VERTICAL™

480i SIP IP PHONE

ADMINISTRATOR GUIDE

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Overview

This *SIP 480i IP Phone Administration Guide* provides information on the basic network setup that is required for the SIP 480i IP phone. It also includes details on the functioning and configuration of the 480i phone.

General Requirements

- A SIP based IP PBX system or network installed and running with a number created for the new 480i phone.
- SIP standard "RFC 3261"
- Access to a Trivial File Transfer Protocol (TFTP) server.
- 802.3 Ethernet/Fast Ethernet LAN.
- Category 5/5e straight through cabling.
- Power over Ethernet (PoE) power supply (optional accessory – necessary only if no inline power is provided on the network).

About this Guide

This guide targets network administrators, system administrators, developers and partners who need to understand how to install the 480i on a SIP network. This guide contains information that is at a technical level suitable for system or network administrators. Prior knowledge of SIP and IP Telephony concepts is recommended. This guide complements the ***Vertical 480i IP Phone Installation Guide*** and the ***Vertical SIP 480i IP Phone User Guide.***

- ***Vertical 480i IP Phone Installation Guide*** – contains installation and set-up instructions, information on general features and functions, and basic options list customization.

- ***Vertical SIP 480i IP Phone Administration Guide***– explains how to set the phone up on the network, as well as advanced configuration instructions for the 480i. This guide contains information that is at a technical level more suitable for a system or network administrator.

- ***Vertical SIP 480i IP Phone User Guide–*** explains the most commonly used features and functions for an end user.

Methods of Installation

The firmware set up and installation for the 480i can be done through the Options List available directly from the phone or through the **Vertical 480i Web Client** web interface. When the 480i is initialized for the first time, DHCP is enabled by default. The DHCP server passes information to the 480i so that it can configure itself for subsequent IP PBX addresses and normal runtime operations.

The following considerations must be made before connecting the 480i phone to the network:

- If you are planning on using Dynamic IP addresses, make sure a DHCP server is running on your network.
- If you are not planning on using Dynamic IP addresses, refer to the section "Configuring the 480i IP Phone" on how to set up an IP address manually.
- Make sure a TFTP server is set up on your network and can accept connections anonymously.
- Every PBX system that interacts with the 480i phones requires adherence to the SIP Standard.

To find out how to hook up the cabling to your 480i phone, please refer to the *Vertical 480i IP Phone Installation Guide.*

480i IP Phone Set up

When the 480i is first plugged in or reset it will automatically download any firmware updates for the phone. The binary and configuration files that are required for the 480i are: "firmware.st", "aastra.cfg" and "<mac>.cfg". The settings of the 480i phone, as well as the softkeys and the additional line keys, can be configured through the configuration files. Please refer to Appendix A for details on the parameters that can be set for the 480i phone. Please refer to Appendix B for sample configuration files with all the basic parameters that need to be set in order to register the IP phone at the PBX.

The following steps illustrate a typical 480i phone setup:

1. If DHCP is disabled, manually enter the TFTP server's IP address. For details on how to set the TFTP server setting for the 480i, please refer to the section "Configuring the 480i IP Phone".

2. Copy the firmware file "firmware.st" to the root directory of the TFTP server. This firmware file is downloaded only when it is different than the one the phone is currently using.

3. Copy the configuration files "aastra.cfg" and "<mac>.cfg" file to the root directory of the TFTP server.

NOTE: <mac> represents the actual MAC address of your phone which must be input; i.e. 00085D030996.cfg

The 480i's Options List

1. Press the Options button on the phone to enter the options list.
2. Use the  and  to scroll through the list of options.
3. Press the **Show** softkey, the  button or press the number corresponding to the option to select an option.
4. Use the softkeys to change a selected option.
5. Press the **Done** softkey at any time to save the change and exit the current option.
6. Press the **Cancel** softkey, the  button or the Goodbye button at any time to exit without saving the changes.

Administrator Level Options

Some options in the phone's options list are considered administrator level options and require the administrator user name and password. When attempting to access administrator level options, the phone will prompt for the administrator password before allowing access. The default administrator password is "**22222**". For all other phone options, please refer to the *Vertical 480i IP Phone Installation Guide*.

The administrator level options in the phone's Options List are:

- "8.Network"
- "9.SIP Settings"
- "4.Factory Default" found under option "10.Phone Status"

Network:

If DHCP is enabled, all the Network settings are automatically configured. The 480i's firmware allows the network settings to be manually entered, if for any reason the phone cannot populate any of the settings with DHCP enabled. If DHCP is disabled the following network settings can be configured manually:

1. **DHCP**
   This turns DHCP on or off. IP Address, Subnet Mask and Gateway options are automatically populated and are read-only when DHCP is used. DHCP is used by default.

2. **IP Address**
   This is the phone's IP address. To assign a static IP address to the phone, disable DHCP.

3. **Subnet Mask**
   To assign your own subnet mask to the phone, disable DHCP.

4. **Gateway**
   To assign your own gateway IP address, disable DHCP.

5. **DNS**
   To assign your own DNS addresses, disable DHCP.

6. **TFTP Server**
   This allows you to select the TFTP server that the phone will use. There are three menu sub-options:

1. **Primary TFTP**: This is the IP address of the TFTP server that the phone will use by default. If the TFTP address is obtained through DHCP, it will override this setting. If DHCP is ON, the primary TFTP is read only.
2. **Alternate TFTP**: This allows you to configure an alternate TFTP to use instead of the primary server.
3. **Use Primary/Use Alternate**: This selects which TFTP server the phone will attempt to obtain configuration from.

SIP Settings:

If you have a proxy server or have a SIP registrar present at a different location than the PBX server, the following settings may need to be changed:

1. **Proxy IP**
   This is the IP address of the proxy server.
2. **Proxy Port**
   This is the SIP proxy server's port number. By default this number is set to 5060.
3. **Registrar IP**
   This is the IP address of the SIP registrar.
4. **Registrar Port**
   SIP registrar's port number. By default this is set to 5060.
5. **Register**
   This enables and disables registration of the IP phone with the Registrar.
   If **YES** is selected, the phone's IP address is immediately registered in the Registrar's database. If **NO** is selected, the SIP phone's IP address is immediately deleted from the Registrar's database, and the phone's screen displays "No Service".
6. **User Name**
   This is used in the name field of the SIP URI for the 480i phone and for registering the 480i at the registrar.
7. **Display Name**
   This is used in the display name field of the *From* SIP header field. Some IP PBX systems use this as the caller's ID and some may overwrite this with the string that is set at the PBX system.
8. **Screen Name**
   This is used to display text on the screen of the phone. You may want to set this parameter to display the phone user's name.
9. **Auth Name**
   This is the authentication name that is used in the username field of the authorization header field. This allows the phone to identify itself to a proxy server that requires authentication. When the phone is challenged for authorization, it will re-send the challenged message with the authentication name and password.
10. **Password**
    This is the authorization password that is used to register at the SIP registrar. When the phone is challenged for authorization, it will re-send the challenged message with the authentication name and password.

11. Nortel

This is used to specify if a Nortel NAT is being used. Select "Yes" to enable this feature if using a Nortel call server.

Phone Status:

The following options display the phone's status or allow you to power cycle the phone or reset the phone to its factory default settings.

1. **Network Status**
   This shows the network status of the two Ethernet ports at the back of the phone. You can also view the phone's IP and MAC addresses.

   - **IP Addr**
     Shows the IP address of the phone.
   - **MAC Addr**
     The MAC or the hardware address of the 480i's Ethernet card.

2. **Firmware Version**
   This option displays information about the firmware that is currently installed on the 480i.

3. **Restart Phone**
   This option lets you restart the phone. A restart may be necessary when:

   - There is a change in your network, or
   - To re-load the configuration information modified through the configuration files to the phone, or
   - If the settings for the 480i on the IP PBX system had been modified.

4. **Factory Default**
   This option lets you reset the phone back to the factory default settings, including the network settings.

   NOTE: Performing this operation will result in losing all user modified settings.

For information on other settings in the options list of the phone, please refer to the *Vertical 480i IP Phone Installation Guide* provided with the 480i.

The Vertical 480i Web Client

To access the **Vertical 480i Web Client**, open your web browser (supports Internet Explorer and Gecko engine based browsers like Firefox, Mozilla or Netscape) and enter the phone's IP address into the address field, starting with the web prefix "http://".

In the side menu of the **Vertical 480i Web Client**, there are three main categories: Status, User and Admin.

- The **STATUS** category contains read only status information for sub-categories Network, Hardware and Firmware.

- The **USER** category contains user configurable sub-categories Reset and Password. This section is accessed through the user level or the administrator level user name and password. You will be prompted for this information when one of these options is selected. For more information, refer to the *Vertical SIP 480i IP Phone User Guide*.

- The **ADMIN** category contains administrator only configurable sub-categories: Network, Firmware and SIP Settings. This section is accessed through the admin level user name and password. You will be prompted for this information when one of these options is selected. For more information, refer to the section "Configuring the 480i IP phone" of this document.

The default for the administrator user name is "**admin**" and the password is "**22222**". For a user, the default user name is "**user**" and the password field is left blank. The user and administrator level passwords can be changed using the web client, or through the configuration files.

480i IP Phone Configuration

The Network and SIP options within the 480i phone can be configured from the phone or from the **Vertical 480i Web Client** web interface. Some options can also be set through the configuration files. Administrator level options are password protected in both the phone and the web interface.

Network

DHCP automatically sends the IP address, Subnet Mask and Gateway network (also DNS and TFTP Server) information to the 480i phone during initialization when the phone is first powered up or reset. By default, the DHCP setting is enabled. The network settings cannot be changed when DHCP is used, so DHCP must be set to "Off" in order to manually change these settings.

Turn DHCP On or Off

From the 480i Phone:

1. Press the Options button to enter the Options List.
2. Select option **8. Network**.
3. Enter the administrator's password. The default password is **22222**.
4. Press the **Enter** softkey.
5. Select option **1. DHCP**.
6. Press the **Change** softkey to indicate whether DHCP should be used or not.
7. Press the **Done** softkey to save the changes.

From the Web Client:

1. Click on the Network sub-category under the ADMIN main category.
2. Enter the administrator's user name and password (the default name is "admin" and password is "22222").
3. In the web page that has just opened check the **Use DHCP** check box to use DHCP and uncheck to indicate that you do not want to use DHCP.
4. Click on the **Set Values** button to save the changes that you just made.

Manually Configure Network Settings

If you are not using DHCP, you need to configure the network settings for the phone manually.

From the 480i Phone:

1. Press the Options button to enter the Options List.
2. Select option **8. Network**.
3. Enter the administrator's password. The default password is 22222.
4. Select option **2. IP Address** to change the IP address.
5. Select option **3. Subnet Mask** to change the subnet mask.
6. Select option **4. Gateway** to change the gateway address.
7. Select option **5. DNS** to change the DNS.
8. Press the **Done** softkey to save the changes.

When an IP address has been assigned to the phone, you have the option to either continue configuring the 480i through the Options button on the phone or to start using the **Vertical 480i Web Client**. See the section "The Vertical 480i Web Client" within this guide for details.

From the Web Client:

1. Click on the **Network** sub-category under the **ADMIN** main category.
2. Enter the administrator's user name and password (the default user name is "admin" and password is "22222").
3. In the web page that has just opened enter the IP address of the phone, the Subnet Mask and the Gateway IP address in their corresponding fields.

TFTP Server Settings

The 480i phone uses the TFTP server to download updates of the phone's firmware and configuration files. You must set the TFTP server address in the phone.

From the 480i Phone:

1. Press the Options button to enter the Options List.
2. Select option **8. Network**.
3. Enter the administrator's password. The default password is **22222**.
4. Select option **6. TFTP Server** to change the TFTP server.
5. You will see three options: **Primary TFTP, Alternate TFTP,** and **Use Primary/Use Alternate**. If DHCP is on, the **Primary TFTP** is read-only. To manually configure the TFTP address, select **Alternate TFTP**. Select **Use Primary/Use Alternate** to choose between the primary and alternate TFTP server.

From the Web Client:

1. Click on the **Network** sub-category under the **ADMIN** main category.
2. Enter the administrator user name and password (the default user name is "admin" and password is "22222").
3. In the TFTP field, enter the IP address of the TFTP server.
   If DHCP is off, set TFTP to the primary address. If DHCP is on, and you would like to manually configure the TFTP server address, set it in the alternate TFTP field, and check the **Use Alternate TFTP** checkbox.
4. Click on the **Set Values** button to save the changes that you just made.

SIP settings

The 480i uses the information in the SIP settings to register at the IP PBX. To configure the SIP settings:

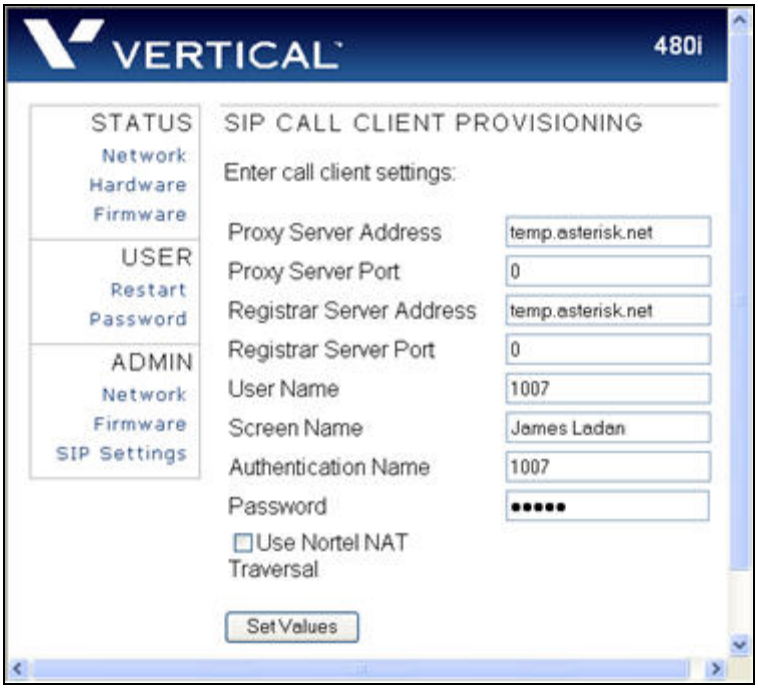
From the 480i Phone:

1. Press the Options button to enter the Options List.
2. Select option **9. SIP Settings**.
3. Enter the administrator's password. The default password is 22222.

4. Select options **1-5** to change the information about the registrar and the proxy server.
5. Select option **6. User Name** to change the user name.
6. Select option **7. Display Name** to change the display name.
7. Select option **8. Screen Name** to change the screen name.
8. Select option **9.Auth. Name to** change the authentication name
9. Select option **10. Password** to change the user's password.
10. Select option **11. Nortel** to identify if a Nortel call server is being used.

From the Web Client:

1. Click on the SIP Settings sub-category under the ADMIN main category.
2. Enter the administrator user name and password (the default user name is "admin" and password is "22222").
3. In the web page that just opened enter the appropriate information.
4. Click on the **`Set Values`** button to save the changes that you just made.



NOTE: At this point modifications performed to the User name, Screen name, Authentication name and Password affect line 1 of the 480i only. Modifications to the other lines should be done through the <mac>.cfg file.

Setting Parameters through Configuration Files

The following are the parameters that can be used to configure the 480i phone through the configuration files - aastra.cfg and <mac>.cfg. The "aastra.cfg" file configures the settings server wide, while the <mac> configures only the phones with the MAC address for which the file is named. The settings in the "aastra.cfg" file will be overridden by the settings that also appear in the <mac> cfg file.

Options List Settings

This section contains parameters for changing some options list settings on the 480i. Select “<mac>.cfg” for individual phone settings, and “aastra.cfg” for settings to be implemented server-wide.

Parameter	*live dialpad*	Configurable through the phone’s options list or the configuration files
Description		Flag to enable live dialpad mode
Format		Boolean (0:off; 1:on)
Default Value		0
Range		0-1
Example		live dialpad: 1

Parameter	*audio mode*	Configurable through the phone’s options list or the configuration files
Description		Sets the audio output mode
Format		Integer (O: speaker; 1: headset; 2; speaker/headset; 3: headset/speaker)
Default Value		0
Range		0-3
Example		audio mode*:* 2

Parameter	*headset mic volume*	Configurable through the phone's options list or the configuration files
Description		Sets the headset mic volume
Format		Integer (1:low; 2:medium; 3:high)
Default Value		1
Range		1-3
Example		headset mic volume: 2

Parameter	*language*	Configurable through the phone's options list or the configuration files
Description		Sets the phone's language
Format		Integer (0:english; 1: French; 2: spanish)
Default Value		0
Range		0, 1, 2
Example		language: 2

Network Settings:

The following section contains the parameters to configure the network settings.

Parameter	*dhcp*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		Enabling dhcp will populate most of the network information. The network information that the 480i requires should be served by the dhcp server. If the 480i is unable to get any required information then it should be entered manually. Parameters affected: ip
Format		Integer
Default Value		1
Range		0 or 1
Example		dhcp: 1

Parameter	*ip*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		This parameter assigns a static IP address to the 480i device.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		ip: 192.168.0.25

Parameter	*subnet mask*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		The subnet mask IP address.
Format		IP address
Default Value		255.255.255.0
Range		Not Applicable
Example		subnet mask: 255.255.255.224

Parameter	*default gateway*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		The IP address of the network's gateway or the router IP address
Format		IP address
Default Value		1.0.0.1
Range		Not Applicable
Example		default gateway: 192.168.0.1

Parameter	*dns1*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		Primary domain name servers' IP address. For any of the IP address settings on the 480i a domain name value can be entered instead of an IP address. With the help of the domain name servers the domain names for such parameters can then be resolved to their corresponding IP addresses.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		dns1: 192.168.0.5

Parameter	*dns2*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		Secondary domain name servers' IP address.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		dns2: 192.168.0.6

Parameter	*tftp server*	Configurable through the 480i's Options List, the Vertical web client or through the configuration files
Description		The IP address of the tftp server. If DHCP is enabled and the information is provided by the DHCP server, this field is automatically populated.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		tftp server: 192.168.0.130

Parameter	*alternate tftp server*	Configurable through the phone's option list, the web client or the configuration files
Description		The ip address of the alternate tftp server
Format		ip
Default Value		0.0.0.0
Range		Not applicable
Example		alternate tftp server: 192.143.0.7

Parameter	*use alternate tftp*	Configurable through the phone's option list, the web client or the configuration files
Description		Flag to enable or disable the alternate tftp server
Format		Integer
Default Value		1
Range		0 or 1
Example		use alternate tftp: 1

Parameter	*domain name*	Configurable through the configuration files only
Description		The network domain name
Format		text
Default Value		Not applicable
Range		Not applicable
Example		domain name: phone1012.internal.sayson.com

Parameter	*admin password*	Configurable through the web client or the configuration files
Description		The administrator's password that will be required to change the phone's administrator level settings
Format		Numerals – maximum of 10 characters
Default Value		22222
Range		Not applicable
Example		admin password: 1675436

Parameter	*user password*	Configurable through the web client or the configuration files
Description		Password for the phone's user
Format		Text – can be an alphanumeric combination. Maximum of 10 characters
Default Value		Not applicable
Range		Not applicable
Example		user password: bob132cat

Parameter	*sip rtp port*	Configurable through the configuration files only
Description		Indicates the port through which the RTP packets will be sent to. The RTP port is used for sending DTMF tones and for the audio stream. Your network administrator may close some ports for security reasons. You may want to use this parameter to send RTP data using a different port.
Format		IP address
Default Value		3000
Range		Not Applicable
Example		sip rtp port: 5130

Parameter	*resync period*	Configurable through the configuration files only
Description		Indicates how often in seconds the phone will check for config parameter updates. 0: indicates that this feature is disabled.
Format		Integer
Default Value		600
Range		0 –2 ^ 31 - 1
Example		resync period: 700

Parameter	*firmware file name*	Configurable through the configuration files only
Description		Firmware file name. When Auto Resync triggers, a check is made for the specified firmware file. If the file is found, and is newer than the existing firmware, it will be loaded.
Format		TEXT
Default Value		No value. (If left empty then no firmware will be downloaded.)
Range		n/a
Example		Firmware file name: 480i.st

Parameter	*reset on config change*	Configurable through the configuration files only
Description		Flag indicating whether the phone will be reset to implement any config parameter changes if necessary. 0:off, 1: on.
Format		Integer
Default Value		1
Range		0 – 1
Example		reset on config change: 1

VLAN and TOS/QOS: Type and Quality of Service

DCSP (*Differentiated Sevices Code Point*) is a protocol for classifying and controlling network traffic, so that certain types of traffic get precedence, while the quality of transmission is maintained.

The following table illustrates the DSCP–to-priority mapping structure.

DSCP RANGE	***PRIORITY***
0-7	0
8-15	1
16-23	2
24-31	3
32-39	4
40-47	5
48-55	6
56-63	7

The value of a non-ip packet is 5.

The following configuration settings are used to set the DSCP values for different IP protocols. The parameters are case-sensitive.

Parameter	*tos rtp*	Configurable through the configuration files only
Description		DSCP value for RTP protocol
Format		Integer
Default Value		32
Default Priority		4
Range		0-63
Example		tos rtp*:* 2

Parameter	*tos rtcp*	Configurable through the configuration files only
Description		DSCP value for RTCP protocol
Format		Integer
Default Value		32
Default Priority		4
Range		0-63
Example		tos rtcp: 3

Parameter	*tos sip*	Configurable through the configuration files only
Description		DSCP value for sip protocol
Format		Integer
Default Value		24
Default Priority		3
Range		0-63
Example		tos sip: 4

Parameter	*tos priority map*	Configurable through the configuration files only
Description		map between DSCP value and priority.
Format		String (DSCP_1,priority_1) (DSCP_2,priority_2).
Default Value		N/A
Default Priority		N/A
Range		N/A
Example		tos priority map: (2,0) (3,1) (4,2) (5,3)

Parameter	*priority non-ip*	Configurable through the configuration files only
Description		Priority for non-ip packet
Format		Integer
Default Value		5
Default Priority		5
Range		0-8
Example		priority non-ip: 5

Parameter	*tagging enabled*	Configurable through the configuration files only
Description		Turns 802.1p tagging on or off
Format		Boolean. 0: 802.1p tagging is off. 1: 802.1p tagging is on
Default Value		0
Range		0, 1
Example		tagging enabled: 0

Parameter	*VLAN id*	Configurable through the configuration files only
Description		This parameter is used to set the VLAN id on all outgoing Ethernet packets from the IP phone. To restore an invalid VLAN id back to default, simply restore the IP phone by running the Factory Default option in the phone's options menu (under option 10 Phone Status)
Format		Integer
Default Value		0 (disabled)
Range		Accepted values are 0 to 4094
Example		VLAN id: 1

Setting Parameters – Time Server Settings

The following section contains the parameters to configure settings specific to the timeserver.

Parameter	*time server disabled*	Configurable through the 480i's Options List or the configuration files
Description		This parameter enables or disables the time server. This parameter affects the time server1, time server2 and time server3 parameters.
Format		Boolean
Default Value		0
Range		0 or 1
Example		time server disabled: 0

Parameter	*time server1*	Configurable through the 480i's Options List or the configuration files.
Description		The primary time server's IP address. If the time server is enabled, the value for time server1 will be used to request the time from.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		time server1: 192.168.0.5

Parameter	*time server2*	Configurable through the configuration files only
Description		The secondary time server's IP address. If the time server is enabled, and the primary time server is not configured or cannot be accessed the value for time server2 will be used to request the time from.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		time server2: 192.168.0.5

Parameter	*time server3*	Configurable through the configuration files only
Description		The tertiary time server's IP address. If the time server is enabled, and the primary and secondary time servers are not configured or cannot be accessed the value for time server3 will be used to request the time from.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		time server3: 192.168.0.5

Parameter	*time format*	Configurable through the 480i's Options List or the configuration files
Description		This parameter changes the time to 12 hour or 24 hour format. Use “0” for the 12 hour format and “1” for the 24 hour format.
Format		Integer
Default Value		0
Range		0 or 1
Example		time format: 0

Parameter	*date format*	Configurable through the 480i's Options List or the configuration files
Description		This parameter allows the user to change the date to various formats.
Format		Integer
Default Value		0
Range		0-7 Following table shows the format for the corresponding *date format* values: 0: WWW MMM DD 1: DD-MMM-YY 2: YYYY-MM-DD 3: DD/MM/YYYY 4: DD/MM/YY 5: DD-MM-YY 6: MM/DD/YY 7: MMM DD
Example		date format: 7

PLEASE NOTE: The following time zone and DST parameters should be changed only if the administrator wishes to set a special time zone or DST value that is NOT included in the pre-configured list. The following 2 parameters (*time zone name* and *time zone code*) must correlate and be set together in the configuration files. See Appendix D for the time zone names and corresponding codes.

Parameter	*time zone name*	Configurable through the phone's options list or the configuration files
Description		The full name of the time zone for the phone's location
Format		text
Default Value		US-Eastern
Range		not applicable
Example		time zone name*:* us-pacific

Parameter	*time zone code*	Configurable through the configuration files only
Description		This parameter takes a character code that will identify the time zone.
Format		text
Default Value		est
Range		not applicable
Example		time zone code: pst

Parameter	*time zone minutes*	Configurable through the configuration files only
Description		The minutes that the time zone is behind or ahead (can be a negative or positive integer). Information for this parameter will be automatically populated once the time server and time zone name are configured and found.
Format		Integer
Default Value		300
Range		Not applicable
Example		time zone minutes: 60

Parameter	*dst start relative date*	Configurable through the configuration files only
Description		Flag to indicate a specific (0) date or a relative (1) date that the daylight savings time should come into effect. Information for. This parameter will be automatically populated once the time server and time zone name are found and configured. This parameter affects the dst start date and the dst start week parameters.
Format		Integer
Default Value		1
Range		0 or 1
Example		dst start relative date: 1

Parameter	*dst minutes*	Configurable through the phone's options list or the configuration files
Description		The minutes to which the daylight savings time should be adjusted by. Should be a positive integer.
Format		Integer
Default Value		60
Range		Not applicable
Example		dst minutes: 30

Parameter	*dst start day*	Configurable through the configuration files only
Description		The day of the week in which the daylight savings time should come into effect. Information for this parameter will be automatically populated once the time server and time zone name are configured and found.
Format		Integer
Default Value		1
Range		1-7
Example		dst start day: 4

Parameter	*dst start week*	Configurable through the configuration files only
Description		The week in which the daylight savings time should come into effect. Information for this parameter will be automatically populated once the time server and time zone name are configured and found.
Format		Integer
Default Value		1
Range		1-5
Example		dst start week: 2

Parameter	*dst start hour*	Configurable through the configuration files only
Description		The hour of the day in which the daylight savings time should come into effect. Information for this parameter will be automatically populated once the time server and time zone name are configured and found.
Format		Integer
Default Value		2
Range		1-24
Example		dst start hour: 4

Parameter	*dst end relative date*	Configurable through the configuration files only
Description		Flag to indicate a specific (0) date or a relative (1) date that the daylight savings time should end. Information for this parameter will be automatically populated once the time server and time zone name are configured and found. This parameter affects the dst end day and the dst end week parameters
Format		Integer
Default Value		1
Range		0 or 1
Example		dst end relative date: 0

Parameter	*dst end month*	Configurable through the configuration files only
Description		The month in which the daylight savings time should end. Information for this parameter will be automatically populated once the time server and time zone name are configured and found.
Format		Integer
Default Value		10
Range		1-12
Example		dst end month: 10

Parameter	*dst end day*	Configurable through the configuration files only
Description		The day of the week on which the daylight savings time should end. Information for this parameter will be automatically populated once the time server and time zone name are configured and found.
Format		Integer
Default Value		1
Range		1-7
Example		dst end day: 4

Parameter	*dst end week*	Configurable through the configuration files only
Description		The week in which the daylight savings time should end. Information for this parameter will be automatically populated once the time server and time zone name are configured and found.
Format		Integer
Default Value		-1
Range		1-5
Example		dst end week: 2

Parameter	*dst end hour*	Configurable through the configuration files only
Description		The hour of the day in which the daylight savings time should end. Information for this parameter will be automatically populated once the time server and time zone name are configured and found.
Format		Integer
Default Value		2
Range		1-24
Example		dst end hour: 4

Setting Parameters – SIP Settings

The following parameters are the settings specific to SIP authentication.

Parameter	*service provider* *	Configurable through the configuration files only
Description		If the service provider parameter is configured, the phone will automatically try to populate these sip settings in the following order if they are not already configured: • sip outbound proxy • sip proxy ip • sip proxy port • sip registrar ip • sip registrar port. If the phone is unable to get the required information then these sip settings should be entered manually.
Format		host name or fully qualified host domain name
Default Value		N/A
Range		N/A
Example		service provider: sip.serviceprovider.com

*An SRV entry (conforming to RFC 2782) with the Name (refer Name in RFC 2782) matching this parameter value in the DNS server is required.

Parameter	*sip outbound proxy*	Configurable through the configuration files only
Description		The name of the proxy server to which the sip messages will be sent to, though it may not be the server resolved by the Request - URI
Format		fully qualified host domain name or ip address
Default Value		N/A
Range		N/A
Example		sip outbound proxy: sip.proxy.com

Parameter	*sip proxy ip*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		A SIP proxy is a server that makes and forwards requests generated by the 480i to the targeted user. This parameter's IP address will be the address of the proxy server that the 480i will use to send all SIP requests to.
Format		IP address
Default Value		0.0.0.0
Range		N/A
Example		sip proxy ip: 192.168.0.101

Parameter	*sip proxy port*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		The proxy server's port number
Format		Integer
Default Value		0
Range		Not Applicable
Example		sip proxy port: 5060

Parameter	*sip registrar ip*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		A SIP registrar is a server that maintains the location information of the 480i phone. This parameter's IP address will be the address of the registrar that the 480i will use to send REGISTER requests to.
Format		IP address
Default Value		0.0.0.0
Range		Not Applicable
Example		sip registrar ip: 192.168.0.101

Parameter	*sip registrar port*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		The registrar's port number
Format		Integer
Default Value		0
Range		Not Applicable
Example		sip registrar port: 5060

Parameter	*sip digit timeout*	Configurable through the configuration files only
Description		Represents the time in seconds to configure the timeout between consecutive key presses.
Format		Integer
Default Value		4
Range		Not Applicable
Example		sip digit timeout: 6

Parameter	*sip registration period*	Configurable only through the configuration files.
Description		The time in seconds that the 480i should use to send re-registration requests to the registrar. The value of this parameter will be used in the *expires* header field value in the SIP *REGISTER* request.
Format		Integer
Default Value		0
Range		Not Applicable
Example		sip registration period: 3600

Parameter	*sip session timer*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		This session timer parameter is the time in seconds that the 480i uses to send periodic re-*INVITE* requests to keep a session alive. The proxy uses these re-*INVITE* requests to maintain the status' of the connected sessions.
Format		Integer
Default Value		0
Range		Not Applicable
Example		sip session timer: 30

Parameter	*sip lineN auth name*	Configurable through the configuration files. Configurations done through the 480i's Options List or the Vertical 480i web client affect the first line only.
Description		The authorization name that will be used in the *username* field of the *Authorization* header field of the SIP *REGISTER* request.
Format		Text
Default Value		Not Applicable
Range		*N* in the *sip lineN auth name* ranges from 1 to 9
Example		sip line1 auth name: 1001

Parameter	*sip lineN mode*	Configurable through the configuration files only
Description		Shared call appearance (0:private/1:shared). *(N=sip line number 1-9)*
Format		integer
Default Value		0
Range		0~2 (0: generic, 1:BroadSoft shared call appearance, 2: enables Nortel MCS conferencing support on the IP phone)
Example		sip lineN mode: 0

Parameter	*sip lineN password*	Configurable through the configuration files. Configurations done through the 480i's Options List or the Vertical 480i web client affect the first line only.
Description		The password that will be used to register at the registrar.
Format		Text
Default Value		Not Applicable
Range		*N* in the *sip lineN password* ranges from 1 to 9
Example		sip line1 password: 12345

Parameter	*sip lineN user name*	Configurable through the configuration files. Configurations done through the 480i's Options List or the Vertical 480i web client affect the first line only.
Description		The value for this parameter is used in the name field of the SIP URI for the 480i phone and for registering the 480i at the registrar.
Format		Text
Default Value		Not Applicable
Range		*N* in the *sip lineN user name* ranges from 1 to 9
Example		sip line1 user name: 1001

Tip: When entering the parameter “sip line1 user name: 5551231234", do not use formatting symbols such as “-” (555- 123-1234) to format the number as the phone does not recognize symbols.

Parameter	*sip lineN display name*	Configurable only through the configuration files.
Description		This is used in the display name field of the *From* SIP header field. Some IP PBX systems use this as the caller’s ID and some may overwrite this with the string that is set at the PBX system.
Format		Text
Default Value		Not Applicable
Range		*N* in the *sip lineN display name* ranges from 1 to 9
Example		sip line1 display name: Jane Jones

Parameter	*sip lineN screen name*	Configurable through the configuration files. Configurations done through the 480i's Options List or the Vertical 480i web client affect the first line only.
Description		This is used to display text on the screen of the phone. You may want to set this parameter to display the phone user's name.
Format		Text
Default Value		Not Applicable
Range		*N* in the *sip lineN screen name* ranges from 1 to 9
Example		sip line1 screen name: Jane Jones

Parameter	*sip nortel nat timer*	Configurable through the configuration files only
Description		This parameter is used to specify the time in seconds for the refresh period for the connection through the Nortel NAT.
Format		Integer
Default Value		60
Range		Not Applicable
Example		sip nortel nat timer: 120

Parameter	*sip nortel nat support*	Configurable through the 480i's Options List, the Vertical 480i web client or through the configuration files
Description		This parameter allows the phone user to specify whether they are behind a Nortel NAT. Enable this feature if using a Nortel call server.
Format		Integer
Default Value		0
Range		0-1
Example		sip nortel nat support: 1

Parameter	*sip explicit mwi subscription*	Configurable through the configuration files only
Description		Flag to indicate the phone needs to subscribe to message waiting indication (rather than assuming implicit subscription).
Format		integer
Default Value		0
Range		0,1

Parameter	*sip use basic codecs*	Configurable through the configuration files only
Description		This parameter is used to reduce the codec list size specified in the SDP portion of the SIP INVITE packet. This increases compatibility with other vendor products that have a limit to the length of the codec list they are able to parse. This parameter overrides the sip customized codec parameter.
Format		Boolean
Default Value		0 (disable)
Range		0 or1
Example		sip use basic codecs: 1 sip use basic codecs: 0

Parameter	*sip customized codecs*	Configurable through the configuration files only
Description		This parameter is used to set the codec, packetization rate (ptime), and silence suppression (Voice Activity Detection) preference order for all outgoing calls from the IP phone. This parameter will not be used if the *sip use basic codecs* parameter is enabled (1).
Format		Text
Default Value		(none)
Range		Accepted *payload* values are 0 (G711 u-law), 8 (G711 a-law)and 18 (G729). Accepted *ptime* values are 10, 20, or 30 in milliseconds. Accepted *silsupp* values are on or off.
Example		sip customized codec: payload=0;ptime=30;silsupp=on sip customized codec: payload=0;ptime=30;silsupp=on, payload=8;ptime=30;silsupp=on,payload=18;ptime=30;silsupp=on

Parameter	*sip dial plan terminator*	Configurable through the configuration files only
Description		If set to false (0), the terminator of the local dial plan is '#'. If set to true (1), then the terminator of the dial plan is '. '
Format		Boolean 0: false, 1: true
Default Value		0 (false)
Range		0 or 1
Example		sip dial plan terminator: 1

Parameter	*sip dial plan*	Configurable through the configuration files only
Description		The regular expression used to configure the local dial plan. Where 'X ' is a digit; '*' is the literal * present on the dialpad, and '#' is the literal # present on the dialpad. All values must be within quotation marks. To configure the phone to use the server-side dial plan, enter "X+".
Format		string
Default Value		"X+#"
Range		n/a
Example		sip dial plan: [01]XXX|[2-8]XXXX|91XXXXXXXXXX|X+.|

Parameter	*ringback timeout*	Configurable through the configuration files only
Description		Time in seconds for ringback timeout (e.g.300)
Format		Integer
Default Value		300
Range		0 ~ 2^31
Example		ringback timeout: 300

Parameter	*use secondary dial tone*	Configurable through the configuration files only
Description		If set to 'true', the phone will play the dial tone again if the dialed number does not meet the server- side dial plan.
Format		Boolean (0: false, 1: true)
Default Value		0 (false)
Range		0 or 1
Example		use secondary dial tone: 1

Parameter	*sip dtmf method*	Configurable through the configuration files only
Description		This parameter sets the method by which DTMF signals will be sent. DTMF signals can be sent in RTP packets (in-band and out-of-band), in SIP info packets, or both
Format		Integer (0:RTP only, 1: SIP Info only, 2: both RTP and SIP info)
Default Value		0
Range		0-2
Example		sip dtmf method: 1

SIP Intercom Parameters

The following 3 parameters are used to configure the Intercom button functioning on the 480i. Intercom calls can be implemented either locally from the phone, or through the SIP server. If your server has a supported intercom feature, select the server-side implementation.

Parameter – *sip intercom type*	Configurable through the configuration files only
Description	Flag to enable intercom calls to be made through either the phone or server side implementation
Format	Integer (1: phone side, 2: server side, 3:handset list – 480i CT)
Default Value	2(480i), 3(480i CT)
Range	0 -2
Example	sip intercom type: 1

Parameter – *sip allow auto answer*	Configurable through the configuration files
Description	Flag to indicate whether or not the phone will allow incoming intercom calls to be accepted
Format	Boolean (0: disabled, 1:enabled)
Default Value	1
Range	0, 1
Example	sip allow auto answer: 1

Parameter – *sip intercom prefix code*	Configurable through the configuration files only
Description	When using server side intercom control, the prefix star code instructs the server to identify the outgoing call as an intercom call
Format	Text
Default Value	n/a
Range	n/a
Example	sip intercom prefix code: *96 (Sylantro Server Code)

Setting parameters – Softkey Settings:

Softkey Settings:

This section describes the softkey parameters that can be configured on the 480i phone. There are twenty softkeys that can be configured. These parameters can be configured either from the aastra.cfg or the <mac>.cfg file, depending upon whether you wish the settings to be server wide (aastra.cfg) or phone-specific (<mac>.cfg).

Softkeys can be configured as **additional call/line appearances, speed dials**, **dnd, empty** or **flash**. Each soft key has three mandatory parameters: **type**, **label**, and **value**. There is also an optional **states** parameter, which lets you specify what phone states you would like the softkey to appear in (one or more of: idle, connected, incoming, outgoing). If left undefined, the softkey will appear in the idle state only.

Softkey Type	Label	Value	States (optional)
line (additional line/call appearances)	Any alphanumeric string, except "#", "", less than 8 characters (If left blank, the phone automatically gives the label "Line x", where x is the line number)	5 up to 9 (1-4 are already hardcoded as the L1, L2, L3 and L4 hard key line/call appearances).	Any of: idle, connected, incoming, outgoing **idle**: the phone is not in use **connected**: the phone is connected to another call **incoming**: a call is coming in **outgoing**: a call is being made
speeddial	Any alphanumeric string, except "#", "", less than 10 characters	[1-9*#, E]/Any SIP address (If a # is desired in a speed dial, the speed dial must be enclosed in double quotation marks)	Any of: idle, connected, incoming, outgoing
dnd (do not disturb)	None	None (the phone automatically populates these fields)	Any of: idle, connected, incoming, outgoing
empty – used to delineate an empty key	None	None	Any of: idle, connected, incoming, outgoing
flash – used to activate a server-side service function or custom calling feature	None	None (the phone automatically populates these fields)	Available on the connected screen only (the 'states' parameter is ignored for this softkey setting)

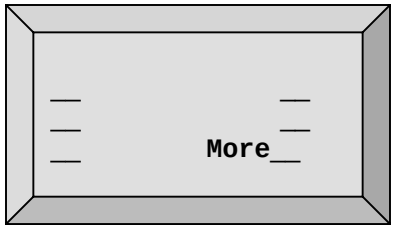
The meaning of the character used in the value field is:

Value Character	Meaning
1-9*#	Same meaning as the keypad keys
,	500ms pause
E	On-hook

Softkey Positioning: Softkeys are positioned from the top left of the phone, down, and then from the top right, down, on each screen. They are displayed in the order that they are numbered, from softkey 1 to softkey 20. If more than six softkeys are configured, a 'More' softkey will automatically be created for the sixth key, allowing you to access the next screen group of softkeys.

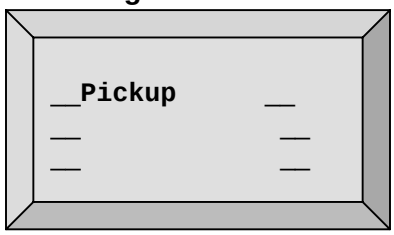
The number of the softkey does not indicate where it will be placed. Softkey numbers only indicate the order in which they will be sequentially positioned on the phone. Some softkey positions are preconfigured for different phone states.

Idle State



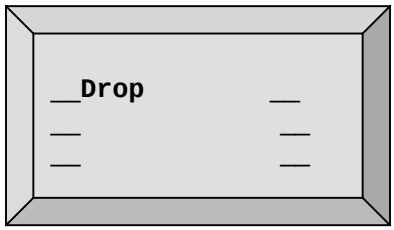
In the idle state, if more than 6 softkeys are configured, the key displayed in the 6th position will be a **More** key.

Incoming State



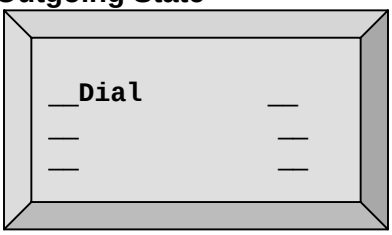
In the incoming state, the first key displayed on the screen will be a **Pickup** softkey, for answering calls.

Connected State



In the connected state, the first key displayed on the screen will be a **Drop** softkey, for disconnecting from calls.

Outgoing State



In the outgoing state, the first key displayed on the screen will be a **Dial** softkey, used to dial your number after entering it (if Live Dialpad is off).

To manipulate softkey positioning, 'empty' softkeys can be inserted in one or more states. The 'empty' softkey allows you to skip over a softkey position, to control the order that softkeys are positioned on the phone.

Softkey Parameters

NOTE: Softkey parameters are case-sensitive.

Parameter *softkeyN type*	Configurable through the configuration files only
Description	The type of soft key that will be configured.
Format	Text
Default Value	Not Applicable
Range	*line, speeddial, empty, dnd, flash. N* in the *softkeyN type* ranges from 1 to 20
Examples	softkey1 type: line softkey2 type: speeddial softkey3 type: empty softkey4 type: dnd

Parameter *softkeyN label*	Configurable through the configuration files only
Description	The text label that should be displayed for the soft key. If the soft key is of *line* type an icon appears beside the soft key that indicates the status of the line that this soft key is configured to.
Format	Text
Default Value	Not Applicable
Range	Sequence of ascii characters. A width less than 11 characters for *line* softkey type and a width less than 9 for the *speeddial* softkey type is suggested. *N* in the *softkeyN label* ranges from 1 to 20
Examples	softkey1 label: "Line 9" softkey2 label: "411"

Parameter	*softkeyN value*	Configurable through the configuration files only
Description		If the softkey is of type, *line* then value should be the line number that this soft key represents, from 5 up to 9 (1-4 are already hardcoded as the L1, L2, L3 and L4 hard key line/call appearances). If the softkey is of type, *speeddial* then value should be the number to speed dial.
Format		Text
Default Value		Not Applicable
Range		*line* or *speeddial*. *N* in the *softkeyN value* ranges from 1 to 20
Examples		softkey1 value: 9 softkey2 value: 411

Parameter	*softkeyN states*	Configurable through the configuration files only
Description		Optional parameter to define what states the softkey is available for. If undefined, the softkey is available for the idle state only.
Format		Text
Default Value		idle
Range		idle, connected, incoming, outgoing. *N* in the *softkeyN type* ranges from 1 to 20. If defining multiple states, the list is space delimited.
Examples		softkey1 states: connected idle

Mapped Key Parameters

The following parameters can be used to map hard keys to custom-defined values.

Parameter	*map redial key to*	Configurable through the configuration files only
Description		maps the redial key to a custom-defined value
Format		string
Default Value		<empty>
Range		Any alphanumeric string, except “#”, “”, less than 10 characters
Example		map redial key to: 1014

Parameter	*map conf key to*	Configurable through the configuration files only
Description		maps the conference key to a custom defined value
Format		string
Default Value		<empty>
Range		Any alphanumeric string, except “#”, “””, less than 10 characters
Examples		map conf key to: "!,a,,,b,,,#" map conf key to: "1234#,,,!5" map conf key to: "!,5" (note: the flash(!) DTMF is sent in the connected state only)

Firmware Upgrade

The 480i phone uses TFTP to download files and upgrade its firmware. A TFTP server should host the firmware and other related configuration files. The TFTP server should be ready and be able to accept connections anonymously (without a requirement for a user name and password). See **Appendix C** for information on setting up a TFTP server.

You can download the firmware stored on the TFTP server in one of two ways, by either resetting the phone through the options list of the 480i or by activating a firmware download through the web client. Resetting the phone will force the phone to check for both firmware and configuration files stored on the TFTP server.

Warning: Do not reset or turn off the phone until the download is complete.

From the 480i phone:

1. Press the Options button to enter the Options List.
2. Select option **10. Phone Status** to enter the Phone Status option.
3. Select option **3. Reset Phone**.
4. Press the **Reset** softkey to reset the phone.
5. Press the **Cancel** softkey to cancel the current operation.

From the web client:

1. Click on the **Firmware** sub-category under the **Admin** main category.
2. Enter the administrator name and password when prompted (the default admin name is "admin" and password is 22222).
3. In the "Firmware" field, enter the name of the firmware file that the phone should be upgraded with, as shown in figure 1 on the following page. This name must match the actual name of the firmware file residing on your TFTP server.
4. In the "TFTP server IP" field enter the IP address of the computer where the TFTP server is located.
5. After entering the information into the appropriate fields click on the "Download Firmware" button. This will start the upgrade process. If the upgrade was successful you will be presented the message "Firmware upgrade successful" as shown in figure 2.

Figure 1

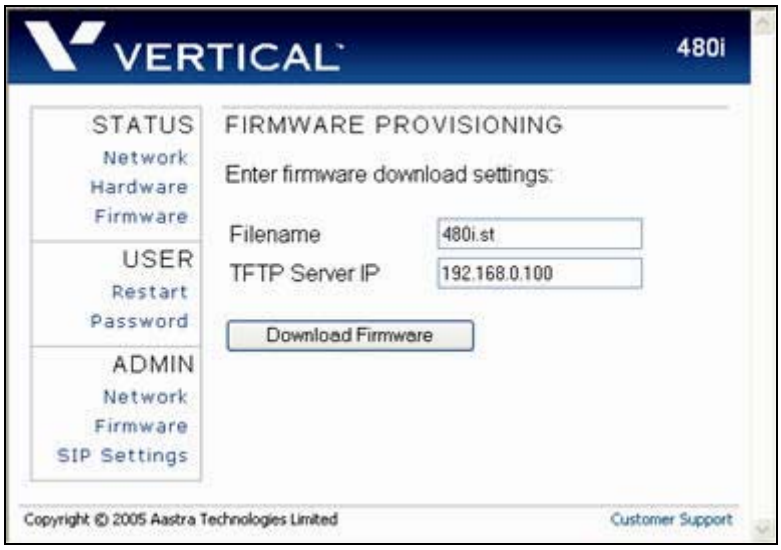


Figure 2

Troubleshooting

This section describes solutions to some most commonly occurring problems.

Why does my phone display "Application missing"?

If you have experienced networking issues while the phone was downloading the application from the TFTP server, it is possible that the phone can no longer retrieve the required firmware file. In the event that the phone is no longer able to communicate with the TFTP server in its attempt to re-download the firmware and the phone cannot locate the application locally, this message will be displayed.

The phone will display the following: "Recovery web-client at: <*IP Address*>". The IP Address displayed is the IP address of the phone. If the phone is unable to receive an IP from the DHCP server or has lost its record of its static IP, the phone will auto-assign itself the default IP 192.168.0.50.

To recover the firmware for your phone in this circumstance, please perform the following:

1) Launch your web browser on your computer. Please note that your computer will need to be on the same network as your IP phone.

2) In the URL, type: "http://<*IP Address*>" (where IP Address is the IP Address displayed on the phone). Your browser will launch the **Vertical 480i IP Phone Firmware Recovery** page.

3) Enter the name of the firmware file that is on the TFTP server and ready for download. E.g. "firmware.st".

4) Enter the IP of the TFTP server.

5) Press the Download Firmware button.

Please ensure that the TFTP server is running and accessible on the network. If the firmware file is correctly located on the running TFTP server, the phone will locate the file and reload the application onto the phone.

How to reset the 480i phone?

From the 480i phone:

1. Press the Options button to enter the Options List.
2. Select option **10. Phone Status** to enter the Phone Status option.
3. Select option **3. Reset Phone**.
4. Press the **Reset** softkey to reset the phone.
5. Press the **Cancel** softkey to cancel the current operation.

From the web client:

1. Click on the Reset sub-category under the USER main category.
2. Enter the administrator level user name and password when prompted.
3. On the web page that just opened click on the **Reset** button to reset the phone.

Why does my phone display the "No Service" message?

The phone willl display the "`No Service`" message if the SIP settings have not been set up correctly. Check that the SIP settings are correct in the phone. If using the configuration files, this could be a formatting or syntax error. For example, when entering the perameter "SIP line1 user name:5551231234", you cannot use formatting symbols such as "-" as in "555-123-1234" to format the number or the phone will not recognize it.

How to set the 480i phone to factory default?

From the 480i phone:

1. Press the Options button to enter the Options List.
2. Select option **10. Phone Status** to enter the Phone Status options list.
3. Select option **4. Factory Default**.
4. Enter the administrator password and press the **Enter** softkey.
5. Press the **Default** softkey to restore the 480i to the factory's default settings.
6. Press the **Cancel** softkey to cancel the operation.

How to reset a user's password?

If a 480i user has forgotten the password the following steps can be performed to reset the password.

From the web client:

1. Click on the Password sub-category under the USER main category.
2. Enter the administrator level user password in the Current Password field. Enter the new password for the user (the user's name for whom the password is being modified is displayed beside the User Name field on the current page). Re-enter the password to confirm the new password.
3. Click on the Set Password button to complete the operation.

The user password can also be reset through the configuration files. See the section "*Setting Parameters through the Configuration Files – Network Settings*" in this guide for more information.

Appendix A: Sample Configuration Files

This section consists of the sample configuration files necessary to configure the 480i IP Phones. The general format is similar to configuration files used by several Unix-based programs. Any text following a number sign (#) on a line is considered to be a comment, unless the # is contained within double-quotes. Currently, Boolean fields use 0 for false and 1 for true.

aastra.cfg

```
#           Vertical SIP Phone Sample Configuration File
#           ============================================

#      Date: September 27, 2005
#      File: Sample “aastra.cfg” file
#      For Models: Vertical 480i, Vertical 9133i, and Vertical 9112i

#  Notes:
#    The general format used here is similar to configuration files
#    used by several UNIX-based programs. Any text following a number
#    sign (#) is considered to be a comment, unless the number sign is
#    contained within double-quotes ("#") where it is considered to be
#    a pound. For Boolean fields, 0 = false, 1 = true.

#  Comments:
#    This file contains sample configurations for the "aastra.cfg"
#    file. The settings included here are examples and/or
#    recommendations only. You should change/comment the values to suit
#    your requirements.

#    The Vertical 480i, 9133i and 9112i IP phones will download 2
#    configuration files from the TFTP server while restarting, the
#    "aastra.cfg" file and the "[mac].cfg" file. These two
#    configuration files can be used to configure all of the settings
#    of the Vertical 480i, 9133i and 9112i IP phones with the exception
#    of assigning a static IP address to a phone and line settings,
#    which can only be set in the “<mac>.cfg” file.

#    The "aastra.cfg" file configures the settings server wide,
#    while the "[mac].cfg" file configures only the phone with
#    the MAC address for which the file is named (for example,
#    "00085d0304f4.cfg"). The settings in the "aastra.cfg" file
#    will be overridden by settings which also appear in the
#    "<mac>.cfg" file.

#  NOTES FROM VERTICAL
#    Comments have been added to several of the settings below
#    pertaining how they interact and are configured with TeleVantage.
#    Some settings have been preconfigured for optimization with
#    TeleVantage.
```

```
#------------------------------------------------------------------------

#     DHCP Setting
#     ============

dhcp: 1                              # DHCP enabled.

#  DHCP:
#       0 = false, means DHCP is disabled.
#       1 = true, means DHCP is enabled.

#  Notes: If DHCP is disabled, the following network settings will
#    have to be configured manually either through the configuration
#    files, the Options List in the phone, or the Web Client: IP
#    Address (of the phone), Subnet Mask, Gateway, DNS, and TFTP
#    Server.

#------------------------------------------------------------------------

#     Network Settings
#     ================

#  Notes: If DHCP is enabled, you do not need to set these network
#    settings.

#ip:                 # This value is unique to each phone on a server
                     # and should be set in the "<mac>.cfg” file if
                     # setting this manually.
#subnet mask:
#default gateway:
#dns1:
#dns2:
#tftp server:

#------------------------------------------------------------------------

#     Additional Network Settings:
#     ============================

sip registration period: 3600   # Eg. every 3600 seconds, a re-register
                                # request is sent to the SIP server.

sip rtp port: 3000              # Eg. RTP packets are sent to port
3000.

sip silence suppression: 2      # "0" = off, "1" = on, "2" = default
```

```
#-------------------------------------------------------------------

#     SIP Registrar and Proxy Server Settings
#     ======================================

sip proxy ip:                # IP of proxy server.
                             # This should match the IP Address or FQDN
                             # of the TeleVantage SIP Span

sip proxy port: 5060         # 5060 is set by default. If FQDN is used,
                             # set the sip proxy port to 0 (zero).

sip registrar ip:            # IP of registrar.
                             # This should match the IP Address or FQDN
                             # of the TeleVantage SIP Span

sip registrar port:  5060    # 5060 is set by default. If FQDN is used,
                             # set the sip proxy port to 0 (zero).


sip digit timeout: 3         # dialing behavior (in seconds)
                             # 3 seconds is the default
#-------------------------------------------------------------------

#     Time Server Settings
#     ====================

time server disabled: 0       # Time server disabled.
time server1:  192.43.244.18  # Enable time server and enter at
                              # least one time server IP address.
                              # Currently set to time.nist.gov

#time server2:
#time server3:

#  Time Server Disabled:
#        0 = false, means the time server is not disabled.
#        1 = true, means the time server is disabled.

#    Notes: If the time server is enabled you will need to enter the
#    IP address of at least one time server. If the time server is
#    disabled, the time can be set manually in the phone's Options
#    List under option "2. Time and Date".

#-------------------------------------------------------------------

#     Line Settings
#     =============

#    Lines should be set in the <mac>.cfg file since these settings
#    are unique to each phone. See the sample “<mac>.cfg” file for
#    for more information.
```

```
#-------------------------------------------------------------------

#     Softkey Settings (Vertical 480i)
#     ================================

#    Softkeys can be set either server wide through the “aastra.cfg”
#    file or unique to each phone through the “<mac>.cfg” file.

#  Notes: Currently, there are a maximum of 20 user definable
#    softkeys that can be configured on the 480i phone. These can be
#    set up through either of the 2 configuration files, depending on
#    whether this is to be server wide ("aastra.cfg") or phone specific
#    ("<mac>.cfg"). Each softkey needs to be numbered from 1 - 20, for
#    example "softkey12 type: speeddial". Softkeys can be set up as
#    speeddials and have a type, label, value and state associated with
#    them.

#    There are usually 4-6 available softkey positions per menu from
#    top left to bottom right, depending upon which state the softkeys
#    are defined for. Softkeys are positioned based on their number.
#    The softkey with the lowest number will always appear in the first
#    position. For example, if softkeys 8, 3, 12 and 7 are defined for
#    a state, softkey3 will have the first available position in the
#    top left, followed by softkey7, softkey8 and softkey12. This does
#    not control the positioning of automatically added state specific
#    softkeys.


#    SOFTKEY STATES: User-defined softkeys are configurable for 4
#                    different phone states that determine where the
#                    softkeys will be displayed:

#                    "idle"      = when the phone isn't being used
#                    "connected" = when the phone is connected to a
#                                  remote party (could be on hold)
#                    "outgoing"  = when the user is dialing a number
#                    "incoming"  = when the phone is ringing

#                    A softkey can be defined to appear in more than
#                    one state by listing the states (do not use commas
#                    to separate list items). For example:

#                           softkey1 states: idle connected
#                           softkey1 type: speeddial
#                           softkey1 label: "Sales Group"
#                           softkey1 value: 301
```

```
#           Notes: If the softkey state information is not defined
#             for a softkey, the phone will assume the softkey is to be
#             positioned in the Idle State menu. Some softkeys are
#             automatically added for certain states. These
#             automatically added state specific softkeys are:

#                     "Pickup" and "Drop" in the connected state
#                     "Dial" in the outgoing state
#                     "Pickup" in the incoming state
#                     "More" in any state when there are more softkeys
#                            defined than are available in the one
#                            screen, the excess softkeys will overflow
#                            into an additional menu under the more
#                            softkey.


#    SOFTKEY TYPES: Softkeys are defined in the following softkey type
#                   categories:

#                   "speeddial" = define softkeys as speeddials such
#                                 as system feature codes, extensions,
#                                 phone numbers, etc.
#                   "flash"     = define a Flash softkey. The phone
#                                 automatically populates the name and
#                                 value parameters for the Flash
#                                 softkey. This softkey can only be
#                                 defined in the Connected state and
#                                 function when the phone is connected
#                                 to a call.
#                   "dnd"       = define a DND softkey. The phone
#                                 automatically populates the name and
#                                 value parameters for the DND softkey.
#                                 This softkey is an on/off toggle to
#                                 set the phone rather than the
#                                 extension on DND. This softkey can be
#                                 defined in the Idle or Connected
#                                 state.
#                   "empty"     = define a softkey as empty to create
#                                 a blank softkey on the screen for the
#                                 purpose of positioning of other
#                                 softkeys.


#    SOFTKEY LABEL: Alpha numeric name for the softkey. The maximum
#                   number of characters for this value is 10 for
#                   speeddials and 9 for lines.


#    SOFTKEY VALUE: If softkey type is a speeddial, any DTMFs (from
#                   0 - 9, *, "#") or a comma (,) for 500ms pause and
#                   'E' for On-hook can be set for the value.
```

```
#-------------------------------------------------------------------------

#  Example Softkey Speed Dials
#  ===========================

#  VERTICAL NOTE:
#  Softkeys have been preconfigured with options
#  that will work specifically with TeleVantage

#  Idle State Softkeys:
#  --------------------

softkey1 type: speeddial
softkey1 label: "VoiceMail"
softkey1 value: voicemail

softkey2 type: speeddial
softkey2 label: "DialByName"
softkey2 value: *93

softkey3 type: speeddial
softkey3 label: "ReturnCall"
softkey3 value: *69

softkey4 type: speeddial
softkey4 label: "Login/Cnfg"
softkey4 value: "##"

softkey5 type: speeddial
softkey5 label: "UnPark"
softkey5 value: *92

softkey6 type: speeddial
softkey6 label: "HeldCalls"
softkey6 value: *95

softkey7 type: speeddial
softkey7 label: "NoCallWait"
softkey7 value: *70

softkey8 type: speeddial
softkey8 label: "StationID"
softkey8 value: *0

softkey9 type: speeddial
softkey9 label: "AnsrPhone"
softkey9 value: *91

softkey10 type: speeddial
softkey10 label: "AnsrWrkgrps"
softkey10 value: *99
```

```
#  Connected State Softkeys:
#  -------------------------

softkey11 type: flash
softkey11 label: "Flash"
softkey11 value: flash

#-------------------------------------------------------------------------

#     Programmable Key Settings (Vertical 9133i and 9112i)
#     ====================================================

#    Programmable keys can be set either server wide or unique to each
#    phone.

#    Notes: The maximum number of programmable keys that can be
#    configured are 2 on the 9112i IP phone and 7 on the 9133i IP
#    phone. On the Vertical 9133i IP phone and the 9112i IP phone, one
#    of these programmable keys is predefined as a flash key.

#    Programmable keys can be set up through either of the 2
#    configuration files, depending on whether this is to be server
#    wide (“aastra.cfg”) or phone specific (“[mac].cfg”). The most
#    recently updated file will be used on the IP phones, when they
#    are restarted. Each programmable key needs to be numbered,
#    from 1 – 2 for the 9112i and from 1 – 7 for the 9133i.
#    For example: “prgkey2 type: speeddial”

#    PRGKEY TYPE: Programmable keys are defined in the following
#                 programmable key type categories:
#                 "speeddial" = define programmable key as speeddials
#                               such as system feature codes,
#                               extensions, phone numbers, etc.
#                 "flash"     = define a programmable key as a Flash
#                               key. The phone automatically populates
#                               the name and value parameters for the
#                               Flash key.
#                 "dnd"       = define a programmable key as a DND key.
#                               The phone automatically populates the
#                               name and value parameters for the DND
#                               key.

#    PRGKEY NAME: Alpha numeric name for the programmable key. The
#                 maximum number of characters for this value is 10.

#    PRGKEY VALUE: Any DTMFs (from # 0 - 9, *, “#”) or a comma (,) for
#                  500ms pause and 'E' for On-hook can be set for the
#                  value.

prgkey1 type: flash
prgkey1 label: "Flash"
prgkey1 value: flash
```

```
#-------------------------------------------------------------------

#   SIP Codec Settings
#   ==================

sip use basic codecs:1

# sip customized codec: payload=0;ptime=20;silsupp=on,
#                       payload=8;ptime=20;silsupp=on,
#                       payload=18;ptime=20;silsupp=on

# sip use basic codecs      # Using this parameter, phone will only use
                            # pcma, pcmu and G729
#     1 = true, use only pcmu, pcma, g729
#     0 = false, use all supported codecs

#  sip customized codec     # This parameter can be used to select one
                            # or more codecs as described above

#  Currently disabled. Setup to only send TeleVantage supported codecs
#     - g711 mulaw (pcmu)
#     - g711 alaw  (pcma)
#     - g729ab
#     - silence suppression on
#     - packet size 20

#-------------------------------------------------------------------

################################################
# Do not edit the following parameters        #
################################################

#   SIP MWI support
#   ===============

sip explicit mwi subscription: 0

# This enables the Aastra phone to send a SUBSCRIBE for MWI.
# TeleVantage requires this set to 0 for MWI.
# Known as explicit SUBSCRIBE.
#     1 = true, explicit mwi enabled
#     0 = false, explicit mwi disabled

enable tagging: 0
resync period: 0
tos rtp: 46


sip dial plan terminator: 1
sip dial plan: "X+."
```

```
#     The conference key is remapped as a speed dial that will
#     allow the user to set up a conference by doing the following:
#           - set up one or more calls
#           - press Conf (dials speed dial)
#           - server bridges calls into conference


map conf key to: "!,5"



#     Allow the use of the intercom key; Three parameters needed
#     to be set.
#     range:
#           1 phone side, allow intercom by dailing IP address;
#           2 server side, allow intercom by dialing star code
#           and extention number;
#           default: 2 (for 480i)

sip intercom type: 2

#     The star code that is prefixed to dialed number when using
#     server-side intercom support
#             Defaut:   undefined

sip intercom prefix code: *15

#     sip allow auto answer:
#           Enable/disable the auto answer feature
#           Range:   1 - Enable; 0 - disable
#           Defaut: 1


map redial key to: "*66"


#-----------------------------------------------------------------------
#    For more information on parameters that can be set in the
#    configuration files, please refer to your administration guide
#    for Vertical 480i, Vertical 9133i or Vertical 9112i IP phone.
#-----------------------------------------------------------------------
```

<mac>.cfg

```
#              Vertical SIP Phone Sample Configuration File
#              ============================================

#      Date: September 27, 2005
#      File: Sample “<mac>.cfg” file
#      For Models: Vertical 480i, Vertical 9133i and Vertical 9112i

#  Notes:
#    The general format used here is similar to configuration files
#    used by several UNIX-based programs. Any text following a number
#    sign (#) is considered to be a comment, unless the number sign is
#    contained within double-quotes ("#") where it is considered to be
#    a pound. For Boolean fields, 0 = false, 1 = true.

#  Comments:
#    This file contains sample configurations for the “<mac>.cfg”
#    file. Please rename this file with the MAC address (with the
#    dashes removed) of the specific 480i, 9133i or 9112i device that
#    you want to configure, for example “00085d03059f.cfg”.

#    Settings that have already appeared in “aastra.cfg” will be
#    overridden by those in this file.

#    Parameters can be set in either the “<mac>.cfg” file or the
#    “aastra.cfg” file, with the exception of assigning a static
#    IP address to a phone which can only be set in the “<mac>.cfg”
#    file. For more details on sample settings see the sample
#    “aastra.cfg” file.

#  NOTES FROM VERTICAL
#    Comments have been added to serveral of the settings in the sample
#    “aastra.cfg” file pertaining how they interact and are configured
#    with TeleVantage. Some settings have been preconfigured for
#    optimization with TeleVantage. Please refer to the sample
#    “aastra.cfg” file for details.

#-------------------------------------------------------------------------

#     DHCP Settings
#     ============

#     For DHCP settings please refer to the sample “aastra.cfg” file.
```

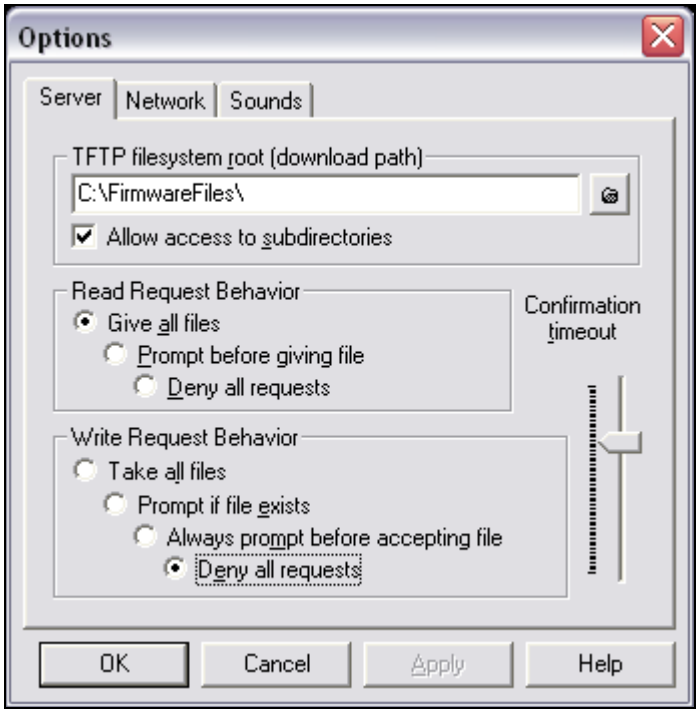
```
#-------------------------------------------------------------------

#     Network Settings
#     ================

#     For Network settings please refer to the sample “aastra.cfg”
#     file.

#-------------------------------------------------------------------

#     Line Settings
#     =============

#     Lines should be set in the <mac>.cfg file since these settings
#     are unique to each phone.

#   Notes: Setting parameters for line 1 configures the 1st line on
#     the 480i, 9133i and the one line on the 9112i. TeleVantage 7.0
#     does not currently support the multiple lines on the 480i and
#     9133i phones, so only line 1 need be configured.


#  Explanation of Settings with Line 1 as Example
#  ==============================================

#sip line1 auth name:     # SIP Registrar request authorization name.
#sip line1 password:      # SIP Registrar request password.
#sip line1 user name:     # This parameter value is used by the 9112i
                          # in the From header field of the outgoing
                          # SIP packet. It may be replaced by your
                          # SIP proxy server.
#sip line1 display name:  # Name used for SIP messages.
#sip line1 screen name:   # User's name seen on the idle screen of the
                          # user's phone.

#-------------------------------------------------------------------

#     Softkey Settings (Vertical 480i)
#     ================================

#    Softkeys can be set either server wide or unique to each phone.
#    For instructions on how to define softkeys keys, please refer
#    to the sample “aastra.cfg” file.
```

```
#  Example Softkey Speed Dials
#  ---------------------------

#     For the default softkey speed dials, please refer to the sample
#     “aastra.cfg” file.


#  Example User Specific Softkeys
#  ------------------------------

#   Note: On Vertical 480i IP phones, softkeys 1 – 11 are predefined
#     with TeleVantage system functions. Please refer to the sample
#     “aastra.cfg” file for details.

# softkey12 type: speeddial
# softkey12 label: "Home"
# softkey12 value: "9,16045551234"
# softkey12 states: idle

# softkey13 states: empty
# softkey13 states: idle

# softkey14 type: speeddial
# softkey14 label: "Sales Dept"
# softkey14 value: "301"
# softkey14 states: idle

#-------------------------------------------------------------------------


#     Programmable Key Settings (Vertical 9133i and 9112i)
#     ====================================================

#    Programmable keys can be set either server wide or unique to each
#    phone. For instructions on how to define programmable keys, please
#    refer to the sample “aastra.cfg” file.


#  Example Program Key Speed Dials
#  -------------------------------

#     For the default program key speed dials, please refer to the
#     sample “aastra.cfg” file.
```

```
#  Example User Specific Program Keys
#  ----------------------------------

#   Note: On Vertical 9133i and 9112i IP phones, program key 1 is
#     predefined as a Flash key. Please refer to the sample
#     “aastra.cfg” file for details.

# prgkey2 type: speeddial
# prgkey2 label: "Home"
# prgkey2 value: "9,16045551234"



#-------------------------------------------------------------------------

#    For more information on parameters that can be set in the
#    configuration files, please refer to your administration guide
#    for Vertical 480i, Vertical 9133i or Vertical 9112i IP phone.

#-------------------------------------------------------------------------
```

Appendix B: TFTP Server Set-up

There are a number of TFTP servers available. PumpKIN is one of such TFTP servers. Use the keywords “pumpkin TFTP server” on Google and you should get the web site where you can download the software from. Installing PumpKIN is straightforward. To configure the directory from where you would be serving the files, click on the Options button on PumpKIN’s main window as shown in the following figure.



It is important to select the “Give all files” radio button under the “Read Request Behavior” category. This makes the files to be served without any manual intervention when requested.

If you want to prevent users from writing files to the directory select the “Deny all requests” in the “Write Request Behavior” category. Click the OK button after you have entered all the required information. All the firmware files should be in the file system root directory. Currently we do not support downloads from files present in sub-directories. Consult PumpKIN’s documentation if you need more information on how to set-up the TFTP server.

Appendix C: Time Zone Names and Corresponding Codes

Time Zone Name	Time Zone Code	Location
AD-Andorra	CET	Europe
AG-Antigua	AST	America
AI-Anguilla	AST	America
AL-Tirane	CET	Europe
AN-Curacao	AST	America
AR-Buenos Aires	ART	America
AS-Pago Pago	BST	Pacific
AT-Vienna	CET	Europe
AU-Lord Howe	LHS	Australia
AU-Tasmania	EST	Australia
AU-Melbourne	EST	Australia
AU-Sydney	EST	Australia
AU-Broken Hill	CST	Australia
AU-Brisbane	EST	Australia
AU-Lindeman	EST	Australia
AU-Adelaide	CST	Australia
AU-Darwin	CST	Australia
AU-Perth	WST	Australia
AW-Aruba	AST	America
BA-Sarajevo	EET	Europe
BB-Barbados	AST	America
BE-Brussels	CET	Europe
BG-Sofia	EET	Europe
BM-Bermuda	AST	Atlantic
BO-La Paz	BOT	America
BR-Noronha	FNT	America
BR-Belem	BRT	America
BR-Fortaleza	BRT	America
BR-Recife	BRT	America
BR-Araguaina	BRS	America
BR-Maceio	BRT	America
BR-Sao Paulo	BRS	America
BR-Cuiaba	AMS	America

Time Zone Name	Time Zone Code	Location
BR-Porto Velho	AMT	America
BR-Boa Vista	AMT	America
BR-Manaus	AMT	America
BR-Eirunepe	ACT	America
BR-Rio Branco	ACT	America
BS-Nassau	EST	America
BY-Minsk	EET	Europe
BZ-Belize	CST	America
CA-Newfoundland	NST	America
CA-Atlantic	AST	America
CA-Eastern	EST	America
CA-Saskatchewan	EST	America
CA-Central	CST	America
CA-Mountain	MST	America
CA-Pacific	PST	America
CA-Yukon	PST	America
CH-Zurich	CET	Europe
CK-Rarotonga	CKS	Pacific
CL-Santiago	CLS	America
CL-Easter	EAS	America
CN-Beijing	CST	Asia
CO-Bogota	COS	America
CR-Costa Rica	CST	America
CU-Havana	CST	America
CY-Nicosia	EES	Asia
CZ-Prague	CET	Europe
DE-Berlin	CET	Europe
DK-Copenhagen	CET	Europe
DM-Dominica	AST	America
DO-Santo Domingo	AST	America
EE-Tallinn	EET	Europe
ES-Madrid	CET	Europe
ES-Canary	WET	Atlantic
FI-Helsinki	EET	Europe
FJ-Fiji	NZT	Pacific
FK-Stanley	FKS	Atlantic

Time Zone Name	Time Zone Code	Location
FO-Faeroe	WET	Atlantic
FR-Paris	CET	Europe
GB-London	GMT	Europe
GB-Belfast	GMT	Europe
GD-Grenada	AST	America
GF-Cayenne	GFT	America
GI-Gibraltar	CET	Europe
GP-Guadeloupe	AST	America
GR-Athens	EET	Europe
GS-South Georgia	GST	Atlantic
GT-Guatemala	CST	America
GU-Guam	CST	Pacific
GY-Guyana	GYT	America
HK-Hong Kong	HKS	Asia
HN-Tegucigalpa	CST	America
HR-Zagreb	CET	Europe
HT-Port-au-Prince	EST	America
HU-Budapest	CET	Europe
IE-Dublin	GMT	Europe
IS-Reykjavik	GMT	Europe
IT-Rome	CET	Europe
JM-Jamaica	EST	America
JP-Tokyo	JST	Asia
KY-Cayman	EST	America
LC-St Lucia	AST	America
LI-Vaduz	CET	Europe
LT-Vilnius	EET	Europe
LU-Luxembourg	CET	Europe
LV-Riga	EET	Europe
MC-Monaco	CET	Europe
MD-Chisinau	EET	Europe
MK-Skopje	CET	Europe
MQ-Martinique	AST	America
MS-Montserrat	AST	America
MT-Malta	CET	Europe
MX-Mexico City	CST	America

Time Zone Name	Time Zone Code	Location
MX-Cancun	CST	America
MX-Merida	CST	America
MX-Monterrey	CST	America
MX-Mazatlan	MST	America
MX-Chihuahua	MST	America
MX-Hermosillo	MST	America
MX-Tijuana	PST	America
NI-Managua	CST	America
NL-Amsterdam	CET	Europe
NO-Oslo	CET	Europe
NR-Nauru	NRT	Pacific
NU-Niue	NUT	Pacific
NZ-Auckland	NZS	Pacific
NZ-Chatham	CHA	Pacific
PA-Panama	EST	America
PE-Lima	PES	America
PL-Warsaw	CET	Europe
PR-Puerto Rico	AST	America
PT-Lisbon	WET	Europe
PT-Madeira	WET	Atlantic
PT-Azores	AZO	Atlantic
PY-Asuncion	PYS	America
RO-Bucharest	EET	Europe
RU-Kaliningrad	EET	Europe
RU-Moscow	MSK	Europe
RU-Samara	SAM	Europe
RU-Yekaterinburg	YEK	Asia
RU-Omsk	OMS	Asia
RU-Novosibirsk	NOV	Asia
RU-Krasnoyarsk	KRA	Asia
RU-Irkutsk	IRK	Asia
RU-Yakutsk	YAK	Asia
RU-Vladivostok	VLA	Asia
RU-Sakhalin	SAK	Asia
RU-Magadan	MAG	Asia
RU-Kamchatka	PET	Asia

Time Zone Name	Time Zone Code	Location
RU-Anadyr	ANA	Asia
SA-Saudi Arabia	AST	Asia
SE-Stockholm	CET	Europe
SG-Singapore	SGT	Asia
SI-Ljubljana	CET	Europe
SK-Bratislava	CET	Europe
SM-San Marino	CET	Europe
SR-Paramaribo	SRT	America
SV-El Salvador	CST	America
TR-Istanbul	EET	Europe
TT-Port of Spain	AST	America
TW-Taipei	CST	Asia
UA-Kiev	EET	Europe
US-Eastern	EST	America
US-Central	CST	America
US-Mountain	MST	America
US-Pacific	PST	America
US-Alaska	AKS	America
US-Aleutian	HAS	America
US-Hawaii	HST	America
UY-Montevideo	UYS	America
VA-Vatican	CET	Europe
YU-Belgrade	CET	Europe

Limited Warranty

Aastra Telecom warrants this product against defects and malfunctions during a one (1) year period from the date of original purchase. If there is a defect or malfunction, Aastra
Telecom shall, at its option, and as the exclusive remedy, either repair or replace the telephone set at no charge, if returned within the warranty period.

If replacement parts are used in making repairs, these parts may be refurbished, or may contain refurbished materials. If it is necessary to replace the telephone set, it may be replaced with a refurbished telephone of the same design and color. If it should become necessary to repair or replace a defective or malfunctioning telephone set under this warranty, the provisions of this warranty shall apply to the repaired or replaced telephone set until the expiration of ninety (90) days from the date of pick up, or the date of shipment to you, of the repaired or replacement set, or until the end of the original warranty period, whichever is later. Proof of the original purchase date is to be provided with all telephone sets returned for warranty repairs.

Exclusions

Aastra Telecom does not warrant its telephone sets to be compatible with the equipment of any particular telephone company. This warranty does not extend to damage to products resulting from improper installation or operation, alteration, accident, neglect, abuse, misuse, fire or natural causes such as storms or floods, after the telephone is in your possession.

Aastra Telecom shall not be liable for any incidental or consequential damages, including, but not limited to, loss, damage or expense directly or indirectly arising from the customers use of or inability to use this telephone, either separately or in combination with other equipment. This paragraph, however, shall not apply to consequential damages for injury to the person in the case of telephones used or bought for use primarily for personal, family or household purposes.

This warranty sets forth the entire liability and obligations of Aastra Telecom with respect to breach of warranty, and the warranties set forth or limited herein are the sole warranties and are in lieu of all other warranties, expressed or implied, including warranties or fitness for particular purpose and merchantability.

Warranty Repair Services

Should the set fail during the warranty period;

In North America, please call:
1-800-574-1611 for further information.

Outside North America, contact your sales representative for return instructions.
You will be responsible for shipping charges, if any. When you return this telephone for warranty service, you must present proof of purchase.

After Warranty Service

Aastra Telecom offers ongoing repair and support for this product. This service provides repair or replacement of your Aastra Telecom product, at Aastra Telecom's option, for a fixed charge. You are responsible for all shipping charges. For further information and shipping instructions;
In North America, contact our service information number: 1-800-574-1611.
Outside North America, contact your sales representative.

NOTE: Repairs to this product may be made only by the manufacturer and its authorized agents, or by others who are legally authorized. This restriction applies during and after the warranty period. Unauthorized repair will void the warranty.

Configuration File Index