



Nortel Multimedia Communication Server 5100

## SIP Phone Commissioning

**ATTENTION**

Clicking on a PDF hyperlink takes you to the appropriate page. If necessary, scroll up or down the page to see the beginning of the referenced section.

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## Revision history

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Standard 01.03. This document is up-issued to support Multimedia Communication Server 5100 Release 4.0. This document addresses CR Q01543719.

**January 2007**

Standard 01.01. This document is issued to support Multimedia Communication Server 5100 Release 4.0. This document contains information previously contained in the following legacy document, now retired: *SIP Phone Provisioning* (NN10300-081).

**January 2006**

Standard 4.0. This document is up-issued for MCS 5100 Release 3.5. Some referenced document numbers changed.

**November 2005**

Standard 3.0. This document is up-issued for MCS 5100 Release 3.5.

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Standard 2.0. This document is up-issued for MCS 5100 Release 3.5.

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#### 4 Revision history

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## New in this release

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The following sections describe what is new in *SIP Phone Commissioning* (NN42020-302) for Multimedia Communication Server (MCS) 5100 Release 4.0.



### CAUTION

Do **not** contact Red Hat for technical support on your Nortel version of the LINUX base operating system. If technical support is required for the Nortel version of the LINUX base operating system, contact Nortel technical support through your regular channels.

## Feature changes

The following features affect this book:

- ["ipDialog interoperability" \(page 9\)](#)
- ["Language support" \(page 9\)](#)
- ["Interoperability" \(page 10\)](#)

A description of the new features and the related documentation are found in *MCS 5100 New in this Release* (NN42020-404).

### ipDialog interoperability

This feature enables distinctive ringtones and call pickup, and also enables unanswered calls to be picked up by any telephone in the call pickup group.

### Language support

This feature allows the Multimedia PC Client, Multimedia Web Client, Personal Agent, and the IP Phones to support multiple languages. It also provides language support for announcements in MAS conferencing. The languages supported are:

- English
- Parisian French
- German

- Latin America Spanish
- Japanese
- Korean
- Simplified Chinese
- Traditional Chinese
- Portuguese

### Interoperability

The interoperability between MCS 5100 Release 4.0 and Business Communication Manager (BCM) Release 4.0 includes only SIP trunking (SIPt).

The following are supported:

- UDP transport
- BCM 4.0 as static, trusted generic endpoint.

The following are not supported:

- Registration to MCS 5100
- Authentication to MCS 5100
- SIP TLS
- RFC2833
- RFC3515 (Refer)
- Message Waiting Indication
- All UAC services require subscriptions, such as presence

**Note:** Although the functions are not supported, receiving associated messages should not adversely impact the BCM, (for example, BCM receiving an Instant Message).

Interworking with other SIP gateways connected to MCS are limited to the CS 1000 Gateway. AudioCodes, Mediatrix, VegaStream, and other gateways are not supported.

### Other changes

This document was renamed and renumbered from *SIP Phone Provisioning* (NN10300-081) to *SIP Phone Commissioning* (NN42020-302).

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## How to get help

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This chapter explains how to get help for Nortel products and services.

### Finding the latest updates on the Nortel web site

The content of this documentation was current at the time the product was released. To check for updates to the latest documentation for Multimedia Communication System (MCS) 5100, go to [www.nortel.com](http://www.nortel.com) and navigate to the Technical Documentation page for MCS 5100.

### Getting help from the Nortel web site

The best way to get technical support for Nortel products is from the Nortel Technical Support web site:

[www.nortel.com/support](http://www.nortel.com/support)

This site provides access to software, documentation, bulletins, and tools to address issues with Nortel products. From this site, you can:

- download software, documentation, and product bulletins
- search the Technical Support web site and the Nortel Knowledge Base for answers to technical issues
- arrange for automatic notification of new software and documentation for Nortel equipment
- open and manage technical support cases

### Getting help over the phone from a Nortel Solutions Center

If you do not find the information you require on the Nortel Technical Support Web site, and you have a Nortel support contract, you can also get help over the telephone from a Nortel Solutions Center.

In North America, call 1-800-4NORTEL (1-800-466-7835).

Outside North America, go to the following web site to obtain the telephone number for your region:

[www.nortel.com/callus](http://www.nortel.com/callus)

### **Getting help from a specialist by using an Express Routing Code**

To access some Nortel Technical Solutions Centers, you can use an Express Routing Code (ERC) to quickly route your call to a specialist in your Nortel product or service. To locate the ERC for your product or service, go to:

[www.nortel.com/erc](http://www.nortel.com/erc)

### **Getting help through a Nortel distributor or reseller**

If you purchased a service contract for your Nortel product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller.

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## Regulatory and license information

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This chapter contains regulatory and license information.



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## Overview

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**CAUTION**

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Internet Protocol (IP) Phones are a key part of the MCS 5100 system. When an IP Phone comes out of the factory, it works in Unified Network Internet Protocol Stimulus (UNISTim) only. Only the Phase 2 IP Phone 2004 can be upgraded to work in Session Initiation Protocol (SIP), becoming an IP Phone 2004 with SIP Firmware. The Phase 1 IP Phone 2004, IP Phone 2002 (Phase 1 or Phase 2) and IP Phone 2007 (Phase 2) cannot be enabled for SIP.

An IP Phone 2004 that has been upgraded with SIP firmware communicates using either UNISTim or SIP. It uses UNISTim after the firmware upgrade until it is configured to use SIP. An IP Phone 2004 with SIP Firmware is configured to communicate in either SIP mode or UNISTim mode. It cannot function in both modes at the same time. A mode switch requires a firmware reboot.

Operating an IP Phone in SIP mode requires a firmware upgrade followed by a protocol mode switch from the default UNISTim mode to SIP mode. An upgrade from UNISTim firmware to SIP firmware is only achieved through interactions with the IP Client Manager (IPCM). The IPCM is only capable of firmware upgrades, and only uses the UNISTim protocol. It cannot downgrade firmware. The IPCM can reside on any subnet on either side of a firewall. The IPCM is configured to perform the firmware upgrade using the management console.

Following the firmware upgrade, if the phone is not configured for SIP mode, it proceeds to communicate using UNISTim. Configuring the IP Phone with SIP Firmware for SIP mode is controlled through communication with the IPCM, or is performed by configuring the phone manually. Use the IP Phone keys to enter parameters as prompted by the configuration screens.

Mode configuration through the IPCM allows for all IP Phone with SIP Firmware to change to SIP mode under network control without user intervention, while manual configuration only applies to a single phone. Manual configuration is labor intensive. Unlike firmware upgrades, IPCM-controlled mode switches to SIP mode are not configured through the management console. Instead, they depend on the components of a configuration file residing on the IPCM, with the file contents customized by the system administrator. In part, the configuration file contains the following data: operating mode (for example SIP), SIP server IP address, SIP server SIP port, SIP domain.

Firmware upgrades are initiated by the IP Phones. The IPCM waits for the IP Phone to initiate the upgrade.

Once in SIP mode, IP Phones no longer communicate with any IPCM. They now communicate primarily with SIP servers. They receive firmware upgrades and network-based configuration data through a Trivial File Transfer Protocol (TFTP) server. Using a TFTP server, an IP Phone with SIP Firmware can also be downgraded to another version of the SIP-enabled firmware, or to a UNISTim-only firmware. An IP Phone downgraded to SIP-enabled firmware continues to communicate using SIP. An IP Phone downgraded to UNISTim-only firmware uses UNISTim following the downgrade. Downgrades to UNISTim-only firmware can only be done through a TFTP server.

SIP-enabled firmware is distributed with the core MCS 5100 software, and is installed in the IPCM file system. A configuration file template is also deployed for the IPCM-based SIP mode switch-over. The system administrator customizes the configuration using the template file provided.

SIP-enabled firmware is also distributed on the TFTP CD, along with language files for alternate language prompts, and file templates for two configuration files to be stored on the TFTP server. Customized versions of the configuration, firmware and language files are stored in the TFTP server firmware file directory for downloading to the IP Phone 2004 with SIP Firmware.

A TFTP server is generally not required for the initial UNISTim-only to SIP-enabled firmware upgrade. It is used for SIP phone configuration beyond the basic data provided by the IPCM-based configuration file. The greatest value of the TFTP server is for improvements of the firmware IP Phones already in SIP mode.

The IP Phone 2004 with SIP Firmware can function in either UNISTim or SIP modes. You define the mode of operation by specifying the action code for the particular S1/S2 server configuration. The action code for UNISTim is 1. The action code for SIP is 7.

The IP Phone 2004 with SIP firmware does not allow more than one user to logon at one time.



Resetting the IP Phone while operating in UNISTim mode causes the IP Phone to restart in the same manner as a UNISTim-only IP Phone after an upgrade to SIP firmware. For example, if your system administrator has configured SIP firmware upgrades to automatically switch to SIP mode, then resetting a SIP-enabled IP Phone in UNISTim mode restarts it in SIP mode.

This document discusses the following:

- "Prepare for the upgrade" (page 19)
- "Performing the UNISTim to SIP upgrade" (page 31)
- "Configuring the IP Phone 2004 with SIP firmware" (page 37)

## Third-party clients

The Manitone ipDialog telephone has been tested successfully with all of the MCS clients (Multimedia PC Client, Multimedia Client Web, Personal Agent, IP Phones, Network Node Integrated Access Device [NN IAD]). The ipDialog terminal negotiates to any p-time (10, 20, 30, 60, 120) for calls terminating to the ipDialog terminal. The endpoint that the ipDialog telephone connects to must support a 20 millisecond (ms) packet time. The ipDialog terminal does not support auto-negotiation of the packet time when initiating a call. It will not negotiate to any packet time, other than 20 ms. Any other packet time results in a missing or garbled voice path.

## Audience

This guide is intended for system administrators.

## Text Conventions

This guide uses the following text conventions:

<b>Bold text</b>	Indicates the button or soft key you need to press Example: Press the <b>OK</b> soft key.
<i>Italic text</i>	Indicates new terms, document titles Example: See the <i>IP Phone 2004 User Guide</i> .

## Acronyms

This guide uses the following acronyms:

**Table 1**  
**Terms**

DHCP	Dynamic Host Configuration Protocol
FW	Firmware
IM	Instant Message

IP	Internet Protocol
IPCM	Internet Protocol Client Manager
NetConfig	Configuration screens available after an IP Phone resets
SIP	Session Initiation Protocol
TFTP	Trivial File Transport Protocol
UNISim	Unified Network Internet Protocol Stimulus

## Related publications

Other publications related to this document are:

- *IP Phone 2004 Quick Reference* (NN42020-122)
- *IP Phone 2004 User Guide* (NN42020-103)
- *IP Client Manager Basics* (NN42020-106)

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## Prepare for the upgrade

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The following sections prepare for the upgrades. The first three sections are required for initial Unified Network Internet Protocol Stimulus (UNISim) to Session Initiation Protocol (SIP) upgrades. The use of the Trivial File Transport Protocol (TFTP) server is optional for these upgrades. If a TFTP server is to be used during an initial firmware upgrade, it must be prepared before the upgrade begins.

- ["Prepare the TFTP server for SIP upgrades" \(page 19\)](#)
- ["Configure the IPCM for the SIP upgrade" \(page 28\)](#)
- ["Force the SIP upgrade" \(page 29\)](#)

Also included in this section is ["Editing the files" \(page 30\)](#).

### Prepare the TFTP server for SIP upgrades

This procedure is optionally part of the initial UNISim-only to SIP-enabled firmware upgrades and is always required for the upgrade or downgrade from SIP-enabled firmware running in SIP mode.

**Note:** A TFTP server—both software and hardware—is not distributed as part of the MCS 5100 product. The TFTP CD distributed with MCS contains only the files to be sent by a TFTP server to the IP Phone.



#### CAUTION

To avoid incomplete or erroneous configurations, prepare all the configuration files and place them in the TFTP server directory before enabling the TFTP server. Configuration files are sent to the IP Phone, and the IP Phone parses the files and acts on their data. When editing configuration files, you can edit the files with the text editor of your preference. This enables you to edit the files before copying them to the Linux server. For more information, see ["Editing the files" \(page 30\)](#).

**Note:** The TFTP server host name for option 66 is only available for use when DNS is enabled.



#### **WARNING**

When performing an upgrade due to a maintenance release, you can select to update your existing configuration files located on the TFTP server by checking only those parameters which need modifying, instead of overwriting the existing configuration files with copies from the TFTP CD. The latter would make it necessary to completely re-edit each configuration file. Be sure to consult the release notes to see which image, language and configuration files, if any, are being updated by the maintenance release.

Perform the following procedures in order.

The DHCP mode of an IP Phone 2004 is configured on the IP Phone itself using the network configuration menu. If a IP Phone is configured in full DHCP mode, then the TFTP server host name or IP address, and boot file name (options 66 and 67 respectively) must be provided by the DHCP server. If DNS is enabled, the DNS is provided using option 6. If DHCP fails for some reason, the default boot file name of 2004tftp.cfg is used.

In Partial DHCP and manual modes, the filename of TFTP script defaults to 2004tftp.cfg. The IP address of the TFTP server must be entered in the network configuration menu.

The files described in this procedure can be located on a single TFTP server or distributed to multiple TFTP servers, if required. However, there is no reason for the files to be distributed across multiple servers for MCS 5100 installations. All of the files on the TFTP CD are required, but only the file 2004tftp.cfg must be located on the TFTP server designated by each IP Phone. This file coordinates which files need to be sent to each IP Phone and describes where the files are downloaded from.

All of the required TFTP-based configuration files are found on the TFTP CD as template files only. They must be customized by the system administrator.

### **Basic steps**

The preparation takes the following steps:

1. ["Prepare and customize the file 2004tftp.cfg" \(page 20\)](#)
2. ["Prepare and customize the 2004sysConfig.dat File" \(page 24\)](#)
3. ["Copy the 2004SIP.img file to the TFTP server directory" \(page 28\)](#)
4. ["Copy required language files to the TFTP server directory" \(page 28\)](#)

### **Prepare and customize the file 2004tftp.cfg**

This file coordinates which files need to be sent to each IP Phone and describes where the files are downloaded from. Servers from which the files are downloaded must be TFTP servers. This file is divided into sections,

where each section describes another file which potentially needs to be directed to the requesting IP Phone. Each section indicates the current version (VERSION) of the respective file available, the name (FILENAME) of the file, optionally the IP address (SERVER\_IP) of the TFTP server on which the file is placed, optionally the TFTP server port number (SERVER\_PORT), and optionally the download mode (DOWNLOAD\_MODE).

Edit this file as appropriate for your requirements and place it in the TFTP directory.

Section names are enclosed in square brackets. They are:

- [DEVICE\_CONFIG] Used to control the sending of the configuration data file, 2004sysConfig.dat.
- [LANGUAGE] Used to control the sending of alternate language prompt files.
- [FW] Used to control the sending of the firmware image file.

### Commands and parameters

The following table contains the commands and parameters for the 2004tftp.cfg file.

**Table 2**  
**2004tftp.cfg commands and parameters**

Command	Parameter	Description
DOWNLOAD_MODE	AUTO (Default)	The file described in this section are requested by the IP Phone if the version number is alphanumerically greater than the version currently stored on the IP Phone.
(Optional)		
See Note 1.	FORCED	The file described in this section are requested by the IP Phone unconditionally. This parameter value must be used in the [FW] section to force downgraded firmware images for downgrades.
VERSION	Maximum 6 digits for Device and Language sections	The value of the version parameter is an alphanumeric string. It is compared with the version of the file on the IP Phone representing this section only if the DOWNLOAD_MODE is AUTO. If the alphanumeric comparison determines that the file currently available on the TFTP server is of a greater version value than the file stored on the IP Phone, the IP Phone requests the file. Because comparisons are performed alphanumerically, care must be taken when working with version numbers. For example, 02 is alphanumerically less than 1, but greater than 01.
(Mandatory, even for the [LANGUAGE] section.)		
See Note 2.	Maximum 10 characters for FW section (see Note 3)	

Command	Parameter	Description
FILENAME  (Mandatory)		<p>The name of the file must exactly match the name of the file to be download. This parameter is case sensitive.</p> <p>For the [LANGUAGE] section only, there are several language filename commands and parameters. But use only one VERSION command in the section. Upgrade for language files is based on the file timestamp.</p>
SERVER_IP  (Optional. Default is the TFTP server holding the 2004tftp.cfg file.)		This is the four octet IP address of the TFTP server on which the file is located.
SERVER_PORT  (Optional. Default is 69)		This is the port used by the TFTP server.

**Note:**

1. Upgrade note: It is best to leave this parameter as AUTO and use the version parameter to control upgrades.
2. Upgrade note: If preparing this file after an initial UNISim to SIP upgrade, such as for a maintenance release (MR), be sure to increment the value of this parameter if the associated file has been upgraded for the MR.
3. For the FW section VERSION: The version parameter must match the firmware version identifier supplied by Nortel. Do not use an arbitrary version numbering scheme for firmware. The last 3 characters of the firmware version refer to the SIP mode version (for example, c03), while the 3 characters immediately left of these refer to the UNISim mode version (for example, D93).

**Rules for editing this file**

- Any command not described here should be remain unedited. If unknown commands are found in template files, do not remove them.
- Only a single space character is allowed between the parameter name and its value. Do not use a tab character.
- Do not enclose parameters in quotes.
- Commands and parameters are case sensitive.
- VERSION parameters are interpreted as alphanumeric values.

- Comments are allowed in the file.
- Comments are noted by // or # in the far left position of the line.
- Comments cannot be added to the end of commands or section names.

The following figure shows a sample of the 2004tftp.cfg file.

**Table 3**  
**Sample 2004tftp.cfg file**

```
# use only a single space to separate commands and parameters
# do NOT use a tab in place of a single space

# All parameters are case sensitive.
# DOWNLOAD_MODE are either AUTO or FORCED

# VERSION parameters are alphanumeric. The length of the VERSION
parameter
# is limited to 6 digits except in the [FW] section, where the limit is 10
# characters and the VERSION parameter must match the firmware version ID.
# Increment the VERSION parameter in the [DEVICE_CONFIG] section
whenever
# the associated configuration file is modified

# Uncomment: the SERVER_IP command in each section and provide the
appropriate
# IP address only if the associated file resides on a different TFTP server
# Uncomment: the SERVER_PORT command in each section and provide the
# appropriate port number only if the TFTP server uses a non-default port

[DEVICE_CONFIG]
DOWNLOAD_MODE AUTO
VERSION 000017
FILENAME 2004sysConfig.dat
# SERVER_IP 0.0.0.0
# SERVER_PORT 69

[LANGUAGE]
DOWNLOAD_MODE AUTO
VERSION 000002
FILENAME Francais.lng
# SERVER_IP 0.0.0.0
# SERVER_PORT 69

[FW]
DOWNLOAD_MODE AUTO
VERSION 0692D93c04
FILENAME 2004SIP.img
# SERVER_IP 0.0.0.0
# SERVER_PORT 69
```

### Prepare and customize the 2004sysConfig.dat File

This file contains configuration settings specific to the IP Phone 2004 with SIP Firmware. It allows generic telephone configuration. An IP Phone 2004 with SIP Firmware receives common and default configuration data using this file.

Unlike the previous file, this file is not divided into sections. It contains no section header. It incorporates only commands and parameters. All commands are voluntary. Any commands omitted from this file remain unchanged on each phone.

Whenever this file is modified, the VERSION number in the [DEVICE\_CONFIG] section of the 2004tftp.cfg file must be incremental to reflect the new version, causing this file to be uploaded to the IP Phones.

Edit this file as appropriate for your requirements and place it in the TFTP directory. For further information, see ["Editing the files" \(page 30\)](#).

### Commands and parameters

The following table describes the commands and parameters of the 2004sysConfig.dat file.

**Table 4**  
**2004sysConfig.dat commands and parameters**

Command	Parameter	Description
SIP_DOMAIN1		The domain name for the S1 server. Do not include a leading "@" symbol.
SIP_DOMAIN2		The domain name for the S2 server. Do not include a leading "@" symbol.
DEF_USER1		The default user name provided in the log on process on the IP Phone for S1. As a common parameter for many IP Phones, a sensible default intuitively prompts the users to change it to their own username when they log in.
DEF_USER2		The default user name provided in the login process on the IP Phone for S2. As a common parameter for many IP Phones, a sensible default intuitively prompts the user to change it to their own username when they log on.



Command	Parameter	Description
UPDATE_USERS	YES	This configuration causes the default username already stored on the IP Phone to be overwritten with the default username supplied by this file each time this file is downloaded to the IP Phone.
	NO	Default user names are only written to the IP Phone if the username on the IP Phone are empty.
FORCE_BANNER	YES	The banner configured in this file to overwrite a user defined banner every time the IP Phone reboots.
	NO	The banner configured in this file does not overwrite a user defined banner at each IP Phone reboot.
BANNER		User defined text that appears on the IP Phone as a banner message.  <b>Note:</b> The Banner is limited to 23 characters maximum. If the text is longer than 23 characters, the message is truncated to 23 characters.
SIP_PING	YES	Causes the IP Phone to send the Nortel proprietary SIP_PING message for firewall traversal.
	NO	Disables the SIP_PING mechanism.
TIMEZONE_OFFSET		This parameter is configured to the amount of time required to correctly offset the clock in the IP Phone from universal time (UTC) to compensate for the time zone. The value is negative for time zones in the western hemisphere, and positive for time zones in the eastern hemisphere. The value must be in seconds. For example, standard time in the Eastern Time zone is behind UTC by 5 hours. At 3600 seconds per hour, the correct value for ET is $-5 \times 3600 = -18\,000$ . Daylight savings time (also known as summer time) adjustment is done automatically using the next command.
DST_ENABLED	YES	Enables automatic adjustment for Daylight Savings Time (DST) based on the North American DST scheme.
	NO	No adjustment is made for DST.

Command	Parameter	Description
DEF_LANG		<p>This parameter defines the default language if it is not English. The value of the parameter is the case-sensitive name of a language file specified and download through the 2004tftp.cfg file. Do not include the filename extension (.lng).</p> <p>For example: DEF_LANG Francais</p>
VMAIL		This parameter defines the string of digits used to access the voice mail server as it would be dialed directly by the user of the IP Phone.
VMAIL_DELAY		This specifies the delay in milliseconds that the IP Phone waits after dialing the voice mail IP Phone number before sending the user's ID.
DEF_AUDIO_QUALITY	High	<p>Default audio quality setting for each new call. Audio quality can change during a call, but new calls begin with this level.</p> <p>G711 ptme 20</p>
	Medium	G711 ptme 30
	Low	G729 ptme 30
AUTO_UPDATE	YES	If configured to yes, automatic update occurs once each day, at a time randomly offset by up to +1 hour from the time specified by the AUTO_UPDATE_TIME command. The random offset ensures that all IP Phones do not access the TFTP server at the same time.
	NO	Automatic updates are disabled.
AUTO_UPDATE_TIME	A numeric value	This parameter is a value indicating the number of seconds past midnight that the automatic update should take place at. Each IP Phone starts the update at this time (plus a random offset of 0 to 60 minutes) each day.
DEF_DISPLAY_IM	YES	If configured to yes, the IP Phone displays instant messages (IM).
	NO	IMs are not displayed.

The following table describes the restrictions for items that are included in the user's service package. The lower of this value and the value received in the service package are used for each command.

**Table 5**  
**2004sysConfig.dat restriction commands and parameters**

Command	Parameter	Description
MAX_INBOX_ENTRIES	A numeric value	Maximum number of inbox entries
MAX_OUTBOX_ENTRIES	A numeric value	Maximum number of outbox entries
MAX_REJECTREASONS	A numeric value	Maximum number of reject reasons
MAX_CALLSUBJECT	A numeric value	Maximum call subject
MAX_PRESENCENOTE	A numeric value	Maximum number of presence notes

### Rules for editing this file

- Any command not described here should be remain unedited. If unknown commands are found in template files, do not remove them.
- Only a single space character is allowed between the parameter name and its value. Do not use a tab character.
- Do not enclose parameters in quotes.
- Commands and parameters are case sensitive.
- Comments are allowed in the file.
- Comments are noted by // or # in the far left position of the line.
- Comments cannot be added to the end of commands or section names.

The following figure shows a sample of the 2004sysConfig.dat file.

**Table 6**  
**Example output for 2004sysCofig.dat file**

```
# use only a single space to separate commands and parameters
# do NOT use a tab in place of a single space
#
SIP_DOMAIN1 domain1.com
SIP_DOMAIN2 domain2.com
DNS_DOMAIN mydomain.com

FORCE_BANNER Yes
UPDATE_USERS Yes

DEF_USER1 username
DEF_USER2 username

SIP_PING YES
DST_ENABLED YES
```

```
# Timezone info for Eastern Time (ET) is -18000 (-5 x 3600)
TIMEZONE_OFFSET -18000
VMAIL 65554444
VMAIL_DELAY 1000
DEF_LANG English
MAX_INBOX_ENTRIES 100
MAX_OUTBOX_ENTRIES 100
MAX_REJECTREASONS 5
MAX_PRESENCENOTE 5
MAX_CALLSUBJECT 5
BANNER Nortel SIP Client
DEF_AUDIO_QUALITY High
DEF_DISPLAY_IM NO
AUTO_UPDATE YES
AUTO_UPDATE_TIME 0
```

### Copy the 2004SIP.img file to the TFTP server directory

This file is the actual firmware image file. Check the release notes when performing an MR upgrade to see if this file has been updated. Note the version number of this firmware image, and update the VERSION parameter in the [FW] section of the 2004tftp.cfg file if needed.

### Copy required language files to the TFTP server directory

Language file upgrades to the phone are based on file timestamps.

When copying language files to the TFTP server directory, be certain to hold the timestamp of the new file across the copy. This should not pose a problem. If the timestamp changes, it takes on the time of the copy, meaning it will be newer than the previous file. In this situation, the new file will be uploaded to the IP Phone. Uploading a file that has not been rewritten does not cause any harm.

## Configure the IPCM for the SIP upgrade

This procedure configures the IPCM for the SIP upgrade.

### Procedure 1

#### Configuring the IPCM for the SIP upgrade

Step	Action
<i>At the System Management Console,</i>	
1	Select <b>IPCM Profile Server</b> in the System Tree.
2	Create server S1.

- a. Configure the S1 server IP.
- b. Configure the S1 server port.
- c. Configure the S1 server domain for Server S1.

**Note:** The S1 Server action value must be 7 for the Session Manager. In this case, the S1 Server IP and S1 server port values refer to the application server. The port should be 5060.

**3** Create server S2.

- a. Configure the S2 server IP.
- b. Configure the S2 Server port.
- c. Configure the S2 Server domain for Server S2.

**Note:** The S2 Server Action value must be 7 for the Session Manager. In this situation, the S2 server IP and S2 Server Port value refer to the application server. The port should be 5060. You can use the IPCM as the failover server. In this situation, S2 must be configured for UNISTim mode. For UNISTim mode, the S2 Server Action value must be 1. The S2 Server IP and S2 Server Port value refer to the IPCM. The IPCM port is typically 5000.

**4** Select the type of server, port and Action Code for this server.

**5** From the System Tree, select **IPCM Profile**.

**6** Create the IPCM Profile.

**Note:** This can be used to configure IP Phone 2004 automatically on connection.

**7** Select for this Profile servers S1 and S2.

**8** Select the DNS server.

**9** Select the TFTP servers.

**10** From the System Tree, select **Profile**.

**11** Assign the created profile to IPCM.

---

—End—

---

## Force the SIP upgrade

This procedure forces the SIP upgrade.

**Procedure 2**  
**Forcing the SIP upgrade**

---

**Step    Action**

---

*At the System Management Console,*

- 1**      Select **Network Elements > IPCM Configuration > IP Client Managers > <ne> > Configuration Parameters**
- 2**      Select **Parameters Group**.
- 3**      Select **IPCM**.
- 4**      Configure **SIP Upgrade** to **true**.
- 5**      Select **Firmware** for parameters.
- 6**      Configure D97 for FirmwarePhase0x12 (IP Phone 2004).
- 7**      Configure D93 for FirmwarePhase0x12 (IP Phone 2004).
- 8**      Save the changes and close the window.

---

—End—

---

## Editing the files

To edit files, you can use one of the following methods:

- Edit the file on the server, using the Linux vi editor.
- Transfer the file to another computer (PC, UNIX or Linux workstation) using File Transfer Protocol (FTP):
  - Use the **FTP put** command to put the file on the other computer.
  - Make the changes on the other computer using the text editor of your choice.
  - Use the **FTP get** command to place the edited file on the server.

---

## Performing the UNISlim to SIP upgrade

---

This chapter describes how to configure and initialize an IP Phone 2004 with Session Initiation Protocol (SIP) Firmware. All system-based features for the Unified Network IP Stimulus (UNISlim) version of IP Phone 2004 are supported in the IP Phone 2004 with SIP Firmware version.

Topics include:

- "Overview of SIP and UNISlim modes" (page 31)
- "Upgrade IP Phone 2004" (page 32)
- "UNISlim to SIP firmware upgrade" (page 34)
- "Reset the IP Phone 2004" (page 35)

### Overview of SIP and UNISlim modes

The IP Phone 2004 with SIP Firmware can operate in either UNISlim or SIP modes. Define the mode of operation by specifying the action byte for a particular S1 or S2 server configuration.

When a new Phase 2 IP Phone 2004 comes from the factory, it contains firmware which is only capable of operating using UNISlim.

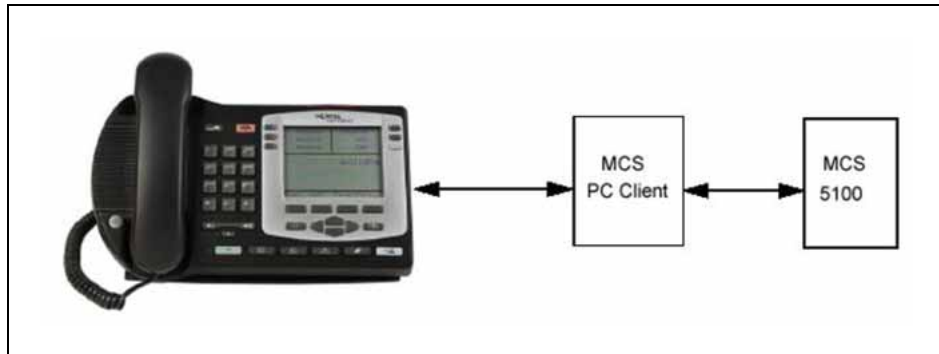
#### UNISlim mode of operation

Configure the S1 or S2 action value to 1 for UNISlim mode. This is unencrypted UNISlim. If switching to this mode from SIP mode, local configuration, inbox, and outbox entries created while in SIP mode are not available.

#### PC client-slave mode of operation

In this mode, the IP Phone is connected to the Multimedia PC Client in UNISlim mode. The Multimedia PC Client uses an UNISlim Transmission Parameter Signaling (TPS) on one side and a SIP client on the other side.

**Figure 1**  
**IP Phone 2004**



You can switch the IP Phone to this mode using the Multimedia PC Client, if you are logged onto both the client and the telephone. Otherwise, point the IP Phone to a PC manually. After you have finished work, you can switch the IP Phone 2004 with SIP Firmware back to its original state.

Note that in this mode, call logs and all local settings are not used because the system becomes fully stimulus and the telephone user interface is controlled by the Multimedia PC Client.

For more information about operating in UNISTim mode, see *IP Phone 2004 User Guide* (NN42020-103).

### **SIP mode of operation**

In SIP mode, all features are local and all user preferences, inbox data, and outbox data is saved locally. In the IPCM Profile, configure the S1 and S2 action value to 7 for SIP mode.

### **Upgrade IP Phone 2004**

This section describes the actions required on the IP Phone 2004 to initiate a firmware upgrade.

#### **ATTENTION**

The following procedure allows an IP Phone 2004 to upgrade from UNISTim-only to SIP-enabled firmware, or from SIP-enabled firmware to an upgraded SIP-enabled firmware. This procedure also applies to downgrade a SIP-enabled firmware. If your IP Phone are currently SIP-enabled, and there is a newer firmware file for your IP Phone 2004 with SIP Firmware, you should have the IP Phone upgraded.

Before the upgrade can occur, the appropriate server must be prepared.

There are slight differences between upgrading from UNISTim-only firmware and upgrading or downgrading from SIP-enabled firmware. The distinctions are noted below.



Upgrades to the firmware of the IP Phone 2004 with SIP Firmware are automated using the `AUTO_UPDATE` and `AUTO_UPDATE_TIME` commands in the `2004sysConfig.dat` file. Using these configuration commands, the IP Phone checks for updates once each day without human intervention. For more information, see ["Prepare the TFTP server for SIP upgrades" \(page 19\)](#). The auto updates feature only works on a phone which has a user logged in while in SIP mode at the time the auto update is configured to occur. The phone must be idle and indicating the idle screen at the time.

### Upgrade IP Phone 2004 with SIP firmware in SIP mode

This procedure upgrades the IP Phone 2004 with SIP firmware in SIP mode.

#### Procedure 3

#### Upgrading IP Phone 2004 with SIP Firmware in SIP mode

Step	Action
------	--------

*At the IP Phone 2004*

- 1 Click the **Config** menu
- 2 Scroll to and select **Advanced Settings**.
- 3 Select **Check For Updates**.
- 4 Select **Ok** at the prompt `Check for updates`.

The IP Phone 2004 with SIP Firmware accesses its configured TFTP server and downloads the `2004tftp.cfg` file. The firmware upgrade continues automatically. The IP Phone displays several messages as the process continues. The entire upgrade takes several minutes.

—End—

### Upgrade a UNISTim-only IP Phone 2004 or a IP Phone 2004 with SIP firmware in UNISTim mode

#### Procedure 4

#### Upgrading and IP Phone 2004 or IP Phone with SIP firmware in UNISTim mode

Step	Action
------	--------

*At the IP Phone 2004*

- 1 Click the **Config** menu.
- 2 Scroll to and select **Display Version**.

- 3 Select **FirmW**.
- 4 Select **Now** at the prompt `Install latest firmware?`  
The UNISim resets and consequently accesses its configured IPCM server to check for updates. Assuming the IPCM has been prepared for the firmware upgrade, the IP Phone 2004 has its firmware upgraded. This process requires a firmware download file, followed by a reboot, followed by another firmware download file, followed by another reboot.

---

—End—

---

### UNISim to SIP firmware upgrade

This procedure allows you to upgrade UNISim firmware to SIP firmware.

#### Procedure 5

#### Upgrading UNISim to SIP firmware upgrade

---

Step	Action
------	--------

---

*Logon on to TFTP server.*

- 1 Run the TFTP server (for example `Tftpd32.exe`).  
**Note:** The upgrade of the UNISim and SIP IP Phone is performed by a third-party TFTP server.
- 2 Place the firmware and configuration files in the TFTP server folder (for example, the `1140e.img` firmware file and `1140e.cfg` file) which contains the following lines:
  - Firmware
  - `DOWNLOAD_MODE AUTO`
  - `VERSION 0625C19c09`
  - `PROTOCOL TFTP`
  - `FILENAME 1140e.img`
  - `PROMPT 1`
- 3 Reboot the IP Phone and enter the **Config** menu.
- 4 Configure the TFTP IP address to the IP address where your TFTP  
When configuration is complete, the IP Phone reboots and sends the request to the TFTP server is running.

The following messages appear on the IP Phone screen, one after another:

- Upgrades are available.
- [FW] Reading.
- [FW] Writing.
- Finished writing [FW]

The IP Phone reboots with the new firmware.

---

—End—

---

**Note:** For more information about SIP firmware upgrade, see the SIP Firmware Release Notes.

## Reset the IP Phone 2004

To reset the IP Phone 2004, unplug the power cord, wait five seconds, and plug adapter back in.

The IP Phone reboots. During the reboot, the server informs the IP Phone that an upgrade is available. The upgrade is automatically installed and the IP Phone resets.



---

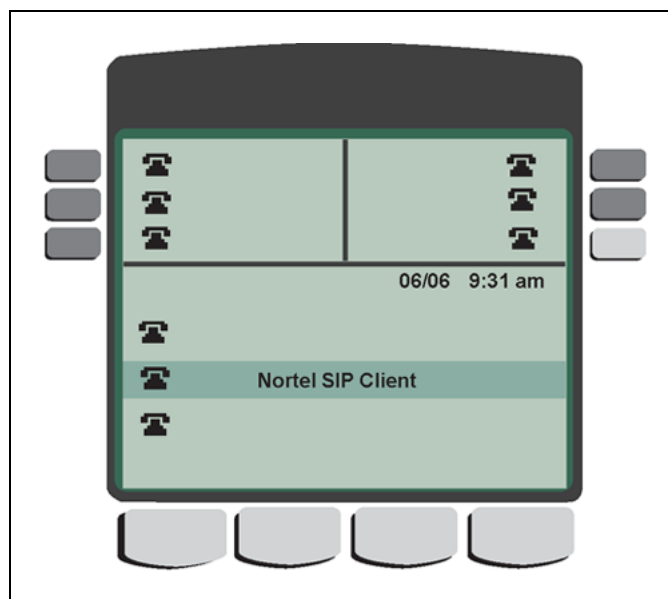
## Configuring the IP Phone 2004 with SIP firmware

---

When you power up the IP Phone 2004 with SIP Firmware for the first time, you see the idle screen.



**Note:** You are not prompted to enter a location at log on time in SIP mode.

**Figure 2**  
**IP Phone configuration screen**



Your IP Phone 2004 with SIP Firmware is preconfigured, or can require a partial or total initialization. See the following table to determine how to proceed.

**Table 7**  
**Configuration for IP Phone 2004 with SIP Firmware**

When you power up your IP Phone 2004 with SIP Firmware ...	Then ...
<p>When the IP Phone successfully connects to the server, the display prompts you for your log on ID.</p> <p><b>Figure 3</b> <b>Log on screen</b></p> 	<p>The IP Phone 2004 with SIP Firmware has been provisioned but a user has not been assigned. Go to <a href="#">"SIP firmware updates"</a> (page 38).</p>
<p>The location prompt appears when the IP Phone successfully connects to the server.</p> <p><b>Figure 4</b> <b>IP Phone menu</b></p> 	<p>You are ready to use your IP Phone. Go to <a href="#">Procedure 7 "Choosing your location"</a> (page 40).</p>

**Note:** In MCS 5100 there is an ability to log out the user of the IP Phone 2004 through the Personal Agent. To do this, log in as the same user on Personal Agent and in the Preferences > IP 2004 > Log out, select log off. The user is logged out of the IP Phone. This feature does not work with the IP Phone 2004 with SIP Firmware. It works only with IP Phone connected to the IPCM in UNISTim mode.

## SIP firmware updates

This section describes the actions required update your SIP firmware.

### Procedure 6 Updating SIP firmware

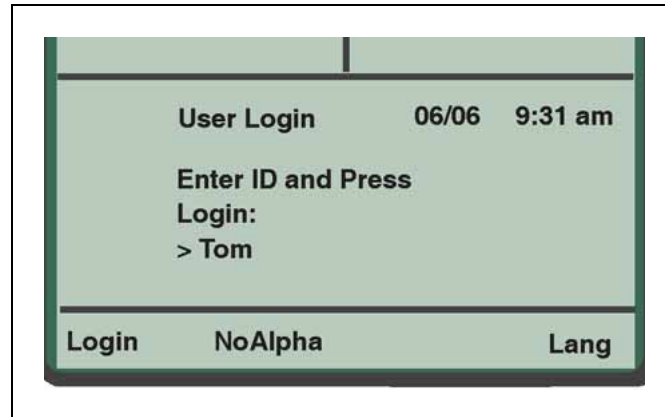
Step	Action
------	--------

*At the IP Phone 2004*

- |   |  |
|---|--|
| 1 | The IP phone is ready for log on, and the newly-provisioned device idle screen displays. |
|---|--|

- 2 When the log on screen appears, enter your **USER ID**, supplied by your system administrator. The following figure shows an example of "tom" logging on.

**Figure 5**  
**User logon screen**

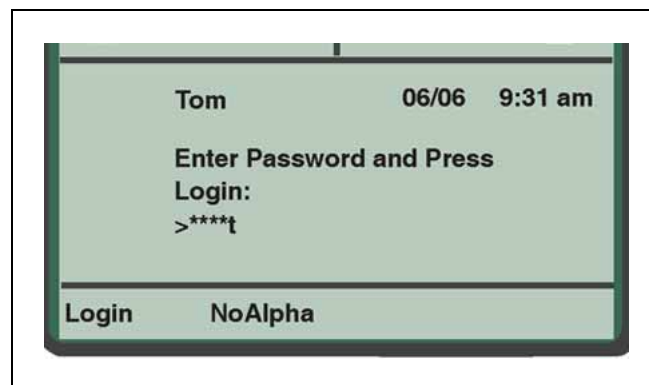


Tip:	When typing in your user name, type only the user portion of the name, not the @domain portion.
------	---

The USER ID of the last (or default) user is displayed at this time. If the displayed USER ID is your ID, press the logon soft key.

- 3 Use the **NoAlpha** soft key to toggle between alpha and numeric modes.
- 4 Press the **Lang** soft key to change the language. At present, only English and French are supported.

**Figure 6**  
**Log on and password screen**



- 5 Enter your password.  
The characters are changed to stars (\*) to protect privacy.
- 6 Press the **Login** soft key.

The **Alpha** and **Lang** soft keys operate the same way as in the previous screen.

- 7 Configure your location, using [Procedure 7 "Choosing your location" \(page 40\)](#).

---

—End—

---

## Choose a location

This section describes the actions required to select a location

### Procedure 7

#### Choosing your location

Step	Action
------	--------

*At the IP Phone 2004*

- |   |   |
|---|---|
| 1 | Access the <b>Config</b> menu                                       |
| 2 | Select <b>Location</b> .  |
| 3 | Use the navigation buttons to scroll through the list of locations. |
| 4 | Highlight your location choice and press <b>Select</b> .            |
| 5 | If you select <b>Other</b> , a warning message appears.             |



#### WARNING

A location was selected that can affect your emergency services. Display this warning in the future? Select **Yes** or **No**

- a. If you select **Yes**, then you are reminded with this warning every time you log in or when your IP Phone or server resets.
- b. If you select **No**, then you will not see this warning again.

---

—End—

---



#### WARNING

Your system can serve different locations. For your own safety, you must specify your location so that emergency services are routed to you if needed. If you move, you must reset your location through the Config menu



## Configure log on time

This section describes the actions required to configure your log on time.

### Procedure 8

#### Configuring log on time

Step	Action
------	--------

*At the IP Phone 2004*

- 1 Choose your **Location**.

**Figure 7**

**Log on time screen**



- 2 Enter the amount of time you want to be logged in. Press the third soft key to change **Days** to **Hours**, as desired.
- 3 Press the **Timed** soft key to log in for the specified amount of time. The system automatically logs you off after the specified time has elapsed.

—End—

## Log on permanent

This section describes the actions required to log on permanently.

### Procedure 9

#### To log in permanently

Step	Action
------	--------

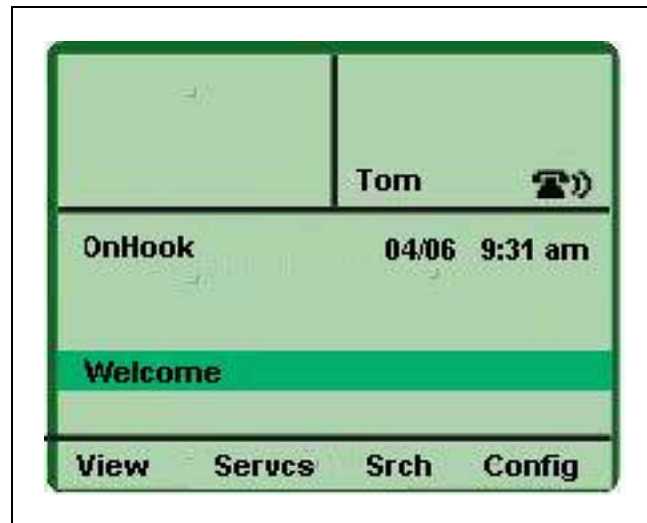
*At the IP Phone 2004*

- 1 Press the **Logon** soft key to use the network provisioned values.  
The system automatically re-registers you and you remain logged on until you manually log off.

- 2 After you are logged on, the idle display appears.

—End—

**Figure 8**  
**Registration display**



Tip:	The idle screen text (for example, Welcome) can vary depending on what has been provisioned.
------	--

For more information about using your IP Phone 2004, see *IP Phone 2004 User Guide* (NN42020-103).

## Changing the SIP firmware

The SIP firmware are upgraded to a newer firmware file or downgraded to an older firmware file, as required.

To upgrade or downgrade the SIP firmware file, follow "[Replace SIP firmware](#)" (page 42).

To remove the SIP firmware and revert to UNISTim mode on the IP Phone, follow "[Remove SIP and returning to UNISTim mode](#)" (page 43).

## Replace SIP firmware

This procedure is used to change to a newer firmware file.

**Procedure 10****Replacing the SIP firmware file with a new image****Step Action**

*On the TFTP server,*

- 1 Navigate to the root directory.
- 2 Make sure the 2004SIP.img file is in the root directory.
- 3 Before upgrading to a new firmware file, make a backup copy of the existing firmware image file by copying to a new file of the same name but with an extension indicating its version number.  
  
Example: the copy could be named 2004SIP.img.D34  
  
The version information is found in the [FW] section of the existing 2004tftp.cfg file.
- 4 Edit the 2004tftp.cfg file.  
  
You must update the VERSION parameter in this section.
- 5 Save and close the file.  
  
When the IP Phone checks for updates, the required image is installed.

---

—End—

---

**Remove SIP and returning to UNISTim mode**

Follow this procedure to change the IP Phone to UNISTim mode.

**WARNING**

When the UNISTim firmware is download file is downloaded to the IP Phone, all the locally saved files (inbox, outbox and all configuration parameters) are lost.

**Procedure 11****Removing SIP and returning to UNISTim mode****Step Action**

*On the TFTP server,*

- 1 Install the UNISTim firmware file in the root directory. **Do not** change the name of this file to 2004SIP.img.
- 2 Edit the 2004tftp.cfg file.

In the [FW] section,

- Change the **DOWNLOAD\_MODE** to **FORCED**.
- Change the **FILENAME** parameter to the name of the UNISim-only firmware file.

**3** Save and close the file.

When the IP Phone checks for updates, the new image is installed.

---

—End—

---

**Note:** If SIP is required later, the complete installation and configuration, starting at "[Prepare the TFTP server for SIP upgrades](#)" (page 19) must be done.



Nortel Multimedia Communication Server 5100

## SIP Phone Commissioning

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