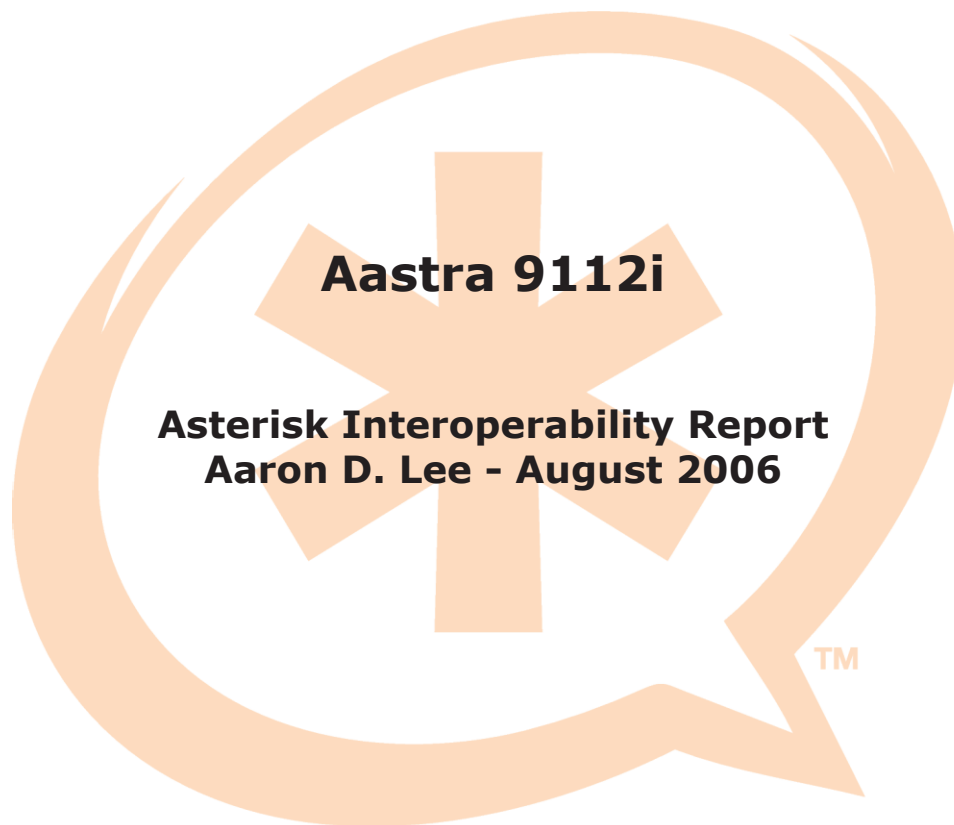


Aastra 9112i

Form: Asterisk Interoperability Report



Aastra 9112i

Asterisk Interoperability Report

Asterisk Interoperability Reports describe the certification testing performed by Digium on the specified product and Asterisk Business Edition. Each Supported feature of the device under test is described as well as how the device was configured to work with Asterisk during testing.

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SIP Device Summary

Make:	Aastra9112i
Firmware:	1.4.0.1048
Tested With:	Asterisk B.E. B.1.1

Product Description

The Aastra 9112i is a versatile SIP phone featuring a backlit high-contrast display, 2 configurable hardkeys which can act as shortcuts to menu actions, as well as speed dial extensions. The phone also contains a Directory application, Do Not Disturb, and internal conferencing and transfer functionality.

Features Tested and Confirmed Working

- **Call Hold and Retrieve**
- **Call Waiting**
- **Call Transfer and Divert**
- **Other Party Identification (Caller ID)**
- **Conferencing**
- **Call History**
- **Do not Disturb**
- **Message Waiting Identification (Voicemail Alerts)**
- **Call Forwarding**

Asterisk Configuration

For the basic configuration of a SIP device within Asterisk requires the configuration of three configuration files: sip.conf for setting up the SIP device channel (including registration information, channel name, etc.), extensions.conf (for configuring SIP device extension), and voicemail.conf (for configuration of voice-mailbox). The following code snippets were used to configure the Aastra 9112i for interoperability testing.

sip.conf	voicemail.conf
<pre>[aas9112i] type=friend context=sip-phones username=aas9112i secret=blah host=dynamic mailbox=9112@default defaultip=192.168.0.78 dtmfmode=rfc2833</pre>	<pre>9112 => 5555,Aastra9112i,<email></pre>
extensions.conf	
Using old=style n+101 extensions:	
<pre>[sip-phones] ... exten => 9112,1,Dial(SIP/aas9112i,15) exten => 9112,2,VoiceMail(u9112) exten => 9112,3,Hangup exten => 9112,102,VoiceMail(b9112) exten => 9112,103,Hangup ...</pre>	
Using stdexten macro:	
<pre>[sip-phones] ... exten => 9112,1,Macro(stdexten,9112,SIP/aas9112i) ...</pre>	
Hints for SIP presence:	
<pre>[buddypress] ... exten => 9112,hint,SIP/aas9112i exten => 9112,1,Macro(line,\${aas9112i})</pre>	

SIP Device Configuration

Configuration overview:

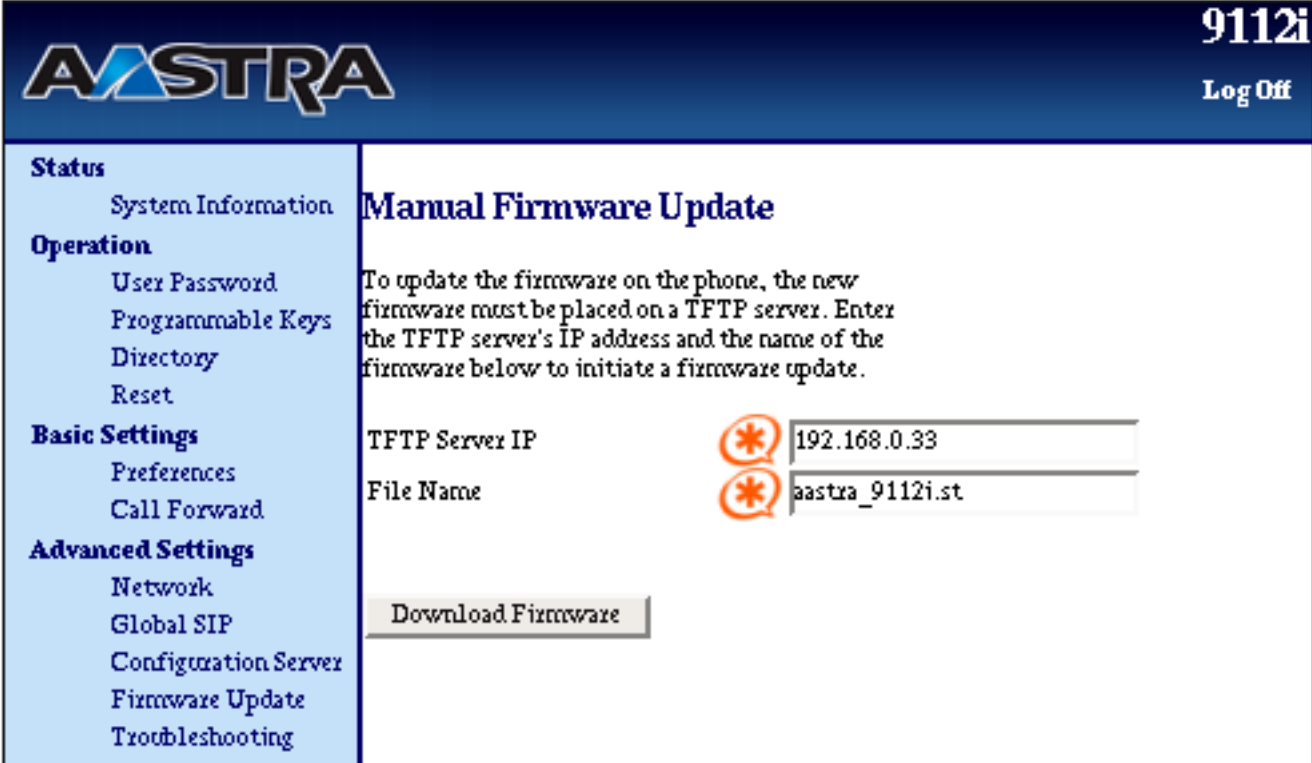
The 9112i can be configured in any of these ways:

1. Navigating the web configuration interface
2. Editing phone configuration files on the TFTP server
3. Configuring the phone through the phone's internal menu system

Web Configuration

The most vital configurations to the phone can be made easily through the phone's web interface. The 6 sections that must be configured are: Firmware, Global SIP, Network Settings, Configuration Server, SoftKeys and XML, and the individual Line configuration pages.

Firmware




The screenshot shows the Aastra 9112i web interface. The top header features the Aastra logo on the left and '9112i' and 'Log Off' on the right. A left-hand navigation menu is visible, with categories: Status (System Information), Operation (User Password, Programmable Keys, Directory, Reset), Basic Settings (Preferences, Call Forward), and Advanced Settings (Network, Global SIP, Configuration Server, Firmware Update, Troubleshooting). The main content area is titled 'Manual Firmware Update' and contains the following text: 'To update the firmware on the phone, the new firmware must be placed on a TFTP server. Enter the TFTP server's IP address and the name of the firmware below to initiate a firmware update.' Below this text are two input fields: 'TFTP Server IP' with the value '192.168.0.33' and 'File Name' with the value 'aastra_9112i.st'. Both input fields have an orange asterisk icon to their left, indicating they have been modified. A 'Download Firmware' button is located below the input fields.

*Note: The Asterisk logo beside fields denotes that they have been modified.

Global SIP

Unlike the Aastra 480i and the 9133i, the 9112i is a single-line SIP phone, meaning that all configuration for register server/proxy server are configured here.

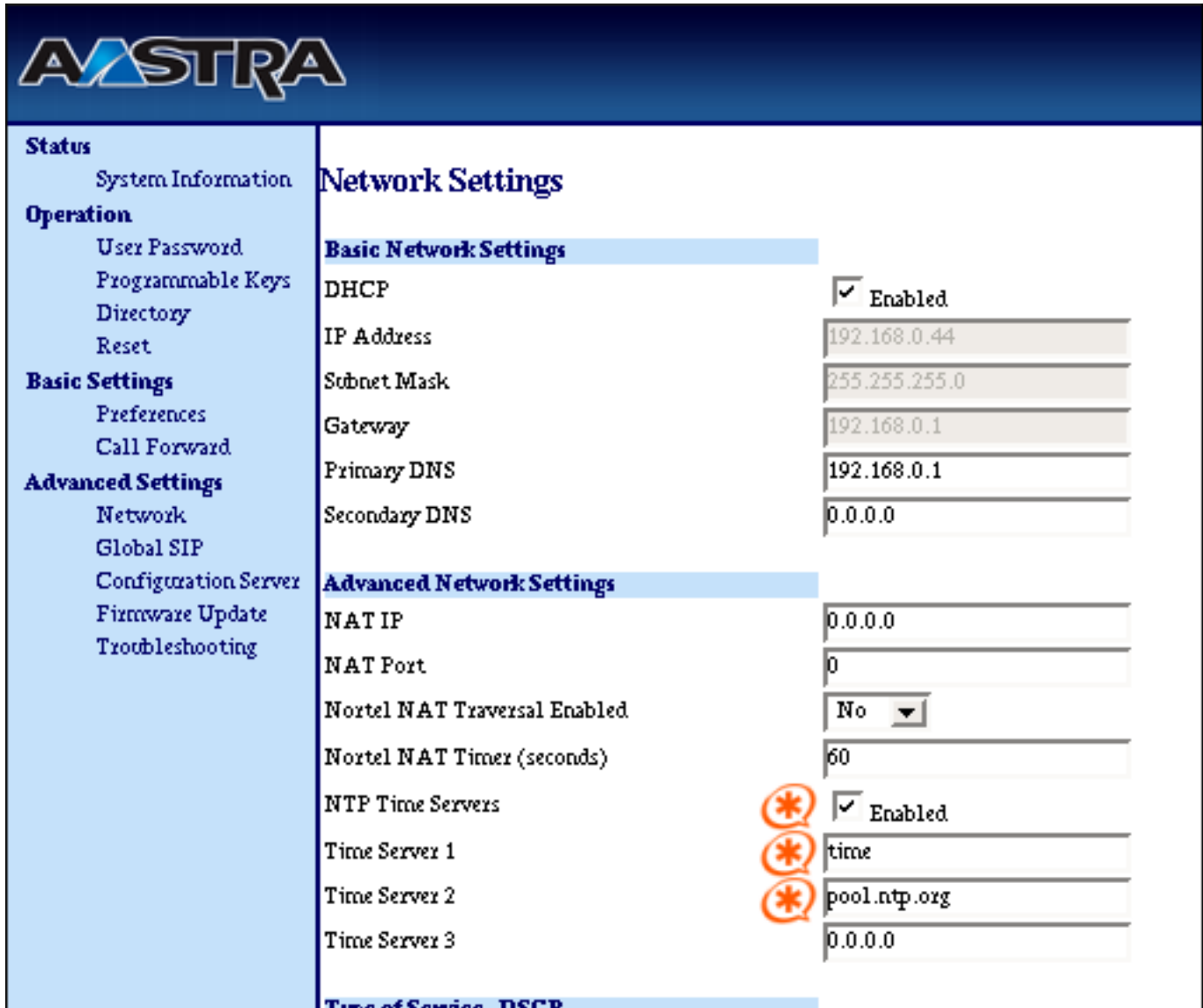


The screenshot displays the Aastra 9112i web interface. The top left features the Aastra logo. A navigation menu on the left includes sections for Status, Operation, Basic Settings, and Advanced Settings. The main content area is titled "Global SIP Settings" and is divided into three sections: Basic SIP Authentication Settings, Basic SIP Network Settings, and Advanced SIP Settings. Each setting field is accompanied by a red asterisk icon, indicating a warning or error. The Basic SIP Authentication Settings section includes fields for Screen Name, Phone Number, Caller ID, Authentication Name, Password, and Line Mode. The Basic SIP Network Settings section includes fields for Proxy Server, Proxy Port, Outbound Proxy Server, Outbound Proxy Port, Registrar Server, Registrar Port, and Registration Period. The Advanced SIP Settings section includes a checkbox for Explicit MWI Subscription.

Section	Setting	Value
Basic SIP Authentication Settings	Screen Name	Granpappy
	Phone Number	aa9112i
	Caller ID	Aastra 9112i
	Authentication Name	aa9112i
	Password	****
	Line Mode	Generic
Basic SIP Network Settings	Proxy Server	granpappy
	Proxy Port	0
	Outbound Proxy Server	granpappy
	Outbound Proxy Port	0
	Registrar Server	granpappy
	Registrar Port	0
	Registration Period	0
Advanced SIP Settings	Explicit MWI Subscription	<input type="checkbox"/> Enabled

Network Settings

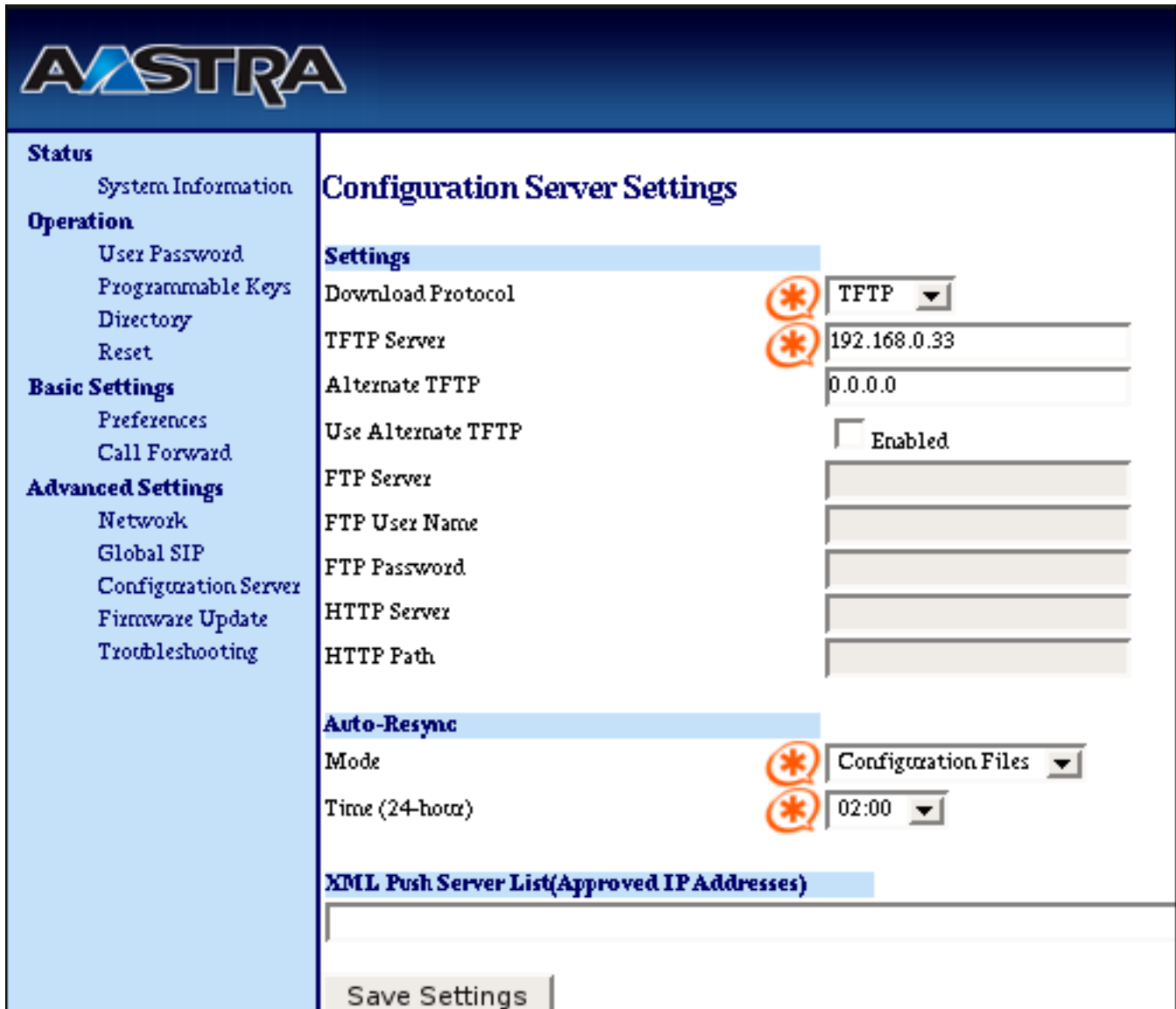
The only configuration necessary to make in this section is enabling NTP and specifying the NTP server to connect to. Unless of course one needs to specify a static IP, DNS information, NAT, etc.



Network Settings	
Basic Network Settings	
DHCP	<input checked="" type="checkbox"/> Enabled
IP Address	192.168.0.44
Subnet Mask	255.255.255.0
Gateway	192.168.0.1
Primary DNS	192.168.0.1
Secondary DNS	0.0.0.0
Advanced Network Settings	
NAT IP	0.0.0.0
NAT Port	0
Nortel NAT Traversal Enabled	No
Nortel NAT Timer (seconds)	60
NTP Time Servers	<input checked="" type="checkbox"/> Enabled
Time Server 1	time
Time Server 2	pool.ntp.org
Time Server 3	0.0.0.0

Configuration Settings

This page allows one to configure the TFTP (or FTP) server.




The screenshot shows the Aastra 9112i configuration interface. On the left is a navigation menu with categories: Status (System Information), Operation (User Password, Programmable Keys, Directory, Reset), Basic Settings (Preferences, Call Forward), and Advanced Settings (Network, Global SIP, Configuration Server, Firmware Update, Troubleshooting). The main content area is titled "Configuration Server Settings" and contains several sections: "Settings" with fields for Download Protocol (TFTP), TFTP Server (192.168.0.33), Alternate TFTP (0.0.0.0), and a checkbox for Use Alternate TFTP (disabled); "Auto-Resync" with Mode (Configuration Files) and Time (24-hour) (02:00); and "XML Push Server List (Approved IP Addresses)" which is currently empty. A "Save Settings" button is located at the bottom.

Section	Field	Value
Settings	Download Protocol	TFTP
	TFTP Server	192.168.0.33
	Alternate TFTP	0.0.0.0
	Use Alternate TFTP	<input type="checkbox"/> Enabled
Auto-Resync	Mode	Configuration Files
	Time (24-hour)	02:00
XML Push Server List (Approved IP Addresses)		

Softkeys and XML

This page is used for configuring the SoftKeys (used for holding extensions, lines, etc.) and for configuring the phone to utilize XML applications.



Aastra

Status
System Information

Operation
User Password
Programmable Keys
Directory
Reset

Basic Settings
Preferences
Call Forward

Advanced Settings
Network
Global SIP
Configuration Server
Firmware Update
Troubleshooting

Programmable Keys Configuration

Key	Type	Value
Hard Key 1:	do not disturb	
Hard Key 2:	speeddial	8501

Save Settings

Phone Configuration Settings

There are two configuration files one can edit in order to configure the Aastra 9112i. First is the `aastra.cfg` file, which contains the settings for all aastra phones utilizing that TFTP server, the second is the `<mac>.cfg` (where `<mac>` is the phone's mac address) which contains phone specific settings. Below are samples of said configuration files.

`aastra.cfg`

```
# Aastra Telecom Inc.
# Common settings for all Aastra IP Phones. Any parameter
# listed in this file can be
# overwritten by the same parameter in <mac>.cfg file.

#Time Server Settings
#time server disabled: 0
#time server1: pool.ntp.org

#Sip Settings
sip proxy ip: 0.0.0.0
sip proxy port: 5060
sip registrar ip: 0.0.0.0
sip registrar port: 5060
sip outbound proxy:
sip outbound proxy port:

sip registration period: 3600
sip registration retry timer: 30

sip use basic codecs: 1
sip line1 vmail:

#sip intercom type: 2
#sip intercom prefix code: *55

web interface enabled: 1

#Daily Resync of cfg and firmware files
#auto resync mode: 3
#auto resync time: 23:30

#Server-based directory download
#directory 1: mydirectory.csv
```

<mac-address>.cfg

```
# Aastra Telecom Inc.
# This file contains specific settings for the phone with the
MAC
# address for which this file was named.  Settings which have
already
# appeared in aastra.cfg will be overridden by those in this
file.

#line info
#line 1
sip line1 auth name: aas9112i
sip line1 password: blah
sip line1 mode: 0
sip line1 user name: aas9112i
sip line1 display name: Aastra9112i
sip line1 screen name: Aastra9112i

# Softkey Settings
softkey1 type: speeddial
softkey1 label: Voicemail
softkey1 value: 8500
softkey1 line:
softkey1 states: idle

softkey2 type: dnd
softkey2 label: DND
softkey2 value:
softkey2 line:
softkey2 states: idle

softkey3 type: blf
softkey3 label: Snom 360
softkey3 value: 3600
softkey3 line: 1
```

Test Reports

The following test reports give an overview of the tests performed, as well as their objectives and expected and actual results.

Hold and Retrieve	
Test Objective:	Verify that a call can be placed on hold and the original call can be retrieved.
Procedure:	Place a call to the 9112i and place the calling party on hold. Then attempt to take the call off hold.
Expected Results:	The call will be placed on hold and can be retrieved whenever.
Actual Results:	As expected.
Status:	Pass

Call Waiting	
Test Objective:	Verify that call waiting is functional, allowing a new call to be answered by placing existing conversing party on hold.
Procedure:	Place a call to the 9112i and answer it, with another device call the 9112i. Place the first calling party on hold the answer the new call. Hangup (or place on hold) and resume the conversation with the first calling party.
Expected Results:	The original caller will be on hold until new caller is disconnected or put on hold itself.
Actual Results:	As expected.
Status:	Pass

<i>Transfer and Divert</i>	
Test Objective:	Verify transferring calls works using the transfer button on the SIP phone.
Procedure:	Place a call to the 9112i during the conversation press "Xfer" dial the number of the party to which you will be transferring the call, then after connection is established with said party, press "Xfer" once more to complete the transfer.
Expected Results:	The call will be successfully transferred via the attended transfer method.
Actual Results:	As expected.
Status:	Pass

<i>Other Party Identification</i>	
Test Objective:	Verify the phone displays the proper caller ID information.
Procedure:	Place a call to the 9112i and verify caller ID information is displayed correctly.
Expected Results:	Caller ID information should be displayed upon receiving a call.
Actual Results:	As expected.
Status:	Pass

<i>Conferencing</i>	
Test Objective:	Verify that conferences can be initiated using the Conf option within the phone itself.
Procedure:	Place a call to the first conference member then press "Conf" then dial the second member for the conference then press "Conf" once more to bridge all members.
Expected Results:	The conference should be initiated using the "Conf" button option.
Actual Results:	As expected.
Status:	Pass

Call History	
Test Objective:	Verify that an accurate call history is recorded and displayed from within the phone.
Procedure:	Place a few answered as well as missed calls to the phone and then press the button with the phone icon above it, browse through received and missed calls, verifying they reflect the call history properly.
Expected Results:	The call history should be recorded and displayed in the "Callers Lists" menu.
Actual Results:	As expected.
Status:	Pass

Do Not Disturb	
Test Objective:	Verify if "Do not Disturb" mode is turned on calls to the 9112i will be sent directly to voicemail.
Procedure:	After registration, press the "Do Not Disturb" button (which must be configured in the Softkey menu in the web administration page or in the phone configuration file) and from another device place a call to the 9112i.
Expected Results:	The call placed to the 9112i will jump directly to voicemail.
Actual Results:	As expected.
Status:	Pass

Waiting Message Indication	
Test Objective:	Verify Asterisk phone receives WMI from Asterisk and displays this information.
Procedure:	Call the 9112i and leave a message on it's voicemail, verify that after a short while the phone receives the WMI. *Note: a speed dial Softkey set for the voicemail extension can be configured in the Softkey menu in the web administration page.
Expected Results:	After a voicemail is placed, Asterisk will send WMI to phone, and the information will be displayed on-screen.
Actual Results:	As expected.
Status:	Pass

Forwarding	
Test Objective:	Verify if specified calls can be forwarded to a specified extension.
Procedure:	Press the "Options" button and select option number 8 by either pressing "8" or scrolling down and pressing "Show". Then configure a forwarding extension and set it to forward either All, Busy, NoAns, BusyNoAns, or Off. With it configured to all any call to the 9112i will instantly be forwarded to the configured extension.
Expected Results:	The calls to the 9112i should be forwarded to whatever extension is specified, using the forwarding condition as specified.
Actual Results:	As expected.
Status:	Pass