

Cisco 12404 Internet Router Air Filter Replacement Instructions

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This publication provides instructions for removing and replacing an air filter in the Cisco 12404 Internet Router.

- [Safety Guidelines, page 1](#)
- [Preventing Electrostatic Discharge Damage, page 4](#)
- [Cleaning and Replacing the Air Filter, page 5](#)
- [Obtaining Documentation, page 8](#)
- [Obtaining Technical Assistance, page 9](#)

Safety Guidelines

Before you begin the replacement procedure, review the safety guidelines in this section to avoid injuring yourself or damaging the equipment.

In addition, before installing, configuring, or maintaining the Cisco 12404 Internet Router, review the safety warnings listed in the document *Regulatory Compliance and Safety Information for the Cisco 12000 Gigabit Switch Router Series* (Document Number 78-4347-09) that accompanied your router.



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Safety Warnings

Safety warnings appear throughout this publication in procedures that, if performed incorrectly, may harm you. A warning symbol precedes each warning statement. The following paragraph is an example of a safety warning. It identifies the warning symbol and associates it with a bodily injury hazard. The remaining paragraphs in this section are translations of the initial safety warning.



Warning

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. (To see translations of the warnings that appear in this publication, refer to the appendix "Translated Safety Warnings" in the installation guide that accompanied this device.)

Waarschuwing

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 standaard maatregelen om ongelukken te voorkomen. (Voor vertalingen van de waarschuwingen die in deze publicatie verschijnen, kunt u het aanhangsel "Translated Safety Warnings" (Vertalingen van veiligheidsvoorschriften) in de installatiegids die bij dit toestel is ingesloten, raadplegen.

Varoitus

Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista. (Tässä julkaisussa esiintyvien varoitusten käännökset löydät tämän laitteen mukana olevan asennusoppaan liitteestä "Translated Safety Warnings" (käännetyt turvallisuutta koskevat varoitukset).)

Attention

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures. Avant d'accéder à cet équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures courantes de prévention des accidents. Pour obtenir les traductions des mises en garde figurant dans cette publication, veuillez consulter l'annexe intitulée « Translated Safety Warnings » (Traduction des avis de sécurité) dans le guide d'installation qui accompagne cet appareil.

Warnung

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körpverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewußt. (Übersetzungen der in dieser Veröffentlichung enthaltenen Warnhinweise finden Sie im Anhang mit dem Titel "Translated Safety Warnings" (Übersetzung der Warnhinweise) in der diesem Gerät beiliegenden Installationsanleitung.)

Avvertenza

Questo simbolo di avvertenza indica un pericolo. Si è in una situazione che può causare infortuni. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti. La traduzione delle avvertenze riportate in questa pubblicazione si trova nell'appendice, "Translated Safety Warnings" (Traduzione delle avvertenze di sicurezza), del manuale d'installazione che accompagna questo dispositivo.

Advarsel	Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskade. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker. (Hvis du vil se oversettelser av de advarslene som finnes i denne publikasjonen, kan du se i vedlegget "Translated Safety Warnings" [Oversatte sikkerhetsadvarsler] i installasjonsveiledningen som ble levert med denne enheten.)
Aviso	Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes. (Para ver as traduções dos avisos que constam desta publicação, consulte o apêndice "Translated Safety Warnings" - "Traduções dos Avisos de Segurança", no guia de instalação que acompanha este dispositivo).
¡Advertencia!	Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes. (Para ver traducciones de las advertencias que aparecen en esta publicación, consultar el apéndice titulado "Translated Safety Warnings," en la guía de instalación que se acompaña con este dispositivo.)
Varning!	Denna varningssymbol 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 vanligt förfarande för att förebygga skador. (Se förklaringar av de varningar som förekommer i denna publikation i appendix "Translated Safety Warnings" [Översatta säkerhetsvarningar] i den installationshandbok som medföljer denna anordning.)
警告使用者	這是甲類資訊產品，在居住環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。注意：產品的度和檢驗標準局 (BSMI) 核准授權號碼在系統外殼的產品標籤上。

Safety with Equipment

The following guidelines will help ensure your safety and protect the equipment. This list is not inclusive of all potentially hazardous situations, so be *alert*.

- Always disconnect all power cords and interface cables before moving the system.
- Never assume that power is disconnected from a circuit; always check.
- Keep tools and assembly components away from walk areas.
- Do not work alone if potentially hazardous conditions exist.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.

Safety with Electricity

Follow these basic guidelines when working with any electrical equipment:

- Before beginning any procedures requiring access to the interior of the router, locate the emergency power-off switch for the room in which you are working.
- Disconnect all power and external cables before installing or removing a router.
- Never assume that power has been disconnected from a circuit; always check.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.
- Never install equipment that appears damaged.
- Carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.
- If an electrical accident does occur, proceed as follows:
 - Use caution; do not become a victim yourself. Disconnect power to the router.
 - If possible, send another person to get medical aid; otherwise, assess the condition of the victim and then call for help.
 - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

In addition, observe the following guidelines when working with any equipment that is disconnected from a power source but still connected to telephone or network wiring:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.

Use caution when installing or modifying telephone lines.

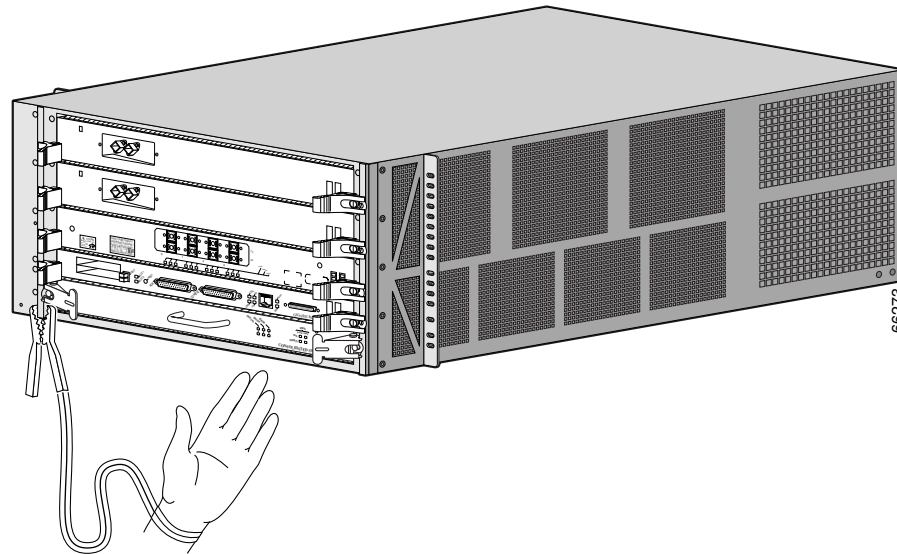
Preventing Electrostatic Discharge Damage

Electrostatic discharge (ESD) damage to circuit boards can occur if they are handled improperly. Such mishandling can result in intermittent or complete failures of the board.

When handling circuit boards, observe the following guidelines to prevent ESD damage.

- Always use an ESD-preventive ankle or wrist strap and ensure that the strap makes adequate contact with your skin.
- Attach an ESD-preventive strap to your wrist or ankle and to the chassis; or to a bare metal surface. See [Figure 1](#).
- The ankle or wrist strap protects equipment from ESD voltages on the body only; ESD voltages on clothing can still cause damage to electronic components.

Figure 1 Attach ESD-Preventive Strap to Cisco 12404 Internet Router Chassis



Caution

Periodically check the resistance value of the antistatic ankle or wrist strap. The resistance measurement should be between 1 and 10 megohms.

Cleaning and Replacing the Air Filter

The Cisco 12404 Internet Router has a serviceable, hot-swappable air filter. Facing the rear of the chassis, the air filter is housed on the left side of the chassis. The air filter location is shown in [Figure 2](#). Air flow through the air filter is shown in [Figure 3](#).

The air filter removes dust from the room air drawn into the router by the cooling fans. Once a month (or more often in dusty environments), you should examine the air filter. If the filter appears dirty, you can either vacuum or replace it. If the filter appears worn or torn, dispose of it in a responsible manner and install a replacement air filter.

Cleaning and replacing the air filter is presented in the following sections:

- [Tools and Equipment, page 6](#)
- [Remove the Air Filter, page 6](#)
- [Install the Air Filter, page 7](#)



Note

You can perform these procedures with the router power On.

Tools and Equipment

You will need these tools and equipment to change an air filter:

- ESD-preventive strap and leash
- Vacuum cleaner
- Replacement air filter, Part Number: ACS-GSR04-FLTR=

Remove the Air Filter

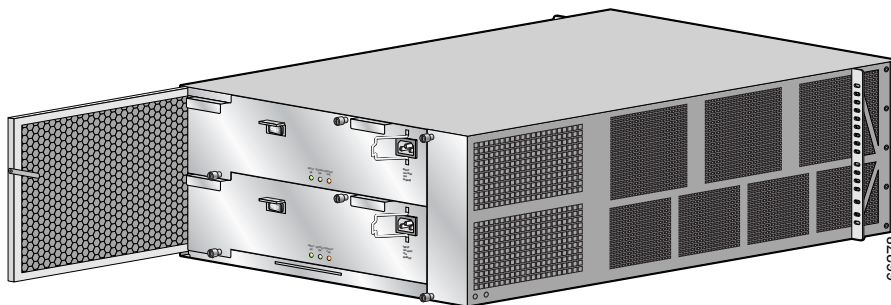
The procedure to remove and clean an air filter is presented in the following steps.



Note

Do not damage the air filter. Damage to the air filter can restrict the airflow and cause an overtemperature condition in the router.

Figure 2 Cisco 12404 Internet Router Air Filter Location



- Step 1** Attach an ESD-preventive strap to your wrist or ankle; and attach the ESD clip to the chassis or to a bare metal surface.
- Step 2** Grasp the small tab on the edge of the air filter and pull the tab to remove the air filter from the housing.

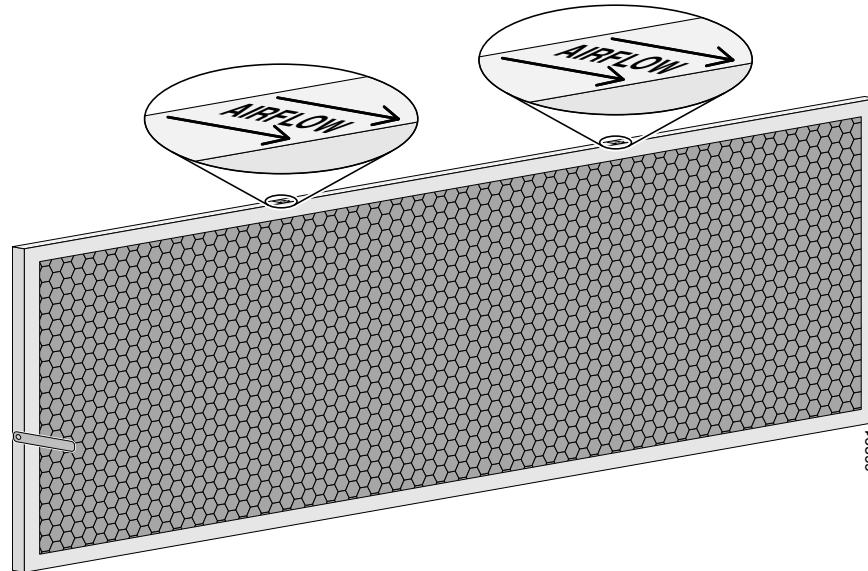


Tip

If you are unable to lift the tab on the edge of the air filter, use a 3/16-inch flat-blade screwdriver to lift the tab, then grasp it.

- Step 3** Pull the air filter out of the chassis housing.

Figure 3 Cisco 12404 Internet Router Air Filter Direction of Air Flow



Step 4 Visually check the condition of the air filter.



Caution

When cleaning or replacing the air filter keep it away from the RP and line card cage so that any dislodged dust will not be drawn into the cage. Do not vacuum the air filter while it is installed in the housing.

- If the filter appears dirty, you can either vacuum or replace it.
- If the filter appears worn or torn, dispose of it in a responsible manner and install a replacement air filter.



Caution

Never wash an air filter and immediately reinstall it in the chassis, because moisture drawn inside the chassis can damage the components. Allow the air filter to become completely dry.

Install the Air Filter

Instructions for installing the air filter in the air filter housing, at the left rear side of the chassis, are presented in the following steps. Use [Figure 2 on page 6](#) as a reference for installing the air filter.

Step 1 Attach an ESD-preventive strap to your wrist or ankle; and attach the ESD clip to the chassis or to a bare metal surface.



Timesaver

The arrows on the top edge of the air filter note the direction of air flow. Insert the air filter into its housing with the arrows pointing toward the card cage.

Step 2 Slide the air filter completely into the air filter housing.

**Caution**

Do not damage the air filter. Damage to the air filter can restrict the airflow, cause an overtemperature condition in the router and degrade EMI performance.

Obtaining Documentation

Sources for obtaining documentation from Cisco Systems and providing feedback are presented in the following sections.

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.cisco.com>

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:
http://www.cisco.com/cgi-bin/order/order_root.pl
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco corporate headquarters (California, USA) at 408 526-7208 or, in North America, by calling 800 553-NETS(6387).

Documentation Feedback

If you are reading Cisco product documentation on the World Wide Web, you can submit technical comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco.

You can e-mail your comments to bug-doc@cisco.com.

To submit your comments by mail, use the response card behind the front cover of your document, or write to the following address:

Attn Document Resource Connection
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

Cisco.com

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To access Cisco.com, go to the following website:

<http://www.cisco.com>

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

<http://www.cisco.com/tac>

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

<http://www.cisco.com/register/>

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

<http://www.cisco.com/tac/caseopen>

Contacting TAC by Telephone

If you have a priority level 1 (P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

<http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml>

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

This document is to be used in conjunction with the *Cisco 12404 Internet Router Installation and Configuration Guide*, Part Number: DOC-7813511=.

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