



Cisco MGCP IP Phone Reference Guide

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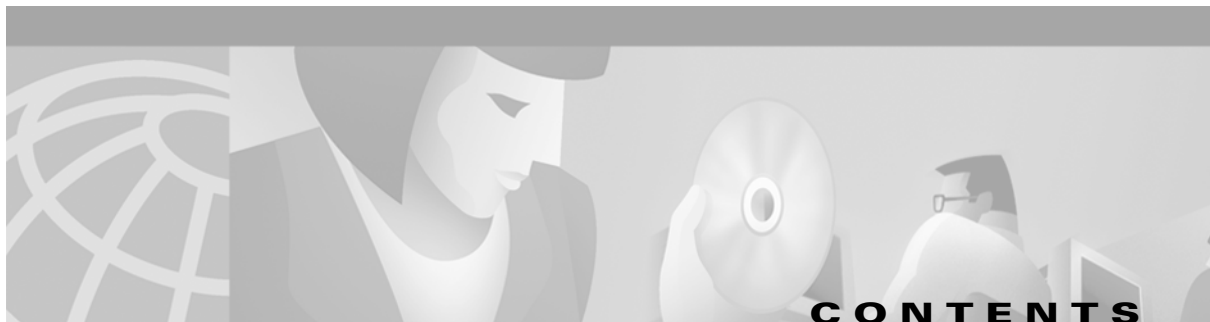
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- Move the equipment farther away from the television or radio.
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Preface

This document describes the Cisco MGCP IP Phone. This chapter describes the objectives and organization of the document and explains how to find additional information on related products and services.

This chapter contains the following sections:

- Overview, page v
- Who Should Use This Guide, page v
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Overview

The *Cisco MGCP IP Phone Reference Guide* provides information about how to setup, connect cables to, and configure a Cisco MGCP IP phone 7940 or 7960 (hereafter referred to as a Cisco MGCP IP phone). It also provides information on how to configure settings and options of the Cisco MGCP IP phone.

Who Should Use This Guide

Network engineers, system administrators, or telecommunication engineers should use this guide to learn the steps required to properly set up the Cisco MGCP IP phone on the network.

The tasks described are considered to be administration-level tasks and are not intended for end-users of the phones. Many of the tasks involve configuring network settings which could affect the phone's ability to function in the network and require an understanding of IP networking and telephony concepts.

Objectives

The *Cisco MGCP IP Phone Reference Guide* provides necessary information to get the Cisco MGCP IP phone operational in a Voice-over-IP (VoIP) network.

It is not the intent of this administrator guide to provide information on how to implement an MGCP VoIP network. For information on implementing an MGCP VoIP network, refer to the documents listed in the “Related Documentation” section on page vi.


Note

Many features available on your Cisco MGCP IP phone are determined by the call agent (CA) in your network. Some features described here may not be available through your CA. Consult your CA documentation for more information.

Document Organization

Table 1 lists the chapters in this document:

Table 1 *Document Organization*

| Section | Title | Description |
|------------|-------------------------------------|--|
| Chapter 1 | Product Overview | Gives an introduction to the Cisco MGCP IP phone. |
| Chapter 2 | Installing the Cisco MGCP IP Phone | Provides information needed to install the Cisco MGCP IP phone. |
| Chapter 3 | Using the Cisco MGCP IP Phone | Tells you how to use the Cisco MGCP IP phone. |
| Chapter 4 | Configuring the Cisco MGCP IP Phone | Provides configuration information for the Cisco MGCP IP phone. |
| Appendix A | Translated Safety Warnings | Contains translated safety warnings for the Cisco MGCP IP phone. |

Related Documentation

The following is a list of related Cisco MGCP VoIP publications. For more information about implementing an MGCP VoIP network refer to the following publications:

- *Cisco IP Phone 7960 and 7940 Series At a Glance*
- *Regulatory Compliance and Safety Information for the Cisco IP Phone 7960, 7940, and 7910 Series*
- *Installing the Wall Mount Kit for the Cisco IP Phone*

The following is a list of Cisco VoIP publications that provide information about implementing a VoIP network:

- *Cisco IOS Voice, Video, and Fax Configuration Guide*, Release 12.2
- *Cisco IOS Voice, Video, and Fax Command Reference*, Release 12.2
- *Cisco IOS IP Configuration Guide*, Release 12.2
- *Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services*, Release 12.2
- *Cisco IOS IP Command Reference, Volume 2 of 3: Routing Protocols*, Release 12.2
- *Cisco IOS IP Command Reference, Volume 3 of 3: Multicast*, Release 12.2

**Note**

Be sure to consult your CA documentation for information on features that may be specific to your CA.

Document Conventions

This document uses the following conventions:

- Commands and keywords are in **boldface** font.
- Arguments for which you supply values are in *italic* font.
- Elements in square brackets ([]) are optional.
- Alternative keywords are grouped in braces and separated by vertical bars (for example, { x | y | z }).
- Optional alternative keywords are grouped in brackets and separated by vertical bars (for example, [x | y | z]).
- Terminal sessions and information the system displays are in `screen` font.
- Information you must enter is in **boldface screen** font.

Notes use the following conventions:

**Note**

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

Cautions use the following conventions:

**Caution**

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

Warnings use the following conventions:



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.")

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) 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 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).

Warnung

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung 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).)

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).

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].)

| | |
|-------------------|--|
| 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 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). |
| Warnung | Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung 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).) |
| 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). |
| 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 sikkerhetsadvarslar].) |

Obtaining Documentation

The following sections explain how to obtain documentation from Cisco Systems.

World Wide Web

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

<http://www.cisco.com>

Translated documentation is available at the following URL:

http://www.cisco.com/public/countries_languages.shtml

Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which is shipped 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 through 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, elsewhere in North America, by calling 800 553-NETS (6387).

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170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

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- Resolve technical issues with online support
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- Order Cisco learning materials and merchandise
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Technical Assistance Center

The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available through the Cisco TAC: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Inquiries to Cisco TAC are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.

- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Which Cisco TAC resource you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

Cisco TAC Web Site

The Cisco TAC Web Site allows you to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to the following URL:

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

All customers, partners, and resellers who have a valid Cisco services contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to the following URL to register:

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

If you cannot resolve your technical issues by using the Cisco TAC Web Site, and you are a Cisco.com registered user, you can open a case online by using the TAC Case Open tool at the following URL:

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

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses issues that are classified as priority level 1 or priority level 2; these classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer will automatically open a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to the following URL:

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

Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled; for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). In addition, please have available your service agreement number and your product serial number.



Product Overview

This chapter contains the following information about the Cisco MGCP IP Phone:

- What Is Media Gateway Control Protocol?, page 1-1
- What Is the Cisco MGCP IP Phone?, page 1-2
- Supported Features, page 1-3

What Is Media Gateway Control Protocol?

Media Gateway Control Protocol (MGCP) is the Internet Engineering Task Force's (IETF's) standard for multimedia conferencing over IP. MGCP is an ASCII-based, application-layer control protocol (defined in RFC 2705) that can be used to establish, maintain, and terminate calls between two or more endpoints.

Like other VoIP protocols, MGCP is designed to address the functions of signaling and session management within a packet telephony network. Signaling allows call information to be carried across network boundaries. Session management provides the ability to control the attributes of an end-to-end call.

One aspect of MGCP that differs from other VoIP protocols is that MGCP relies on a control server, or call agent (CA) to control call progression, tones to apply, and call characteristics. MGCP endpoints carry out instructions from the CA, which controls how calls proceed.

MGCP provides the capabilities to allow a Control Server to:

- Determine the location of the target endpoint.
- Determine the media capabilities of the target endpoint. Using Session Description Protocol (SDP), MGCP determines the lowest level of common service between the endpoints. Conferences are established using only the media capabilities that can be supported by all endpoints.
- Determine the availability of the target endpoint.
- Establish a session between the originating and target endpoint. If the call can be completed, MGCP establishes a session between the endpoints. MGCP also supports mid-call changes, such as the addition of another endpoint to the conference or the changing of a media characteristic or codec.



Note

Conferences can consist of two or more users and can be established using multicast or multiple unicast sessions. The term conference means an established session (or call) between two or more endpoints. In this document, the terms conference and call are used interchangeably.

MGCP is a client-server protocol. The CA handles all aspects of setting up calls to and from endpoints. CAs or control servers provide the feature capabilities that a particular endpoint will be able to use. Endpoints connected to different CAs will likely have a different set of features they can use. Since all of the call control features are in the control server, each control server vendor decides which features are most important, and therefore different control server vendors differ in “essential features.”

What Is the Cisco MGCP IP Phone?

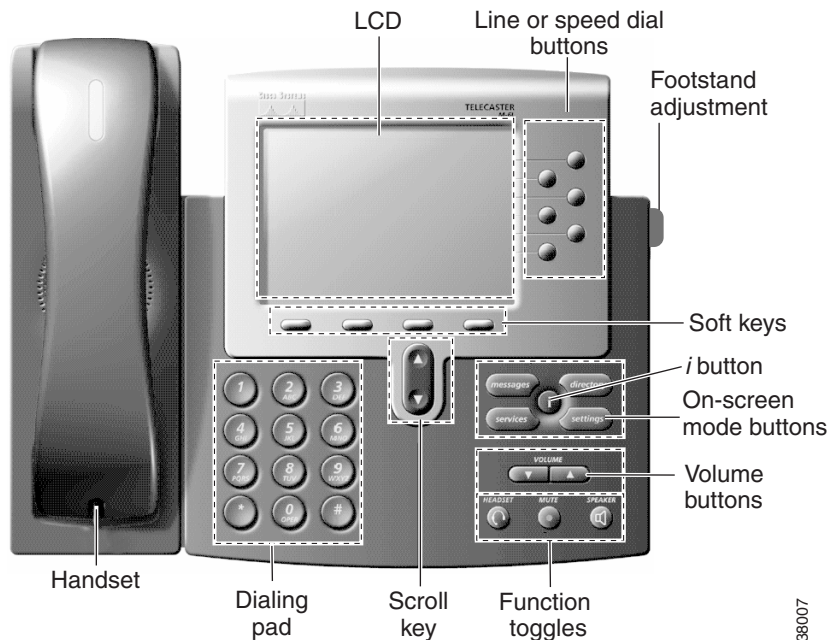
The Cisco Media Gateway Control Protocol (MGCP) Internet Protocol (IP) Phone provides voice communication over an IP network. It functions much like a traditional phone, allowing you to place and receive telephone calls.

The Cisco MGCP IP phone works with a third-party CA that uses MGCP for call control and eXtensible Markup Language (XML) for control of the phone’s displays and feature keys. This document describes the phone features that are controlled by the phone. Refer to your CA documentation for descriptions of all other phone features, displays, and applications.

Cisco MGCP IP phones are full-featured telephones that can be plugged directly into an IP network and used very much like a standard private branch exchange (PBX) telephone. The Cisco MGCP IP phone model terminals can attach to the existing in place data network infrastructure, via 10BaseT/100BaseT interfaces on an Ethernet switch. When used with a voice-capable Ethernet switch (one that understands Type of Service [ToS] bits and can prioritize VoIP traffic), the phones eliminate the need for a traditional proprietary telephone set and key system/PBX.

Figure 1-1 illustrates physical features of the Cisco MGCP IP phone:

Figure 1-1 Cisco MGCP IP Phone Physical Features



The main components of the Cisco MGCP IP Phone are defined in Table 1-1.

Table 1-1 Cisco MGCP IP Phone Features

| Feature | Description |
|----------------------------|---|
| LCD screen | The IP Phone “desktop,” which displays information such as the time, date, your phone number, caller ID, and line/call status. Refer to your call agent or service provider documentation for the LCD functionality. |
| Line or speed-dial buttons | Provide additional dialing capabilities, such as opening a new line, speed-dialing the number on the LCD screen, or ending a call. Refer to your call agent or service provider documentation for line and speed-dial button functionality. |
| Footstand adjustment | Adjusts the angle of the phone base. |
| Soft keys | Provide additional functions for your phone. Refer to your call agent or service provider documentation for soft keys functionality. |
| <i>i</i> button | Provides additional functions for your phone. Refer to your call agent or service provider documentation for <i>i</i> button functionality. |
| Messages mode button | Refer to your call agent or service provider documentation for Messages mode button functionality. |
| Directory mode button | Refer to your call agent or service provider documentation for Directory mode button functionality. |
| Services mode button | Refer to your call agent or service provider documentation for Services mode button functionality. |
| Settings mode button | Provides access to phone settings such as contrast and ring type and to network configuration and status information. |
| Volume buttons | Increase or decrease the volume for the currently active voice receiver: handset, headset, or speakerphone. The volume keys also control the ringer volume (if onhook), and the contrast of the LCD. |
| Function toggles | Toggle the headset, mute, and speaker functions on and off. |
| Scroll key | Enables you to move among different options displayed on the LCD screen. |
| Dialing pad | Press the dialing pad buttons to dial a phone number. Dialing pad buttons work exactly like those on your existing telephone. Refer to your call agent or service provider documentation for any additional dialing pad functions. |
| Handset | Lift the handset and press the dialing pad numbers to place a call, answer a call, and operate other phone functions. |

Supported Features

The MGCP phone supports the following features. Depending on the features that your CA supports, some of these may not be available on your phone.

Physical Features

- Hearing-aid compatible handset
- Headset compatibility
- Integrated two-port Ethernet switch that allows the telephone and a computer to share a single Ethernet jack
- Direct connection to a 10BaseT or 100BaseT Ethernet (RJ-45) network (half- or full-duplex connections are supported)
- Large (4.25 x 3 in.) display with adjustable contrast

Network Features

- Interoperability with third-party CAs.
- Up to six MGCP connections and call appearances.
- IP address assignment—Dynamic Host Configuration Protocol (DHCP) client or manually configured via a local setup menu
- Network startup using DHCP and Trivial File Transfer Protocol (TFTP)
- Domain Name System (DNS): The MGCP phone uses DNS lookups to locate its communication partners (for example, a TFTP server or a CA. If a CA is unreachable, the MGCP phone queries the DNS server for an alternate CA.)
- Telnet support—Allows the user to use telnet to connect directly to the Cisco MGCP IP Phone to debug and troubleshoot the phone. See “Configuring the Cisco MGCP IP Phone” section on page 4-1 for more information on configuration parameters.
- Ping support—Allows the user to use ping to see if a Cisco MGCP IP Phone is operational and how long the response time is from the phone.
- Traceroute support—Allows the user to use traceroute to see the path that a Cisco MGCP IP phone traverses in the route to its desired destination.

Codec and Protocol Support

- Basic phone service including MGCP 0.1 and MGCP 1.0 headers.
- G.711 u-law codec.
- G.711 a-law codec.
- G.729a codec.
- DTMF out-of-band for G.729a codec compliant to RFC 2833.
- Local Connection Options (LCOs):
 - G.729a codec: supports low-bandwidth access for multitenant deployment.
 - Voice activity detection (VAD) support.
 - Type of service (ToS) bit for Real-Time Transport Protocol (RTP)
- XML support.

Dialing and Messaging Features

- Message Waiting Indication—Lights to indicate that a new voice message is in a subscriber's mailbox. If the subscriber listens to the message but does not save or delete the message, the light remains on. If a subscriber listens to the new message or messages, and saves or deletes them, the light goes off. The message waiting indicator (MWI) is controlled by the voicemail server. The indication will be saved over a phone upgrade or reboot.
- Notified entity: A CA can direct an endpoint to send notify messages to an alternate destination.
- Call waiting, call transfer, call forward (unconditional, busy, no answer), announcement, music on hold, and volume control. (Must be supported by the CA.)
- Three-way calling using an external multipoint control unit (MCU). (Must be supported by the CA.)

Supported Protocols

The Cisco MGCP IP phone supports the following standard protocols:

- Domain Name System (DNS)—Used in the Internet for translating names of network nodes into addresses. The MGCP IP Phone uses DNS to resolve the host names of endpoints to IP addresses.
- Dynamic Host Control Protocol (DHCP)—Used to dynamically allocate and assign IP addresses. DHCP allows you to move network devices from one subnet to another without administrative attention. If using DHCP, you can connect Cisco MGCP IP phones to the network and become operational without having to manually assign an IP address and additional network parameters.

The Cisco MGCP IP phone complies with the DHCP specifications documented in RFC 2131. By default, Cisco MGCP IP phones are DHCP-enabled.

- Internet Control Message Protocol (ICMP)—A network layer Internet protocol that enables hosts to send error or control messages to other hosts. ICMP also provides other information relevant to IP packet processing.

The Cisco MGCP IP phone supports ICMP as it is documented in RFC 792.

- Internet Protocol (IP)—A network layer protocol that sends datagram packets between nodes on the Internet. IP also provides features for addressing, type-of-service (ToS) specification, fragmentation and reassembly, and security.

The Cisco MGCP IP phone supports IP as it is defined in RFC 791.

- Real-Time Transport Protocol (RTP)—Transports real-time data (such as voice data) over data networks. RTP also has the ability to obtain Quality of Service (QoS) information.

The Cisco MGCP IP phone supports RTP as a media channel.

- Session Description Protocol (SDP)—An ASCII-based protocol that describes multimedia sessions and their related scheduling information.

The Cisco MGCP IP phone uses SDP for session description.

- Simple Network Time Protocol (SNTP)—Synchronizes computer clocks on an IP network. The Cisco MGCP IP phones use SNTP for their date and time support.
- Transmission Control Protocol (TCP)—Provides a reliable byte-stream transfer service between two endpoints on an internet. The Cisco IP Phone 7960 supports TCP for telnet sessions only.
- Trivial File Transfer Protocol (TFTP)—Allows files to be transferred from one computer to another over a network. The Cisco MGCP IP phone uses TFTP to download configuration files and software updates.

- User Datagram Protocol (UDP)—A simple protocol that exchanges data packets without acknowledgments or guaranteed delivery. MGCP can use UDP as the underlying transport protocol. If UDP is used, retransmissions are used to ensure reliability.



Installing the Cisco MGCP IP Phone

This chapter contains the following sections:

- Safety Notices, page 2-1
- Prerequisites, page 2-2
- Connecting the Cisco MGCP IP Phone, page 2-2
- Using the Cisco MGCP IP Phone with a Catalyst Switch, page 2-4

Safety Notices

Read the following safety considerations before installing or using the Cisco MGCP IP phone. Translations of the warnings are available in Appendix A, “Translated Safety Warnings.” Additionally, the *Regulatory Compliance and Safety Information for the Cisco IP Phone 7960, 7940, and 7910 Series* includes regulatory compliance information about your phone, which your system administrator can review.



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.”



Warning

Read the installation instructions before you connect the system to its power source. To see translations of the warnings that appear in this publication, refer to the appendix “Translated Safety Warnings.”



Warning

Ultimate disposal of this product should be handled according to all national laws and regulations. To see translations of the warnings that appear in this publication, refer to the appendix “Translated Safety Warnings.”



Warning

Do not work on the system or connect or disconnect cables during periods of lightning activity. To see translations of the warnings that appear in this publication, refer to the appendix “Translated Safety Warnings.”

**Warning**

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone network-voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports use RJ-45 connectors. Use caution when connecting cables. To see translations of the warnings that appear in this publication, refer to the appendix "Translated Safety Warnings."

The next warning applies when you use an external power supply.

**Warning**

This product relies on the building's installation for short-circuit (over current) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors). To see translations of the warnings that appear in this publication, refer to the appendix "Translated Safety Warnings."

**Warning**

The device is designed to work with TN power systems. To see translations of the warnings that appear in this publication, refer to the appendix "Translated Safety Warnings."

**Caution**

The Cisco MGCP IP phone is inoperable during a power outage if it is not supported by an uninterruptible power supply (UPS) when using either a local transformer or inline power on the LAN. This affects your ability to reach 911.

Prerequisites

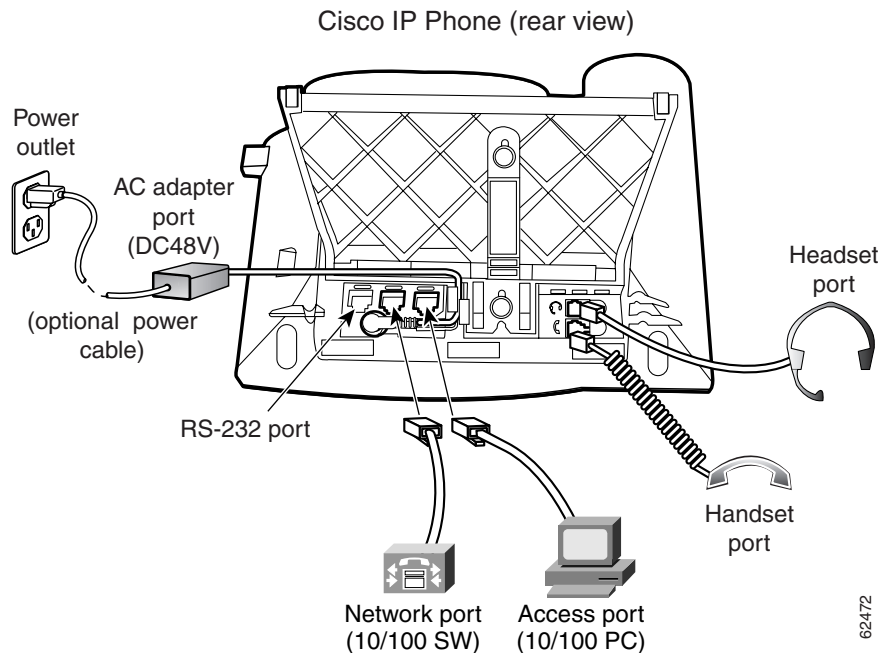
For the Cisco MGCP IP phone to successfully operate as an MGCP endpoint in your network, your network must meet the following requirements:

- A working IP network is established.
For more information about configuring IP, refer to *Cisco IOS IP Configuration Guide*, Release 12.2.
- VoIP is configured on your Cisco routers.
For more information about configuring VoIP, refer to the *Cisco IOS Voice, Video, and Fax Configuration Guide*, Release 12.2 for the appropriate access platform.
- VoIP gateways are configured for MGCP.
- A TFTP server is active and contains the latest Cisco MGCP IP phone firmware image in its root directory.
- Your CA is configured and communicating with the Cisco MGCP IP phones.

Connecting the Cisco MGCP IP Phone

The Cisco MGCP IP phone has connections for connecting to the data network, for providing power to the phone, and for connecting a headset to the phone. Figure 2-1 illustrates the connections on the Cisco MGCP IP phone.

Figure 2-1 Cisco MGCP IP Phone Cable Connections



Connecting to the Network

The Cisco MGCP IP phone has two RJ-45 ports that each support 10/100 Mbps half- or full-duplex Ethernet connections to external devices—network port (labeled 10/100 SW) and access port (labeled 10/100 PC). You can use either Category 3 or 5 cabling for 10 Mbps connections, but use Category 5 for 100 Mbps connections. On both the network port and access port, use full-duplex mode to avoid collisions.

Network Port (10/100 SW)

Use the network port to connect the phone to the network. You must use a straight-through cable on this port. The phone can also obtain inline power from the Cisco Catalyst switch over this connection. See the “Connecting to Power” section on page 2-3 for details.

Access Port (10/100 PC)

Use the access port to connect a network device, such as a computer, to the phone. You must use a straight-through cable on this port.

Connecting to Power

The Cisco MGCP IP phone can be powered by the following sources:

- External power source—Optional Cisco AC adaptor and power cord for connecting to a standard wall receptacle.
- WS-X6348-RJ45V 10/100 switching module—Provides inline power to the Cisco MGCP IP phone when connected to a Catalyst 3500, 4000, or 6000 family 10/100BaseTX switching module.

This module sends power on pins 1 & 2 and 3 & 6.

- WS-PWR-PANEL—Power patch panel provides power to the Cisco MGCP IP phone which allows the Cisco MGCP IP phone to be connected to existing Catalyst 4000, 5000, and 6000 family 10/100BaseTX switching modules.
This module sends power on pins 4, 5, 7, and 8.
- WS-X4148-RJ45V—48 port 10/100 Ethernet with inline power module for the Catalyst 4006.
- WS-X4095-PEM—VoIP DC Power Entry module for the Catalyst 4006.
- WS-X4608-2PSU and WS-X4608—External -48V DC power shelf common equipment for the Catalyst 4006 with two AC-to-DC PSUs and one empty bay for redundant option and the 110V 15A AC-to-48V DC PSU redundant option for the power shelf
- WS-C3524-PWR-XL-EN—Catalyst 3524-PWR XL switch

**Note**

Only the network port (labeled 10/100 SW) supports inline power from the Cisco Catalyst switches.

For redundancy, you can use the Cisco AC adapter even if you are using inline power from the Cisco Catalyst switches. The Cisco MGCP IP phone can share the power load being used from the inline power and external power source. If either the inline power or the external power goes down, the phone can switch entirely to the other power source.

To use this redundancy feature you *must* set the inline power mode to auto on the Cisco Catalyst switch. Next, connect the un-powered Cisco MGCP IP phone to the network. After the phone powers up, connect the external power supply to the phone.

Using a Headset

The Cisco IP Phone 7960 supports a four or six-wire headset jack. Specifically, the Cisco MGCP IP phone supports the following Plantronics headset models:

- Tristar Monaural
- Encore Monaural H91
- Encore Binaural H101

The Volume and Mute controls will also adjust volume to the earpiece and mute the speech path of the headset. The headset activation key is located on the front of the Cisco MGCP IP phone.

**Note**

When using a headset, an amplifier is not required. However, a coil cord is required to connect the headset to the headset port on the back of your Cisco IP Phone 7940/7960. For information on ordering compatible headsets and coil cords for the Cisco IP phone 7940/7960, see <http://cisco.getheadsets.com> or <http://vxicorp.com/cisco>.

Using the Cisco MGCP IP Phone with a Catalyst Switch

To function in the IP telephony network, the Cisco MGCP IP phone must be connected to a networking device, such as a Catalyst switch, to obtain network connectivity.

The Cisco MGCP IP phone has an internal Ethernet switch, which enables it to switch traffic coming from the phone, access port, and the network port.

If a computer is connected to the access port, packets traveling to and from the computer and to and from the phone share the same physical link to the switch and the same port on the switch.

This configuration has these implications for the VLAN configuration on the network:

- The current VLANs might be configured on an IP subnet basis, and additional IP addresses might not be available to assign the phone to a port so that it belongs to the same subnet as other devices (PC) connected to the same port.
- Data traffic present on the VLAN supporting phones might reduce the quality of VoIP traffic.

You can resolve these issues by isolating the voice traffic onto a separate VLAN on each of the ports connected to a phone. The switch port configured for connecting a phone would have separate VLANs configured for carrying:

- Voice traffic to and from the Cisco MGCP IP phone (auxiliary VLAN)
- Data traffic to and from the PC connected to the switch through the access port of the Cisco MGCP IP phone (native VLAN)

Isolating the phones on a separate, auxiliary VLAN increases the quality of the voice traffic and allows a large number of phones to be added to an existing network where there are not enough IP addresses.

For more information, refer to the documentation included with the Cisco Catalyst switch or available online at the following URL:

<http://www.cisco.com/univercd/home/home.htm>



Using the Cisco MGCP IP Phone

This chapter describes basic Cisco MGCP IP phone functions. Your call agent or service provider might offer additional phone features and capabilities not described in this chapter. Refer to the documentation from your call agent or service provider for instructions on using those features.

This chapter includes the following sections:

- Using the Handset, page 3-1
- Using the Speakerphone, page 3-1
- Using the Headset, page 3-1
- Adjusting the Handset, Speakerphone, and Headset Volume, page 3-2
- Adjusting the Ringer Volume, page 3-2
- Changing the LCD Contrast, page 3-2
- Muting a Call, page 3-2

Using the Handset

To place and answer calls with the handset, simply lift the handset. To change from handset to speakerphone, press **SPEAKER** and hang up the handset.

Using the Speakerphone

To place and answer calls using the speakerphone, press **SPEAKER**. You can use the speakerphone with all Cisco MGCP IP phone features. To change from speakerphone to handset, lift the handset.

Using the Headset

To place and answer calls using the headset, plug the approved headset into the back of the phone base and press **HEADSET**.

You can use the headset with all Cisco MGCP IP phone features. The volume and mute controls also adjust volume to the ear piece and mute the speech path of the headset. The headset activation key is located on the front of the phone.

The Cisco MGCP IP phone supports a four- or six-wire headset jack (Plantronics H series compatible is required). For information on the exact models supported, see the Cisco MGCP IP phone information on <http://cisco.getheadsets.com>.

Adjusting the Handset, Speakerphone, and Headset Volume

To adjust the volume on the handset, speakerphone, or headset:

-
- Step 1** To increase or decrease the volume of your handset, headset, or speakerphone, select the item and make it active. Press the **Up** or **Down** volume button.

The volume buttons adjust the volume for the currently active voice receiver.

Adjusting the Ringer Volume

To change the volume used by the ringer:

-
- Step 1** Press the **volume** key to hear a sample ring.

- Step 2** While the ring plays, press the **Up** or **Down** volume key to adjust the volume to the desired level.
-

Changing the LCD Contrast

To improve the readability of the LCD, change the amount of contrast:

-
- Step 1** Press the **settings** button.

- Step 2** Select **Contrast** from the Settings menu.

- Step 3** Press the **volume** keys to set the desired intensity of the display.

- Step 4** Press the **BACK** key to accept your changes.
-

Muting a Call

While on a call, you can mute the handset, headset, or speakerphone, preventing the party you are speaking to from hearing what you or someone else in the room is saying.

- To mute a call, press **MUTE**.
- To disengage mute, press **MUTE** again.



Configuring the Cisco MGCP IP Phone

This chapter describes supported features on the Cisco MGCP phone and information about how to configure some features. Consult your call agent (CA) documentation for additional configuration information.

This chapter includes the following sections:

- MGCP Commands, page 4-1
- Using Telnet to Connect to Your Cisco MGCP IP Phone, page 4-2
- Using Configuration Files, page 4-6
- Using the MGCP Phone Settings Button, page 4-11

The Cisco MGCP IP phone can be configured using the following methods:

- The CA configures the phone through MGCP commands.
- The MGCP phone communicates with a Dynamic Host Configuration Protocol (DHCP) server to obtain configuration information at startup.
- You configure some settings by using telnet to connect to your Cisco MGCP IP phone and enter commands in a terminal window. You can also connect an ASCII terminal to your phone's console port to enter the same commands.
- Configuration files on the TFTP server that specify settings are downloaded by your phone at startup.
- You configure some features using the settings button on your MGCP phone.



Note

This document does not describe configuration of the Cisco MGCP IP phone using the CA because configuration procedures depend on the CA's capabilities and vary by vendor.

MGCP Commands

The Cisco MGCP IP phone supports the MGCP commands shown in Table 4-1:

Table 4-1 MGCP Commands

| Command | Description | Direction |
|----------------------|---|-------------|
| Notification Request | Specifies events that generate notifications to the CA. | CA to phone |
| Create Connection | Creates an RTP connection. | CA to phone |

Table 4-1 MGCP Commands

| Command | Description | Direction |
|------------------------|---|------------------|
| Modify Connection | Modifies an existing RTP connection. | CA to phone |
| Delete Connection | Deletes an endpoint RTP connection. | CA to phone |
| Audit Endpoint | Queries endpoint status. | CA to phone |
| Audit Connection | Queries connection status. | CA to phone |
| Restart in Progress | Notifies the CA of the endpoint's service state change. | Phone to CA |
| Endpoint Configuration | Specifies encoding for audio signals. | CA to phone |
| Notification | Indicates event occurrences. | Phone to CA |

Using Telnet to Connect to Your Cisco MGCP IP Phone

You can use Telnet to view information about your Cisco MGCP IP phone and enter some configuration commands. Only two Telnet sessions can be open at any time, and the Cisco MGCP IP phone cannot originate a Telnet session to another address.

Table 4-1 shows the available commands:

| Command | Purpose |
|--|--|
| <pre>MGCP Phone> debug {console-stall strlib malloc malloctable sk-platform flash dsp vcm dtmf task-socket mgcpio mgcp_parse dns config sntp sntp-packet}</pre> | <p>Shows detailed MGCP debug command output when used with the following keywords:</p> <ul style="list-style-type: none"> • console-stall: Shows debug command output for the console-stall driver output mode. • strlib: Shows debug command out put for the string library. • malloc: Shows debug command output for memory allocation. • malloc-table: Shows debug command output for the memory allocation table. • sk-platform: Shows debug command output for the platform. • flash: Shows debug command output for the Flash memory. • dsp: Shows debug command output for DSP accesses • vcm: Shows debug command output for the voice channel manager (VCM), including tones, ringing, and volume. • dtmf: Shows debug command output for dual-tone multifrequency (DTMF) relay. • task-socket: Shows socket task debug command output. • mgcpio: Shows debug command output for MGCP input/output. • mgcp_parse: Shows detailed MGCP debug command output; displays each MGCP message getting parsed or built. • dns: Shows the DNS command-line interface (CLI) configuration; allows you to clear the cache and set servers). • config: Shows output for the config system option. • sntp: Shows debug command output for Simple Network Time Protocol (SNTP) • sntp-packet: Displays full SNTP packet data. <p>Note Do not use the debug all command because it can cause the phone to become inoperable. This command is for use only by Cisco TAC personnel.</p> |
| <pre>MGCP Phone> dns</pre> | <p>Manipulates the DNS system. The following arguments are used:</p> <ul style="list-style-type: none"> • -p: Prints out the DNS cache table. • -c: Clears out the DNS cache table. • -s ipaddress: Sets the primary DNS server. • -b ip address: Sets the first backup server. |
| <pre>MGCP Phone> exit</pre> | <p>Exits the Telnet or console session.</p> |
| <pre>MGCP Phone> ping ipaddress number packetsize timeout</pre> | <p>Sends an Internet Control Message Protocol (ICMP) ping to a network address. You can use a dotted IP address or an alphanumeric address. The <i>number</i> value specifies how many pings to send; the default value is 5. The <i>packetsize</i> argument defines the size of the packet; you can send any size packet up to 1480 bytes and the default packet size is 100. The <i>timeout</i> value is measured in seconds and identifies how long to wait before the request times out; the default is 2.</p> |
| <pre>MGCP Phone> reset</pre> | <p>Resets the phone.</p> |

| Command | Purpose |
|--|--|
| <pre>MGCP Phone> show {debug strpool memorymap dump malloctable stacks status abort_vector flash timers dspstate rtp tcp lists network config mgcp_lists}</pre> | <p>Shows information about the Cisco MGCP IP phone. The following keywords are used:</p> <ul style="list-style-type: none"> • debug: Shows which debug command modes are activated. • strpool: Shows the string library pool of strings. • memorymap: Shows memory mapping table, including free, used, and wasted blocks. • dump: Displays a dump of the memory contents. • malloctable: Shows the memory allocation table. • stacks: Shows tasks and buffer lists. • status: Shows the current phone status, including errors. • abort_vector: Shows the address of the last recorded abort vector. • flash: Shows Flash memory information. • timers: Shows a list of timers, including the expiration time and other data about each. • dspstate: Shows the digital signal processor (DSP) status, including whether the DSP is ready, the audio mode, if keepalive pending is turned on, and the ringer state. • rtp: Shows packet statistics for the RTP streams. • tcp: Shows the status of TCP ports, including the state (listen or closed) and the port number. • network: Shows network information, such as phone platform, DHCP server, phone IP address and subnet mask, default gateway, address of the TFTP server, phone MAC address, domain name, and phone name. • config: Shows the current Flash memory configuration, including network information, phone label and password, SNTP server address, daylight saving time (DST) information, time and date format, CA address, and MGCP input and output port numbers. • mgcp_lists: Shows the filter list and duplicate message list lengths. |

| Command | Purpose |
|--|--|
| <pre>MGCP Phone> test {open close key onhook offhook show hide}</pre> | <p>Accesses the remote call test interface, allowing you to control the phone from a remote site. To use this feature, enter the test open command. To prevent use of this feature, enter the test close command.</p> <p>The following commands are available:</p> <ul style="list-style-type: none"> • test key: When a test session is open, you can simulate key presses using the test key k1 k2 k3...k13 command, where k1 through k13 represent the following key names: <ul style="list-style-type: none"> - voldn—Volume down - volup—Volume up - headset—Headset - spkr—Speaker - mute—Mute - info—Info - msgs—Messages - serv—Services - dir—Directories - set—Settings - navup—Navigate up - navdn—Navigate down <p>The keys 0 through 9, #, and * may be entered in continuous strings to better express typical dialing strings. A typical command would be test ky 23234.</p> • test onhook: Simulates a handset onhook event. • test offhook: Simulates a handset offhook event. • test show: Show test feedback. • test hide: Hide test feedback. |
| <pre>MGCP Phone> timers</pre> | <p>Shows current outstanding MGCP timers in the system. Used in debugging the system.</p> |
| <pre>MGCP Phone> traceroute ip-address [ttl]</pre> | <p>Initiates a traceroute session from the console or from a Telnet session. Traceroute shows the route that IP datagrams follow from the MGCP IP phone to the specified IP address. Use the following two arguments:</p> <ul style="list-style-type: none"> • <i>ip-address</i>: The dotted IP address or alphanumeric address (host name) of the host to which you are sending the traceroute. • <i>ttl</i>: The time-to-live value, or the number of routers (hops) through which the datagram can pass. The default value is 30. |

| Command | Purpose |
|--|---|
| <pre>MGCP Phone> tty {echo {on off} mon timeout value kill session msg}</pre> | <p>Controls the Telnet system. The echo keyword controls local echo. The mon keyword sends all debug command output to both the console and Telnet sessions. The timeout value keyword sets the telnet session timeout period based on the value. The value range is 0 through 65535. The kill session keyword tears down the Telnet session specified by the session argument. The msg keyword allows you to send a message to another terminal logged into the phone; for example, you can send a message telling everyone else that is logged in to log off.</p> |
| <pre>MGCP Phone> undebug {console-stall strlib malloc malloctable sk-platform flash dsp vcm dtmf task-socket mgcpio mgcp_parse dns config sntp sntp-packet}</pre> | <p>Turns off debugging.</p> |

Using Configuration Files

You can use the following two configuration files to specify settings for your Cisco MGCP IP phone:

- **MGCDefault.cnf**—The default configuration file. Use this file to configure the call agent address, time, and other global parameters.
- **MGCmacaddress.cnf**—The user configuration file. The MAC address specifies the hardware address of the Cisco MGCP IP phone and is not configurable. Use this file to specify the phone prompt, phone password, and time zone (for example, if a CA covers an area with multiple time zones). You can also specify a different set of eXtensible Markup Language (XML) cards for the phone. For example, you may want to control which XML services are available on each phone; managers may have different features on their phones than employees do. You can also specify whether you want a specific phone to use a different image version.



Note The values in the user configuration file take precedence because that file is processed last. Values in this file override what is in the default configuration file.

If you use configuration files, the OS79XX.TXT file no longer controls the image used by the phone. The OS79XX.TXT file controls the image only if you change protocols (SIP to MGCP, or MGCP to SIP). Image version and upgrading is done through the **image_version** configuration parameter in the configuration files.

Upon startup, the phone attempts to download both files. If neither file exists, a TFTP timeout occurs after approximately 9 seconds per file. If the files exist, they are parsed and processed.



Note Both files can use the same values or contain empty values. If the files have empty values, the Cisco MGCP IP phone boots using the default values for some of the parameters.

These configuration files are not required; however, it takes longer (approximately 20 seconds) for the Cisco MGCP IP phone to boot because it is waiting for the timeout on the TFTP server.

Table 4-2 shows the default MGCP IP Phone configuration file parameters in alphabetical order. All parameters are optional; the phone boots with the default or existing flash configuration. Only **image_version** is required to upgrade to a new image.

Table 4-2 Default MGCP Configuration File Parameters

| Parameter | Description |
|-------------------------|---|
| date_format | <p>The format to use for dates. Valid values are:</p> <ul style="list-style-type: none"> • M/D/Y—Month, day, year • D/M/Y—Day, month, year • Y/M/D—Year, month, day • Y/D/M—Year, day, month <p>The default is M/D/Y.</p> |
| dst_auto_adjust | Whether or not daylight saving time (DST) is automatically adjusted on the phones. Valid values are 0 (disable automatic DST adjustment) or 1 (enable automatic DST adjustment). The default is 1. |
| dst_offset | Offset from the phone's time when DST is in effect. When DST is over, the specified offset is no longer applied to the phone's time. Valid values are the same as for the time_zone parameter. |
| dst_start_day | <p>Day of the month on which DST begins.</p> <p>Valid values are 1 through 31 for the days of the month or 0 when specifying relative DST to specify that this field be ignored and that the value in the dst_start_day_of_week parameter be used instead.</p> |
| dst_start_day_of_week | <p>Day of the week on which DST begins.</p> <p>Valid values are Sunday or Sun, Monday or Mon, Tuesday or Tue, Wednesday or Wed, Thursday or Thu, Friday or Fri, Saturday or Sat, or Sunday or Sun or 1 through 7 with 1 being Sunday and 7 being Saturday. When specifying the name of the day, the value is not case-sensitive. In the United States, the default value is Sunday.</p> |
| dst_start_month | Month in which DST starts. Valid values are January, February, March, April, May, June, July, August, September, October, November, and December or 1 through 12 with January being 1 and December being 12. When specifying the name of a month, the value is not case-sensitive. In the United States, the default value is April. |
| dst_start_time | Time of day on which DST begins. Valid values are hour/minute (02/00) or hour (02:00). In the United States, the default value is 02:00. |
| dst_start_week_of_month | <p>Week of month in which DST begins.</p> <p>Valid values are 1 through 6 and 8 with 1 being the first week and each number thereafter being subsequent weeks and 8 specifying the last week in the month regardless of which week the last week is. In the United States, the default value is 1.</p> |
| dst_stop_day | <p>Day of the month on which DST ends.</p> <p>Valid values are 1 through 31 for the days of the month or 0 when specifying relative DST to specify that this field be ignored and that the value in the dst_stop_day_of_week parameter be used instead.</p> |

Table 4-2 Default MGCP Configuration File Parameters

| Parameter | Description |
|------------------------|--|
| dst_stop_day_of_week | Day of the week on which DST ends. Valid values are Sunday or Sun, Monday or Mon, Tuesday or Tue, Wednesday or Wed, Thursday or Thu, Friday or Fri, Saturday or Sat, or Sunday or Sun or 1 through 7 with 1 being Sunday and 7 being Saturday. When specifying the name of the day, the value is not case-sensitive. In the United States, the default value is Sunday. |
| dst_stop_month | Month in which DST ends. Valid values are January, February, March, April, May, June, July, August, September, October, November, and December or 1 through 12 with January being 1 and December being 12. When specifying the name of a month, the value is not case-sensitive. In the United States, the default value is October. |
| dst_stop_time | Time of day on which DST ends. Valid values are hour/minute (02/00) or hour (02:00). In the United States, the default value is 02:00. |
| dst_stop_week_of_month | Week of month in which DST ends. Valid values are 1 through 6 and 8 with 1 being the first week and each number thereafter being subsequent weeks and 8 specifying the last week in the month regardless of which week the last week is. In the United States, the default value is 8. |
| dtmf_avt_payload | Payload type for AVT packets. Possible range is 96 to 127. If the value specified exceeds 127, the phone will default to 101. |
| image_version | Firmware version that the Cisco MGCP IP phone should run. Enter the name of the image version (as it is released by Cisco). Do not enter the extension. You cannot change the image version by changing the file name because the version is also built into the file header. Trying to change the image version by changing the file name will cause the firmware to fail when it compares the version in the header against the file name. |
| mgcp_gw_controller | IP address of CA. |
| mgcp_input_port | Port on which the phone listens. The default is 2427. |
| mgcp_output_port | Port on which the CA listens. The default is 2427. |
| phone_password | Password to be used for console or telnet access. The default password is cisco. |
| phone_prompt | Prompt to be displayed when using telnet or console access. The default phone prompt is "MGCP Phone." |
| sntp_mode | Mode in which the phone will listen for the SNTP server. Valid values are unicast, multicast, anycast, or directedbroadcast. See |
| sntp_server | IP address of the SNTP server from which the phone will obtain time data. If the SNTP server is set to 0 or not set, the MGCP software defaults the SNTP server address to the address of the CA. See Table 4-3 for more information. |
| tftp_cfg_dir | Path to the TFTP subdirectory in which phone-specific configuration files are stored. Note Exists only in the MGCDefault.cnf file. |

Table 4-2 Default MGCP Configuration File Parameters

| Parameter | Description |
|------------------|---|
| time_format_24hr | <p>Whether a 12 or 24-hour time format is displayed by default on the phones' user interface. Valid values are:</p> <ul style="list-style-type: none"> • 0—The 12-hour format is displayed by default but can be changed to a 24-hour format via the phone's user interface. • 1—The 24-hour format is displayed by default but can be changed to a 12-hour format via the phone's user interface. • 2—The 12-hour format is displayed and cannot be changed to a 24-hour format via the phone's user interface. • 3—The 24-hour format is displayed and cannot be changed to a 12-hour format via the phone's user interface. <p>The default value is 1.</p> |
| time_zone | <p>Time zone in which the phone is located. Valid values are hour/minute, -hour/minute, +hour/minute, hour, -hour, +hour, PST, MST, CST, or EST. (Time zone abbreviations are case sensitive and must be in all capital letters.)</p> |
| tos_media | <p>Type of Service (ToS) level for the media stream being used. Valid values are:</p> <ul style="list-style-type: none"> • 0 (IP_ROUTINE) • 1 (IP_PRIORITY) • 2 (IP_IMMEDIATE) • 3 (IP_FLASH) • 4 (IP_OVERRIDE) • 5 (IP_CRITIC) <p>The default is 5.</p> |
| use_mac_name | <p>Specifies whether to use the IP address or MAC address in the endpoint name. By default, the IP address is used. Valid values are:</p> <ul style="list-style-type: none"> • 0—IP address • 1—MAC address |
| xml_card_dir | <p>Specifies the directory to use for retrieving the XML cards file. The base for the directory is the base TFTP server directory. This field is limited to 64 characters.</p> |
| xml_card_file | <p>The file name of the XML cards. This field is limited to 20 characters.</p> |

Table 4-3 lists the actions that take place when a valid IP address is specified in the `sntp_server` parameter.

Table 4-3 Actions Based on *sntp_mode* When the *sntp_server* Parameter is Set to an IP Address

| sntp_server = 192.168.1.9 | sntp_mode=unicast | sntp_mode=multicast | sntp_mode=anycast | sntp_mode=directedbroadcast |
|----------------------------------|---|--|---|--|
| Sends | SNTP request to the SNTP server. | Nothing. When in multicast mode, SNTP requests are not sent. | SNTP request to the SNTP server. | SNTP packet to the SNTP server. After the first SNTP response is received, the phone switches to multicast mode. |
| Receives | SNTP response from the SNTP server and ignores responses from other SNTP servers. | SNTP data via the SNTP/NTP multicast address from the local network broadcast address. | SNTP response from the SNTP server and ignores responses from other SNTP servers. | SNTP data from the SNTP/NTP multicast address and the local network broadcast address and ignores responses from other SNTP servers. |

Example 4-1 Sample MGCP Default Configuration File

```

Basic MGCP Default Config File Options
#
# Any or All of these options can be configured
# in the user config file (MGC<MAC ADDR>.cnf).
# The user config file options override any options
# specified here in the Default Config File.
# :sample user config file name: MGC003E362FE92.cnf
# image_version - specifies which image version should
#   be on the phone. This is used to upgrade from an
#   MGCP image to a different MGCP image. The OS79XX.TXT
#   file is only used to switch protocols (ie. SIP to MGCP).
image_version: P0M3-03-0-00

# tftp_cfg_dir - specifies the directory to use for the
#   retrieving the MGC<MAC ADDR>.cnf file. The base
#   for the directory is the base TFTP Server directory.
#   tftp_cfg_dir is limited to 64 characters.
tftp_cfg_dir : ""

# phone_password - specifies the password used to telnet
#   to the phone. phone_password is limited to 32 characters.
# phone_prompt - specifies the prompt the phone will display
#   when logged in from the console or telnet session.
#   phone_prompt is limited to 16 characters.
phone_password : "cisco"
phone_prompt : "MGCP Phone"

# sntp_mode - specifies the mode the SNTP server uses
#   (unicast, multicast, anycast, directedbroadcast)
# sntp_server - specifies the address of the SNTP server
sntp_mode : Unicast
sntp_server : "172.18.198.13"

# The following parameters setup time zone and
# daylight savings settings.
# Supported time zones are :
#   EST, AST, NST, BST, AT, WAT, GMT, HST, YST

```

```

time_zone           : EST
dst_offset          : 1
dst_start_month    : "April"
dst_start_day      : 0
dst_start_day_of_week : "Sun"
dst_start_week_of_month : 1
dst_start_time     : 2
dst_stop_month     : "Oct"
dst_stop_day       : 0
dst_stop_day_of_week : "Sun"
dst_stop_week_of_month : 8
dst_stop_time      : 2
dst_auto_adjust    : 1

# Date and Time format displays
# time_format_24hr (1 - yes, 0 - 12 hours format)
# date_format (M/D/Y, D/M/Y, Y/M/D, Y/D/M)
time_format_24hr : 1
date_format : M/D/Y

# MGCP Call Agent Information
# mgcp_gw_controller - address of call agent
# mgcp_input_port - port the phone listens on
# mgcp_output_port - port the call agent listens on
mgcp_gw_controller : 172.18.198.13
mgcp_input_port : 2427
mgcp_output_port : 2727

# xml_card_dir - specifies the directory to use for the
#   retrieving the xml cards file. The base
#   for the directory is the base TFTP Server directory.
#   xml_card_dir is limited to 64 characters.
# xml_card_file - specifies the file name of the XML Cards
#   file. xml_card_file is limited to 20 characters.
xml_card_dir : ""
xml_card_file : "CARD.XML"

# tos_media - specifies the value to be used for the tos bits.
#   valid range is 0-7.
tos_media: 7

#use_mac_name - specifies whether to use the IP address
#   or MAC Address in the endpoint name. The default is
#   to use the IP address. Valid values are :
#   [ 0 - IP Address (default) 1 - Mac Address ]
use_mac_name: 0

# End of Basic MGCP Default Config File.

```

Using the MGCP Phone Settings Button

You can configure several features using the settings button on your MGCP phone. Some of these features may differ depending on the vendor CA you are using. To configure MGCP features, perform the following tasks:

Step 1 Unlock the phone by pressing ****#**. The lock icon changes to show that the phone is unlocked. If you do not unlock the phone, you cannot change the phone settings.

Step 2 Press the **settings** button and use the arrow keys to scroll down to Network Configuration. Choose **Select**.

Step 3 You can use this menu to configure the following items:

- IP address
- Subnet mask
- Default router
- DNS
- TFTP server address



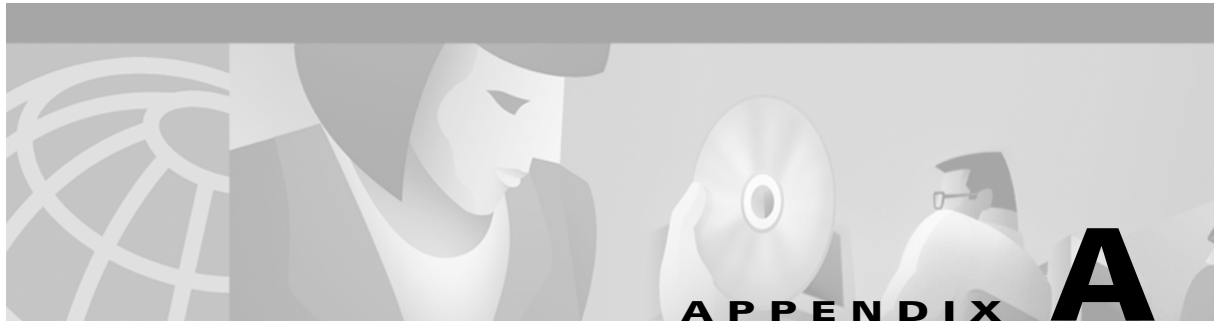
Note You must disable DHCP before you can configure these items. If you do not, the phone does not allow you to override the values. To disable DHCP, in the Network Configuration screen, scroll down to DHCP Enabled and select **No**.

Step 4 To configure additional items, return to the main **settings** menu, then scroll to MGCP configuration and choose **select**. This allows you to configure the following items:

- CA IP address
- Phone input port
- Phone output port



Note Your call agent or service provider might offer additional phone features and capabilities not described in this chapter. Refer to the documentation from your call agent or service provider for instructions on using those features.



Translated Safety Warnings

These sections contain translations of the warnings used in the “Safety Notices” section on page 2-1 and page 2-2.

Warning Definition



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.

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.

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.

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.

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.

| | |
|----------------------|---|
| 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. |
| 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. |
| 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. |
| ¡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. |
| 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. |

Installation Warning



Warning

Read the installation instructions before you connect the system to its power source.

| | |
|---------------------|--|
| Waarschuwing | Raadpleeg de installatie-aanwijzingen voordat u het systeem met de voeding verbindt. |
| Varoitus | Lue asennusohjeet ennen järjestelmän yhdistämistä virtalähteeseen. |
| Attention | Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation. |
| Warnung | Lesen Sie die Installationsanweisungen, bevor Sie das System an die Stromquelle anschließen. |
| Avvertenza | Consultare le istruzioni di installazione prima di collegare il sistema all'alimentatore. |
| Advarsel | Les installasjonsinstruksjonene før systemet kobles til strømkilden. |

| | |
|----------------------|--|
| Aviso | Leia as instruções de instalação antes de ligar o sistema à sua fonte de energia. |
| ¡Advertencia! | Ver las instrucciones de instalación antes de conectar el sistema a la red de alimentación. |
| Varning! | Läs installationsanvisningarna innan du kopplar systemet till dess strömförsörjningsenhet. |

Product Disposal Warning



Warning

Ultimate disposal of this product should be handled according to all national laws and regulations.

| | |
|----------------------|--|
| Waarschuwing | Dit produkt dient volgens alle landelijke wetten en voorschriften te worden afgedankt. |
| Varoitus | Tämän tuotteen lopullisesta hävittämisestä tulee huolehtia kaikkia valtakunnallisia lakeja ja säännöksiä noudattaen. |
| Attention | La mise au rebut définitive de ce produit doit être effectuée conformément à toutes les lois et réglementations en vigueur. |
| Warnung | Dieses Produkt muß den geltenden Gesetzen und Vorschriften entsprechend entsorgt werden. |
| Avvertenza | L'eliminazione finale di questo prodotto deve essere eseguita osservando le normative italiane vigenti in materia. |
| Advarsel | Endelig disponering av dette produktet må skje i henhold til nasjonale lover og forskrifter. |
| Aviso | A descartagem final deste produto deverá ser efectuada de acordo com os regulamentos e a legislação nacional. |
| ¡Advertencia! | El desecho final de este producto debe realizarse según todas las leyes y regulaciones nacionales. |
| Varning! | Slutlig kassering av denna produkt bör skötas i enlighet med landets alla lagar och föreskrifter. |

Lightning Activity Warning



Warning

Do not work on the system or connect or disconnect cables during periods of lightning activity.

Waarschuwing

Tijdens onweer dat gepaard gaat met bliksem, dient u niet aan het systeem te werken of kabels aan te sluiten of te ontkoppelen.

Varoitus

Älä työskentele järjestelmän parissa äläkä yhdistä tai irrota kaapeleita ukkosilmalla.

Attention

Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.

Warnung

Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert.

Avvertenza

Non lavorare sul sistema o collegare oppure scollegare i cavi durante un temporale con fulmini.

Advarsel

Utfør aldri arbeid på systemet, eller koble kabler til eller fra systemet når det tordner eller lyner.

Aviso

Não trabalhe no sistema ou ligue e desligue cabos durante períodos de mau tempo (trovoada).

¡Advertencia!

No operar el sistema ni conectar o desconectar cables durante el transcurso de descargas eléctricas en la atmósfera.

Varning!

Vid åska skall du aldrig utföra arbete på systemet eller ansluta eller koppla loss kablar.

SELV Circuit Warning



Warning

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Use caution when connecting cables.

Waarschuwing

Om elektrische schokken te vermijden, mogen veiligheidscircuits met extra lage spanning (genaamd SELV = Safety Extra-Low Voltage) niet met telefoonnetwerkspanning (TNV) circuits verbonden worden. LAN (Lokaal netwerk) poorten bevatten SELV circuits en WAN (Regionaal netwerk) poorten bevatten TNV circuits. Sommige LAN en WAN poorten gebruiken allebei RJ-45 connectors. Ga voorzichtig te werk wanneer u kabels verbindt.

Varoitus

Jotta vältyt sähköiskulta, älä kytke pienjännitteisiä SELV-suojapiirejä puhelinverkkojännitettä (TNV) käyttöviin virtapiireihin. LAN-portit sisältävät SELV-piirejä ja WAN-portit puhelinverkkojännitettä käyttäviä piirejä. Osa sekä LAN- että WAN-porteista käyttää RJ-45-liittimiä. Ole varovainen kytkiessäsi kaapeleita.

Attention

Pour éviter une électrocution, ne raccordez pas les circuits de sécurité basse tension (Safety Extra-Low Voltage ou SELV) à des circuits de tension de réseau téléphonique (Telephone Network Voltage ou TNV). Les ports du réseau local (LAN) contiennent des circuits SELV et les ports du réseau longue distance (WAN) sont munis de circuits TNV. Certains ports LAN et WAN utilisent des connecteurs RJ-45. Raccordez les câbles en prenant toutes les précautions nécessaires.

Warnung

Zur Vermeidung von Elektroschock die Sicherheits-Kleinspannungs-Stromkreise (SELV-Kreise) nicht an Fernsprechnetzspannungs-Stromkreise (TNV-Kreise) anschließen. LAN-Ports enthalten SELV-Kreise, und WAN-Ports enthalten TNV-Kreise. Einige LAN- und WAN-Ports verwenden auch RJ-45-Steckverbinder. Vorsicht beim Anschließen von Kabeln.

Avvertenza

Per evitare scosse elettriche, non collegare circuiti di sicurezza a tensione molto bassa (SELV) ai circuiti a tensione di rete telefonica (TNV). Le porte LAN contengono circuiti SELV e le porte WAN contengono circuiti TNV. Alcune porte LAN e WAN fanno uso di connettori RJ-45. Fare attenzione quando si collegano cavi.

Advarsel

Unngå å koble lavspenningskretser (SELV) til kretser for telenettspenning (TNV), slik at du unngår elektrisk støt. LAN-utganger inneholder SELV-kretser og WAN-utganger inneholder TNV-kretser. Det finnes både LAN-utganger og WAN-utganger som bruker RJ-45-kontakter. Vær forsiktig når du kobler kabler.

- Aviso** Para evitar choques eléctricos, não conecte os circuitos de segurança de baixa tensão (SELV) aos circuitos de tensão de rede telefónica (TNV). As portas LAN contêm circuitos SELV e as portas WAN contêm circuitos TNV. Algumas portas LAN e WAN usam conectores RJ-45. Tenha o devido cuidado ao conectar os cabos.
- ¡Advertencia!** Para evitar la sacudida eléctrica, no conectar circuitos de seguridad de voltaje muy bajo (safety extra-low voltage = SELV) con circuitos de voltaje de red telefónica (telephone network voltage = TNV). Los puertos de redes de área local (local area network = LAN) contienen circuitos SELV, y los puertos de redes de área extendida (wide area network = WAN) contienen circuitos TNV. En algunos casos, tanto los puertos LAN como los WAN usan conectores RJ-45. Proceda con precaución al conectar los cables.
- Varning!** För att undvika elektriska stötar, koppla inte säkerhetskretsar med extra låg spänning (SELV-kretsar) till kretsar med telefonnätspänning (TNV-kretsar). LAN-portar innehåller SELV-kretsar och WAN-portar innehåller TNV-kretsar. Vissa LAN- och WAN-portar är försedda med RJ-45-kontakter. Iaktta försiktighet vid anslutning av kablar.

Circuit Breaker (15A) Warning



Warning

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors).

Waarschuwing

Dit produkt is afhankelijk van de installatie van het gebouw voor kortsluit-(overstroom)beveiliging. Controleer of er een zekering of stroomverbreker van niet meer dan 120 Volt wisselstroom, 15 A voor de V.S. (240 Volt wisselstroom, 10 A internationaal) gebruikt wordt op de fasegeleiders (alle geleiders die stroom voeren).

Varoitus

Tämä tuote on riippuvainen rakennukseen asennetusta oikosulkusuojuksesta (ylivirtasuojauksesta). Varmista, että vaihevirtajohtimissa (kaikissa virroitetuissa johtimissa) käytetään Yhdysvalloissa alle 120 voltin, 15 ampeerin ja monissa muissa maissa 240 voltin, 10 ampeerin sulaketta tai suojakytkintä.

Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifier qu'un fusible ou qu'un disjoncteur de 120 V alt., 15 A U.S. maximum (240 V alt., 10 A international) est utilisé sur les conducteurs de phase (conducteurs de charge).

| | |
|----------------------|--|
| Warnung | Dieses Produkt ist darauf angewiesen, daß im Gebäude ein Kurzschluß- bzw. Überstromschutz installiert ist. Stellen Sie sicher, daß eine Sicherung oder ein Unterbrecher von nicht mehr als 240 V Wechselstrom, 10 A (bzw. in den USA 120 V Wechselstrom, 15 A) an den Phasenleitern (allen stromführenden Leitern) verwendet wird. |
| Avvertenza | Questo prodotto dipende dall'installazione dell'edificio per quanto riguarda la protezione contro cortocircuiti (sovracorrente). Verificare che un fusibile o interruttore automatico, non superiore a 120 VCA, 15 A U.S. (240 VCA, 10 A internazionale) sia stato usato nei fili di fase (tutti i conduttori portatori di corrente). |
| Advarsel | Dette produktet er avhengig av bygningens installasjoner av kortslutningsbeskyttelse (overstrøm). Kontroller at det brukes en sikring eller strømbryter som ikke er større enn 120 VAC, 15 A (USA) (240 VAC, 10 A internasjonalt) på faselederne (alle strømførende ledere). |
| Aviso | Este produto depende das instalações existentes para protecção contra curto-circuito (sobrecarga). Assegure-se de que um fusível ou disjuntor não superior a 240 VAC, 10A é utilizado nos condutores de fase (todos os condutores de transporte de corrente). |
| ¡Advertencia! | Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del propio edificio. Asegurarse de que se utiliza un fusible o interruptor automático de no más de 240 voltios en corriente alterna (VAC), 10 amperios del estándar internacional (120 VAC, 15 amperios del estándar USA) en los hilos de fase (todos aquéllos portadores de corriente). |
| Varning! | Denna produkt är beroende av i byggnaden installerat kortslutningsskydd (överströmsskydd). Kontrollera att säkring eller överspänningsskydd används på fasledarna (samtliga strömförande ledare) ¥ för internationellt bruk max. 240 V växelström, 10 A (iþUSA max. 120 V växelström, 15 A). |

TN Power Warning



Warning

The device is designed to work with TN power systems.

Waarschuwing

Het apparaat is ontworpen om te functioneren met TN energiesystemen.

Varoitus

Koje on suunniteltu toimimaan TN-sähkövoimajärjestelmien yhteydessä.

Attention

Ce dispositif a été conçu pour fonctionner avec des systèmes d'alimentation TN.

Warnung

Das Gerät ist für die Verwendung mit TN-Stromsystemen ausgelegt.

■ TN Power Warning

- Avvertenza** Il dispositivo è stato progettato per l'uso con sistemi di alimentazione TN.
- Advarsel** Utstyret er utfomet til bruk med TN-strømsystemer.
- Aviso** O dispositivo foi criado para operar com sistemas de corrente TN.
- ¡Advertencia!** El equipo está diseñado para trabajar con sistemas de alimentación tipo TN.
- Varning!** Enheten är konstruerad för användning tillsammans med elkraftssystem av TN-typ.



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