect the grounding wire as explained in the documentation provided by the vendor for the rack.

Connecting Your ESD Wrist Strap to the Chassis

After you connect the chassis to the data center earth ground, you can ground your ESD wrist strap by plugging it into an ESD port (shown in [Figure 3-13](#)).

Figure 3-13 ESD Grounding Port on the Front of the Cisco Nexus 7009 Chassis



1	ESD grounding port
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Installing the Cable Management Frames

After you have fully installed the Cisco Nexus 7009 switch chassis in the rack or cabinet (see the [“Installing the Chassis” section on page 3-11](#)), you can install the cable management frames on the front of the chassis.

When you install the cable management frames, you attach two side frames to the front-mount brackets on the chassis and then attach a top hood to the top of the two side frames and the chassis.

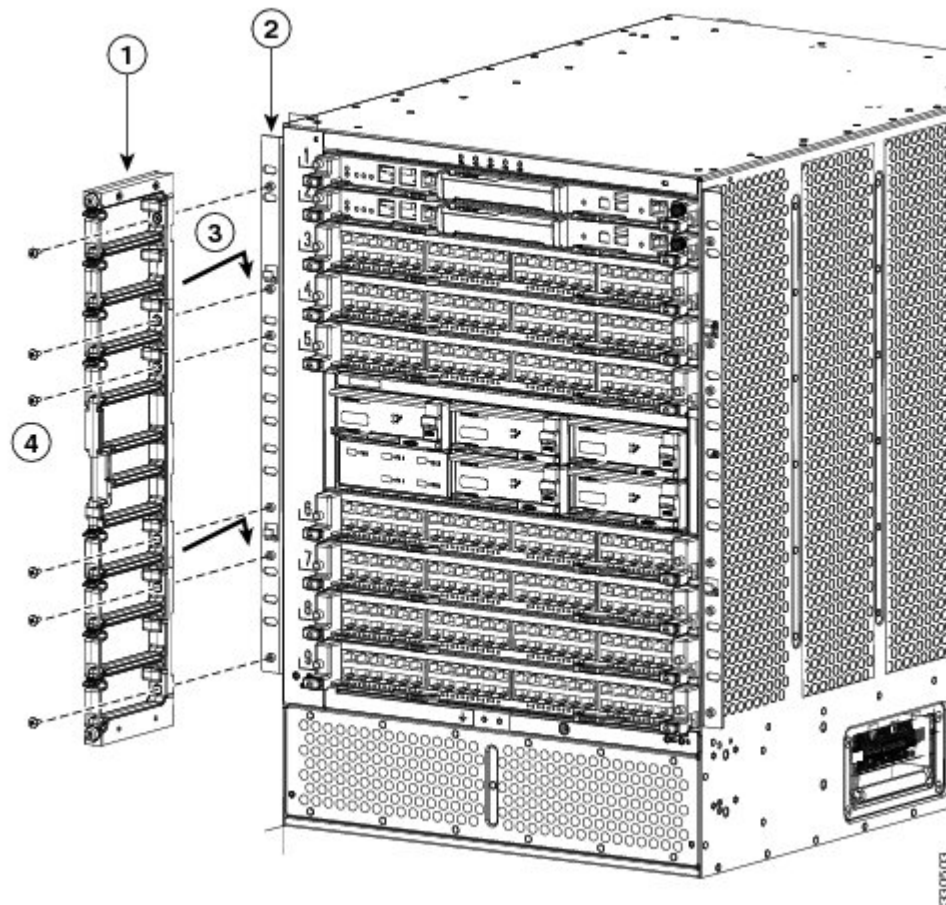
**Note**

Chassis with center-mount brackets include front-mount brackets for holding the cable management frames.

To install the cable management frames on the Cisco Nexus 7009 switch chassis, follow these steps:

-
- Step 1** Attach a cable management frame (part number 800-33786) onto the two hooks that protrude from the lower half of the left front-mount bracket that is attached to the Cisco Nexus 7009 switch chassis, and loosely fasten the frame to the chassis with four flat-head M4x10 screws as shown in [Figure 3-14](#).

Figure 3-14 Attaching a Cable Management Frame to a Front-Mount Bracket

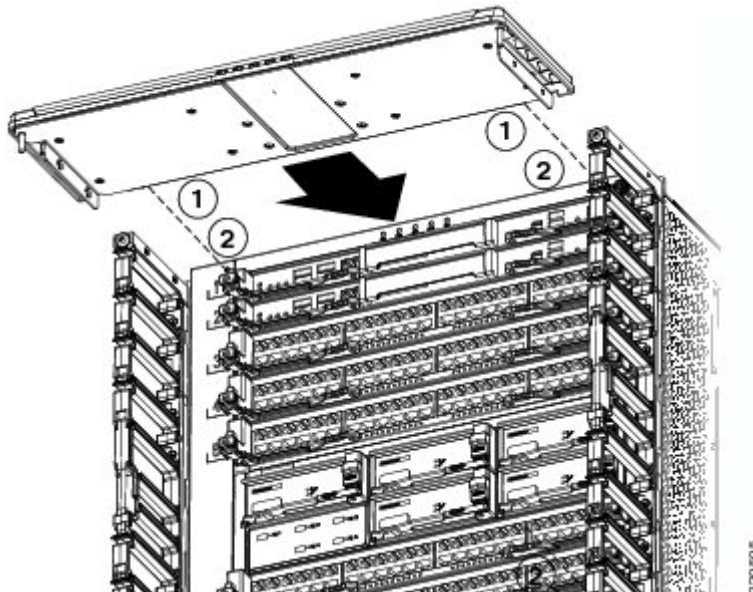


1	Cable management frame.	3	Position the frame so that the two lower hooks on the front-mount bracket fit inside the two holes on the frame and then slide the assembly down so that it is held by the hooks.
2	Front-mount bracket.	4	Loosely fasten the assembly to the front-mount bracket with four M4x10 screws. Do not tighten these screws.

Step 2 Repeat Step 1 to attach a cable management frame to the right side of the chassis.

Step 3 Place the top hood (part number 800-33785-01) on top of the two cable management frames that are already installed. Push the top hood toward the chassis so that its alignment pins enter the alignment holes and the top hood rests against the chassis as shown in [Figure 3-15](#).

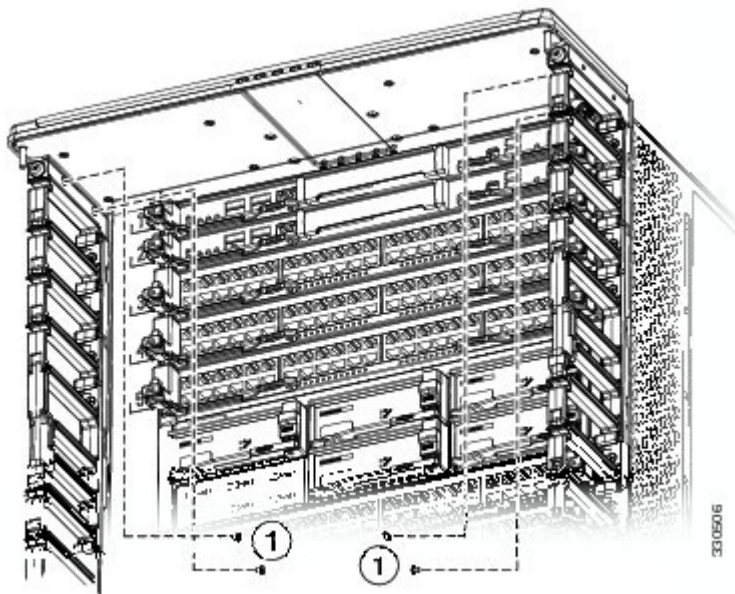
Figure 3-15 Positioning the Top Hood with the Cable Management Frames and the Chassis



1	Alignment pins	2	Alignment holes
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Step 4 Use four M4x8 pan-head screws to loosely fasten the top hood to the chassis as shown in [Figure 3-16](#).

Figure 3-16 Fastening the Top Hood to the Chassis and Cable Management Assemblies



1	Four M4x8 pan-head screws that fasten the top hood to the left and right cable management assemblies (two screws for each side).
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