C H A P T E R **4**

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:

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
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 4-2 shows the available commands:

Table 4-2   Telnet Commands for the Cisco MGCP IP Phone

Command	Purpose
MGCP Phone> `clear` {`arp` | `malloc` | `tcp-stats`}	Clears the following depending on keywords used: • **arp**: Clears the Address Resolution Protocol (ARP) cache. • **malloc**: Clears the memory allocation table. • **tcp-stats**: Clears the TCP statistics.
MGCP Phone> `debug` {`arp` | `console-stall` | `strlib` | `malloc` | `malloctable` | `sk-platform` | `flash` | `dsp` | `vcm` | `dtmf` | `task-socket` | `mgcpio` | `mgcp_parse` | `dns` | `config` | `sntp` | `sntp-packet` | `http` | `arp-broadcast` | `xml-events` | `xml-deck` | `xml-vars` | `xml-post`}	Shows detailed MGCP **debug** command output when used with the following keywords: • **arp**: Shows debug output for the ARP cache. • **console-stall**: Shows **debug** command output for the console-stall driver output mode. • **strlib**: Shows **debug** command output for the string library. • **malloc**: Shows **debug** command output for memory allocation. • **malloc-table**: Enables the population of the memory allocation table. The table can be viewed with the **show malloc-table** command. • **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. • **arp-broadcast**: Shows ARP broadcast messages. • **http**: Shows HTTP requests and responses. • **xml-events**: Shows XML events that are posted to the XML application chain. • **xml-deck**: Shows XML requests for XML cards and decks. • **xml-vars**: Shows XML content variables. • **xml-post**: Shows XML post strings. **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.

Table 4-2   Telnet Commands for the Cisco MGCP IP Phone (continued)

Command	Purpose
MGCP Phone> **dns**	Manipulates the DNS system. The following arguments are used: • **-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.
MGCP Phone> **erase protflash**	Erases the protocol area of Flash memory. Forces the phone to reset its IP stack and request its config files again. This command can only be used if the telnet_level parameter is set to allow privileged commands to be executed.
MGCP Phone> **exit**	Exits the Telnet or console session.
MGCP Phone> **ping** *ipaddress number packetsize timeout*	Sends an Internet Control Message Protocol (ICMP) ping to a network address. You can use a dotted IP address or an alphanumeric address. The *number* value specifies how many pings to send; the default value is 5. The *packetsize* 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 *timeout* value is measured in seconds and identifies how long to wait before the request times out; the default is 2.
MGCP Phone> **reset**	Resets the phone. This command can be used only if the telnet_level parameter is set to allow privileged commands to be executed.

Table 4-2   Telnet Commands for the Cisco MGCP IP Phone (continued)

Command	Purpose
`MGCP Phone> show {arp	debug	strpool	memorymap	dump	malloctable	stacks	status	abort_vector	flash	timers	dspstate	rtp	tcp	lists	network	config	mgcp_lists	dialplan	timers}`	Shows information about the Cisco MGCP IP phone. The following keywords are used: • **arp:** Displays contents of the ARP cache. • **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) hinformation, time and date format, CA address, and MGCP input and output port numbers. • **mgcp_lists**: Shows the filter list and duplicate message list lengths. • **dialplan**: Shows the phone's dial plan. • **timers**: Shows the current status of the platform timers

Table 4-2   *Telnet Commands for the Cisco MGCP IP Phone (continued)*

Command	Purpose

MGCP Phone> **test** {**open** | **close** | **key** | **onhook** | **offhook** | **show** | **hide**}	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. This command can be used only if the telnet_level parameter is set to allow privileged commands to be executed.
	
	The following commands are available:
	
	• **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:
	
	  – 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
	
	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**.
	
	• **test onhook**: Simulates a handset onhook event.
	• **test offhook**: Simulates a handset offhook event.
	• **test show**: Show test feedback.
	• **test hide**: Hide test feedback.

MGCP Phone> **traceroute** *ip-address* [*ttl*]	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: • *ip-address*: The dotted IP address or alphanumeric address (host name) of the host to which you are sending the traceroute. • *ttl*: The time-to-live value, or the number of routers (hops) through which the datagram can pass. The default value is 30.

Table 4-2   Telnet Commands for the Cisco MGCP IP Phone (continued)

Command	Purpose
MGCP Phone> **tty** {**echo** {**on** | **off**} | **mon** | **timeout** *value* | **kill** *session* | **msg**}	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.
MGCP Phone> **undebug** {**arp** | **console-stall** | **strlib** | **malloc** | **malloctable** | **sk-platform** | **flash** | **dsp** | **vcm** | **dtmf** | **task-socket** | **mgcpio** | **mgcp_parse** | **dns** | **config** | **sntp sntp-packet**}	Turns off debugging.

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.

- MGC*macaddress*.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 4-3 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 4-3   Default MGCP Configuration File Parameters

Parameter	Description
date_format	The format to use for dates. Valid values are: • M/D/Y—Month/day/year • D/M/Y—Day/ month/year • Y/M/D—Year/month/day • Y/D/M—Year/day/month • Y-M-D—Year-month-day • YY-M-D—4-digit year-month-day The default is M/D/Y.
directory_url	URL of the external directory server . This URL is accessed when the Directory key is pressed and the External Directory option is selected. For example, use directory_url: "http://10.10.10.10/CiscoServices/Directory.asp".
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 hour/minute, -hour/minute, +hour/minute, hour, -hour, and +hour.
dst_start_day	Day of the month on which DST begins. 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.
dst_start_day_of_week	Day of the week on which DST begins. 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_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	Week of month in which DST begins. 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.

Table 4-3   Default MGCP Configuration File Parameters (continued)

Parameter	Description
dst_stop_day	Day of the month on which DST ends.
	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.
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.
dtmf_outofband	Whether to generate the out-of-band signaling (for tone detection on the IP side of a gateway) and if so, when. The Cisco MGCP IP phone supports out-of-bound signaling via the AVT tone method. Valid values are: • none—Do not generate DTMF digits out-of-band. • avt—If requested by the remote side, generate DTMF digits out-of-band (and disable in-band DTMF signaling); otherwise, do not generate DTMF digits out-of-band. • avt_always—Always generate DTMF digits out-of-band. This option disables in-band DTMF signaling. The default is avt.

Table 4-3   Default MGCP Configuration File Parameters (continued)

Parameter	Description
dyn_dns_addr_1	You can specify the IP address of a new dynamic DNS server. If a new DNS server is specified, it is used for any further DNS requests after the phone uses the initial DNS address upon bootup. The DNS addresses are used in the following order: 1. dyn_dns_addr_1 (If present) 2. dyn_dns_add_2 (If present) 3. DNS Server 1 4. DNS Server 2 5. DNS Server 3 6. DNS Server 4 7. DNS Server 5 The dynamic DNS address is not stored in Flash memory. Only dotted IP addresses are accepted. This value can be cleared by removing it from the config file or changing its value to a null value "" "" or "UNPROVISIONED".
dyn_dns_addr_2	You can specify a second dynamic DNS server to be used for DNS requests.
dyn_tftp_addr	You can specify the IP address of a new dynamic TFTP server. After initially querying the default TFTP server, the phone will re-request the default and MAC-specific configuration files from the new TFTP server. The dynamic TFTP server is not stored in Flash memory. Only dotted IP addresses are accepted. This value can be cleared by removing it from the config file or changing its value to a null value "" "" or "UNPROVISIONED".
http_proxy_addr	The IP address of the HTTP proxy server. You can use either a dotted IP address or a DNS name (a record only).
http_proxy_port	The port number of the HTTP proxy port. The default is 80.
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.
logo_url	Location of the company logo file. This logo appears on the phone display. The background space allocated for the image is 90 x 56 pixels. Images that are larger than this will automatically be scaled down to 90 x 56 pixels. The recommended file size for the image is 5 to 15k. For example, use logo_url: "http://10.10.10.10/companylogo.bmp". **Note** This parameter supports Windows 256 color bitmap format only. CMXML PhoneImage objects are not supported for this parameter. Using anything other than a Windows bitmap (.bmp) file can cause unpredictable results.
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.

Table 4-3   Default MGCP Configuration File Parameters (continued)

Parameter	Description
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."
services_url	URL of the services BTXML files. This URL is accessed when the Services button is pressed. For example, use services_url:"http://10.10.10.10/CiscoServices/Services.asp"
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 4-4 for more information.
telnet_level	Enables Telnet for the phone. Valid values are: • 0 — Telnet is disabled • 1 — Telnet is enabled, no privileged commands • 2 — Telnet is enabled and privileged commands can be executed The default value is 0.
tftp_cfg_dir	Path to the TFTP subdirectory in which phone-specific configuration files are stored. **Note** Exists only in the MGCDefault.cnf file.
time_format_24hr	Whether a 12 or 24-hour time format is displayed by default on the phones' user interface. Valid values are: • 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. The default value is 1.
time_zone	Time zone in which the phone is located. Valid values are the time zone abbreviations shown in Table 4-5. These abbreviations are case sensitive and must be in all capital letters.

Table 4-3   Default MGCP Configuration File Parameters (continued)

Parameter	Description
tos_media	Type of Service (ToS) level for the media stream being used. Valid values are: • 0 (IP_ROUTINE) • 1 (IP_PRIORITY) • 2 (IP_IMMEDIATE) • 3 (IP_FLASH) • 4 (IP_OVERIDE) • 5 (IP_CRITIC) The default is 5.
use_mac_name	Specifies whether to use the IP address or MAC address in the endpoint name. By default, the IP address is used. Valid values are: • 0—IP address • 1—MAC address
xml_card_dir	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.
xml_card_file	The file name of the XML cards. This field is limited to 20 characters.

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

Table 4-4   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.

Table 4-5 shows the abbreviations for the time_zone parameter.

Table 4-5   Time Zone Abbreviations

Abbreviation	GMT Offset	Cities	Time Zone Names
IDL	GMT-12:00	Eniwetok	IDL (International Date Line), IDLW (International Date Line West)
NT	GMT-11:00	Midway	BT (Bering Time), NT (Nome Time)
AHST	GMT-10:00	Hawaii	AHST (Alaska-Hawaii Standard Time), HST (Hawaiian Standard Time), CAT (Central Alaska Time)
IMT	GMT-09:30	Isle Marquises	Isle Marquises
YST	GMT-09:00	Yukon	YST (Yukon Standard Time)
PST	GMT-08:00	Los Angeles	PST (Pacific Standard Time),
MST	GMT-07:00	Phoenix	MST (Mountain Standard Time), PDT (Pacific Daylight Time)
CST	GMT-06:00	Dallas, Mexico City	CST (Central Standard Time), MDT (Mountain Daylight Time), Chicago
EST	GMT-05:00	New York	EST (Eastan Standard Time), CDT (Central Daylight Time), NYC
AST	GMT-04:00	La Paz	AST (Atlantic Standard Time), EDT (Eastan Daylight Time)
NST	GMT-03:30	Newfoundland	NST (Newfoundland Standard Time)
BST	GMT-03:00	Buenos Aires	BST (Brazil Standard Time), ADT (Atlantic Daylight Time), GST (Greenland Standard Time)
AT	GMT-02:00	Mid-Atlantic	AT (Azores Time)
WAT	GMT-01:00	Azores	WAT (West Africa Time)
GMT	GMT 00:00	London	GMT (Greenwich Mean Time), WET (Western European Time), UT (Universal Time)
CET	GMT+01:00	Paris	CET (Central European Time), MET (Middle European Time), BST (British Summer Time), MEWT(Middle European Winter Time), SWT (Swedish Winter Time), FWT (French Winter Time)
EET	GMT+02:00	Athens, Rome	EET (Eastan European Time), USSR-zone1, MEST (Middle European Summer Time), FST (French Summer Time)
BT	GMT+03:00	Baghdad, Moscow	BT (Baghdad Time), USSR-zone2
IT	GMT+03:30	Tehran	IT (Iran Time)
ZP4	GMT+04:00	Abu Dhabi	USSR-zone3, ZP4 (GMT Plus 4 Hours)
AFG	GMT+04:30	Kabul	Afghanistan
ZP5	GMT+05:00	Islamabad	USSR-zone4, ZP5 (GMT Plus 5 Hours)

Table 4-5   Time Zone Abbreviations

Abbreviation	GMT Offset	Cities	Time Zone Names
IST	GMT+05:30	Bombay, Delhi	IST (Indian Standard Time)
ZP6	GMT+06:00	Colombo	USSR-zone5, ZP6 (GMT Plus 6 Hours)
SUM	GMT+06:30	North Sumatra	NST (North Sumatra Time)
WAST	GMT+07:00	Bangkok, Hanoi	SST (South Sumatra Time), USSR-zone6, WAST (West Australian Standard Time)
HST	GMT+08:00	Beijing, Hong Kong	CCT (China Coast Time), HST (HongKong Standard Time), USSR-zone7, WADT (West Australian Daylight Time)
JST	GMT+09:00	Tokyo, Seoul	JST (Japan Standard Time/Tokyo), KST (Korean Standard Time), USSR-zone8
CAST	GMT+09:30	Darwin	SAST (South Australian Standard Time) , CAST (Central Australian Standard Time)
EAST	GMT+10:00	Brisbane, Guam	GST (Guam Standard Time),USSR-zone9, EAST (East Australian Standard Time)
EADT	GMT+11:00	Solomon Islands	USSR-zone10, EADT (East Australian Daylight Time)
NZST	GMT+12:00	Auckland	NZT (New Zealand Time/Auckland), NZST (New Zealand Standard Time), IDLE (International Date Line East)

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 diferent MGCP image. The OS79XX.TXT
#    file is only used to switch protocols (ie. SIP to MGCP).
image_version: PXX3-BH-X-0X

# tftp_cfg_dir - specifies the directory to use for the
#    retrieveing 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 charcaters.
# phone_prompt - specifies the prompt the phone will display
#    when logged in from the console or telnet session.
#    phone_prompt is limited to 16 charcaters.
phone_password : "password"
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 : "1.2.3.4"

# The following parameters setup time zone and
# dayight 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 : 1.2.3.4
mgcp_input_port : 2427
mgcp_output_port : 2727

# xml_card_dir - specifies the directory to use for the
#    retrieveing 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: 1

services_url: "http://www.company.com/phone/services.asp"
directory_url: "http://www.company.com/phone/companydirectory.asp"
logo_url: "http://www.company.com/phone/logo.bmp"

# 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.

Customizing the Cisco MGCP IP Phone Ring Types

The Cisco MGCP IP phone ships with two ring types: Chirp1 and Chirp2. By default, your ring type options will be those two choices. However, using the RINGLIST.DAT file, you can customize the ring types that are available to the Cisco MGCP IP phone users.

Step 1   Create a pulse code modulation (PCM) file of the desired ring types and store the PCM files in the root directory of your TFTP server. PCM files must contain no header information and must comply with the following format guidelines:

- 8000 Hz sampling rate
- 8 bits per sample

- u-law compression

Step 2   Using an ASCII editor, open the RINGLIST.DAT file and for each of the ring types you are adding, specify the name as you want it to appear on the Ring Type menu; press **Tab**; and then specify the filename of the ring type. For example, the format of a pointer in your RINGLIST.DAT file should appear similar to the following:

```
Ring Type 1ringer1.pcm
```

Step 3   After defining pointers for each of the ring types you are adding, save your modifications and close the RINGLIST.DAT file.

Accessing Status Information

There are several types of status information that you can access via the **settings** key. The information that you can obtain via the settings key can aid in system management.

To access status information, select **settings** and then select **Status** from the Settings menu. From the Status menu, the following three options are available:

- Status Messages—Displays diagnostic messages.
- Network Status—Displays performance messages.
- Firmware Version—Displays information about the current firmware version on the phone.

In addition to the status messages available via the Setting Status menu, you can also obtain status messages for a current call.

Viewing Status Messages

To view status messages that you can use to diagnose network problems, complete the following steps:

Step 1   Press the **Settings** key. The Settings menu appears.

Step 2   Highlight **Status**.

Step 3   Press the **Select** soft key. The Setting Status menu appears.

Step 4   Highlight **Status Messages**.

Step 5   Press the **Select** soft key. The Status Messages panel appears.

Step 6   To exit the Status Messages panel, press the **Exit** soft key.

Viewing Network Statistics

To view statistical information about the phone and network performance, complete the following steps:

Step 1   Press the **settings** key. The Settings menu appears.

Step 2   Highlight **Status**.

Step 3   Press the **Select** soft key. The Setting Status menu appears.

Step 4   Highlight **Network Statistics**.

Step 5   Press the **Select** soft key. The Network Statistics panel appears.

The following information is displayed on this panel:

- Rcv—Number of packets received by the phone, not through the switch.
- Xmit—Number of packets sent by the phone, not through the switch.
- REr—Number of packets received by the phone that contained errors.
- BCast—Number of broadcast packets received by the phone.
- Phone State Message—TCP messages indicating the state of the phone. Possible messages are:
  - Phone Initialized—TCP connection has not gone down since the phone was powered on.
  - Phone Closed TCP—TCP connection was closed by the phone.
  - TCP Timeout—TCP connection was closed because of a retry timeout.
  - Error Code—Error messages indicating unusual reasons the TCP connection was closed.
- Elapsed Time—Length of time (in days, hours, minutes, and seconds) since the last power cycle.
- Port 0 Full, 100—Indicates that the network is in a linked state and has autonegotiated a full-duplex 100-Mbps connection.
- Port 0 Half, 100—Indicates that the network is in a linked state and has autonegotiated a half-duplex 100-Mbps connection.
- Port 0 Full, 10—Indicates that the network is in a linked state and has autonegotiated a full-duplex 10-Mbps connection.
- Port 0 Half, 10—Indicates that the network is in a linked state and has autonegotiated a half-duplex 10-Mbps connection.
- Port 1 Full, 100—Indicates that the network is in a linked state and has autonegotiated a full-duplex 100-Mbps connection.
- Port 1 Half, 100—Indicates that the network is in a linked state and has autonegotiated a half-duplex 100-Mbps connection.
- Port 1 Full, 10—Indicates that the network is in a linked state and has autonegotiated a full-duplex 10-Mbps connection.
- Port 1 Half, 10—Indicates that the network is in a linked state and has autonegotiated a half-duplex 10-Mbps connection.

Step 6   To exit the Network Statistics panel, press the **Exit** soft key.

Note   To reset the values displayed on Network Statistics panel, power off and power on the phone.

Viewing the Firmware Version

To view network statistics, complete the following steps:

Step 1   Press the s**ettings** key. The Settings menu appears.

Step 2   Highlight **Status**.

Step 3   Press the **Select** soft key. The Setting Status menu appears.

Step 4   Highlight **Firmware Versions**.

Step 5   Press the **Select** soft key. The Firmware Versions panel appears.

The following information is displayed on this panel:

- Application Load ID—Current software image on the phone.
- Boot Load ID—Bootstrap loader image version that is manufactured on the phone. This image name does not change.

Step 6   To exit the Firmware Versions panel, press the **Exit** soft key.

Upgrading the Cisco MGCP IP Phone Firmware

You can use one of two methods to upgrade the firmware on your Cisco MGCP IP phones. You can upgrade the firmware on one phone at a time using the phone-specific configuration, or you can upgrade the firmware on a system of phones using the default configuration file.

Before You Begin

- To upgrade the firmware on just one phone at a time, you upgrade the image_version in the phone-specific configuration file. To upgrade the firmware on a system of phones, specify the image_version in the default configuration file and do not define the image_version in the phone-specific configuration files.
- Ensure that the latest version of the Cisco MGCP IP phone firmware has been copied from Cisco.com to the root directory of your TFTP server.

See the upgrade scenarios in Table 4-6 to determine how to upgrade.

Table 4-6   Upgrade Scenarios

Image Name	Use Section
P0S30100, P0S30200, P0S30201, and P0S3Z*xxx*	Upgrading from Release 2.1 or Earlier Releases to Release 4.0, page 4-20
P003*xxxx* or P003*xxxxxxxx* (these images are loaded on the Cisco MGCP IP phone when it is shipped)	Dual Booting from SCCP or MGCP to Release 4.0, page 4-21
P0M3*xx-y-zz*	Dual Booting from SCCP or MGCP to Release 4.0, page 4-21
P0S30202, P0S30203 and P0S3-03-y-xx	Upgrading from Release 2.2 or Later Releases to Release 4.0, page 4-20

Upgrading from Release 2.2 or Later Releases to Release 4.0

Step 1 Copy the new Release 4.0 binary image P0S3-*xx*-*y*-*zz*.bin, where *xx* is the release major version, *y* is the release minor version, and *zz* is the maintenance number, from Cisco.com to the root directory of the TFTP server.

Step 2 Using a text editor, open the configuration file and update the image version specified in the image_version variable. The version name in the image_version variable should match the version name (without the .bin extension) of the latest firmware that you downloaded (for example, P0S3-*xx*-*y*-*zz*).

Step 3 Reset each phone.

The phone contacts the TFTP server and requests its configuration files. The phone compares the image defined in the file to the image that it has stored in Flash memory. If the phone determines that the image defined in the file differs from the image in Flash memory, it downloads the image defined in the configuration file (which is stored in the root directory on the TFTP server). Once the new image has been downloaded, the phone programs that image into Flash memory and then reboots.

Note If you do not define the image_version parameter in the default configuration file, only phones that have an updated phone-specific configuration file with the new image version and that have been restarted use the latest firmware image. All other phones use the older version until their configuration files have been updated with the new image version.

Upgrading from Release 2.1 or Earlier Releases to Release 4.0

Step 1 Copy the P0S30202.bin binary image from Cisco.com to the root directory of the TFTP server.

Step 2 If you are dual booting from a Cisco IP phone running the Skinny Client Control Protocol (SCCP) or MGCP protocol, open the OS79XX.TXT file with a text editor and change the file to include P0S30202.

Step 3 Open the phone configuration file with a text editor and edit the image_version variable to read P0S30202.

Step 4 Reset each phone.

The phone contacts the TFTP server and requests its configuration files. The phone compares the image defined in the file to the image that it has stored in Flash memory. If the phone determines that the image defined in the file differs from the image in Flash memory, it downloads the image defined in the configuration file (which is stored in the root directory on the TFTP server). Once the new image has been downloaded, the phone programs that image into Flash memory and then reboots.

Step 5 Copy the new Release 4.0 binary image P0S-3*xx*-*y*-*zz*.bin, where *xx* is the release major version, *y* is the release minor version, and *zz* is the maintenance number, from Cisco.com to the root directory of the TFTP server.

Step 6 Using a text editor, open the configuration file and update the image version specified in the image_version variable. The version name in image_version variable should match the version name (without the .bin extension) of the latest firmware that you downloaded (for example, P0S3-*xx*-*y*-*zz*).

Step 7 Reset each phone.

Dual Booting from SCCP or MGCP to Release 4.0

Step 1   Copy the P0S30202.bin binary image from Cisco.com to the root directory of the TFTP server.

Step 2   If you are dual booting from a Cisco IP phone running the SCCP or MGCP protocol, open the OS79XX.TXT file with a text editor and change the file to include P0S30202.

Step 3   Copy the new Release 4.0 binary image P0S3-*xx-y-zz*.bin, where *xx* is the release major version, *y* is the release minor version, and *zz* is the maintenance number, from Cisco.com to the root directory of the TFTP server.

Step 4   Using a text editor, open the configuration file and update the image version specified in the image_version variable. The version name in image_version variable should match the version name (without the .bin extension) of the latest firmware that you downloaded (for example, P0S3*xx-y-zz)*.

Step 5   Reset each phone.

Performing an Image Upgrade and Remote Reboot

With Version 2.0 and later releases of the Cisco MGCP IP phone, you can perform an image upgrade and remote reboot using Notify messages and the syncinfo.xml file.

Note   To perform an image upgrade and remote reboot, an MGCP call agent and a TFTP server must exist in the phone network.

To upgrade the firmware image and perform a remote reboot, complete the following steps:

Step 1   Using an ASCII editor, open the MGCPDefault.cnf file located in the root directory of your TFTP server and change the image_version parameter to the name of the latest image.

Step 2   Using an ASCII editor, open the syncinfo.xml file located in the root directory of your TFTP server and specify values for the image version and sync parameter as follows:

```
<IMAGE VERSION="image_version" SYNC="sync_number"/>
```

Where:

- *image_version* is the image version of the phone. The asterisk (*) can be used as a wildcard character.

- *sync_number* is the synchronization level of the phone. The default synchronization level for the phone is 1. A valid value is a character string of up to 32 characters.

Step 3   Send an RQNT message to the phone. In the RQNT message, ensure that the signal line is equal to X-check-sync.

The following is a sample RQNT message:

```
RQNT 9713 d001 @ 003094c25d40 MGCP 0.1
X: 100
S: X-check-sync
```

After the remote reboot process is initiated on the phone via the NOTIFY message, the following actions take place:

1. If the phone is currently in an idle state, the phone waits 20 seconds and then contacts the TFTP server for the syncinfo.xml file. If the phone is not in an idle state, the phone waits until it is in an idle state for 20 seconds and then contacts the TFTP server for the syncinfo.xml file.

2. The phone reads the syncinfo.xml file and performs the following as appropriate:

    a. Determines whether the current image is specified. If so, the phone proceeds to Step c. If not, the phone proceeds to Step b.

    b. Determines whether there is a wildcard entry (*) in the image version parameter. If so, the phone proceeds to Step c. If not, the phone proceeds to Step d.

    c. Determines if the synchronization value is different than what is stored on the phone. If so, the phone proceeds to Step e. If not, the phone proceeds to Step d.

    d. The phone does nothing.

    e. The phone reboots.

       The phone the performs a normal reboot process, sees the new image, and upgrades to the new image with a synchronization value of what is specified in the syncinfo.xml file.

The phone contacts the TFTP server and requests its configuration files. The phone compares the image defined in the file to the image that it has stored in Flash memory. If the phone determines that the image defined in the file differs from the image in Flash memory, it downloads the image defined in the configuration file (which is stored in the root directory on the TFTP server). Once the new image has been downloaded, the phone programs that image into Flash memory and then reboots.