

# Documentation

**Asterisk**

**OpenStage 15, OpenStage 20, OpenStage 40,  
OpenStage 60, OpenStage 80**

Administration Manual

A31003-S2000-M102-6-76A9



Communication for the open minded

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# Content

<b>1 Overview</b>	<b>1-1</b>
1.1 Important Notes	1-1
1.2 Maintenance Notes	1-2
1.3 About the Manual	1-2
1.4 Conventions for this Document	1-2
1.5 The OpenStage Family	1-4
1.5.1 OpenStage 60/80	1-4
1.5.2 OpenStage 40	1-5
1.5.3 OpenStage 20	1-6
1.5.4 OpenStage 15	1-7
1.6 Administration Interfaces	1-8
1.6.1 Web-based Management (WBM)	1-8
1.6.2 DLS (Deployment Service)	1-8
1.6.3 Local Phone Menu	1-8
<b>2 Startup</b>	<b>2-1</b>
2.1 Prerequisites	2-1
2.2 Assembling and Installing the Phone	2-2
2.2.1 Shipment	2-2
2.2.2 Connectors at the bottom side	2-2
2.2.3 Assembly	2-4
2.2.4 Connecting the Phone	2-5
2.3 Quick Start	2-7
2.3.1 Access the Web Interface (WBM)	2-7
2.3.2 Set the Terminal Number	2-9
2.3.3 Basic Network Configuration	2-9
2.3.4 DHCP Resilience (V2R1)	2-10
2.3.5 Date and Time / SNTP	2-10
2.3.6 SIP Server Address	2-11
2.3.7 Extended Network Configuration	2-11
2.3.8 Vendor Specific: VLAN Discovery And DLS Address	2-11
2.3.9 Example DHCP server configuration	2-12
2.3.10 Registering at Asterisk	2-14
2.3.11 Startup Procedure	2-15
<b>3 Administration</b>	<b>3-1</b>
3.1 Access via Local Phone	3-1
3.2 LAN Settings	3-5
3.2.1 LAN Port Settings	3-5
3.2.2 VLAN	3-7
3.2.2.1 Automatic VLAN discovery using DHCP	3-8

## Content

3.2.2.2	Automatic VLAN discovery using LLDP-MED	3-9
3.2.2.3	Manual configuration of a VLAN ID	3-11
3.2.3	LLDP-MED Operation	3-12
3.3	IP Network Parameters	3-13
3.3.1	Quality of Service (QoS)	3-13
3.3.1.1	Layer 2 / 802.1p	3-13
3.3.1.2	Layer 3 / Diffserv	3-14
3.3.2	Use DHCP	3-16
3.3.3	IP Address - Manual Configuration	3-18
3.3.4	Default Route/Gateway	3-20
3.3.5	Specific IP Routing	3-21
3.3.6	DNS	3-22
3.3.6.1	DNS Domain Name	3-22
3.3.6.2	DNS Servers	3-23
3.3.6.3	Terminal Hostname (V2)	3-24
3.3.7	Configuration & Update Service (DLS)	3-25
3.3.8	SNMP	3-27
3.4	System Settings	3-31
3.4.1	Terminal and User Identity	3-31
3.4.1.1	Terminal Identity	3-31
3.4.1.2	Display Identity	3-32
3.4.2	Emergency and Voice Mail	3-33
3.4.3	Energy Saving (OpenStage 40/60/80)	3-34
3.4.4	Date and Time	3-35
3.4.4.1	SNTP is available, but no automatic configuration by DHCP server	3-35
3.4.4.2	No SNTP server available	3-37
3.4.5	SIP Addresses and Ports	3-38
3.4.5.1	SIP Addresses	3-38
3.4.5.2	SIP Ports	3-39
3.4.6	SIP Registration	3-40
3.4.7	SIP Communication	3-43
3.4.7.1	Outbound Proxy	3-43
3.4.7.2	SIP Transport Protocol	3-44
3.4.8	SIP Session Timer	3-45
3.4.9	Resilience and Survivability	3-47
3.4.9.1	TLS Connectivity Check	3-47
3.4.9.2	Response Timer	3-48
3.4.9.3	Non-INVITE Transaction Timer	3-49
3.4.9.4	Maximum Registration Backoff Time	3-50
3.4.9.5	Backup SIP Server	3-51
3.5	Features - Configuration	3-54
3.5.1	Allow Refuse	3-54
3.5.2	Hot/Warm Phone (V2)	3-55
3.5.3	Initial Digit Timer	3-56

3.5.4	Call Transfer	3-57
3.5.4.1	Transfer on Ring	3-57
3.5.4.2	Transfer on Hangup	3-57
3.5.5	Message Waiting Address	3-59
3.5.6	Indicate Messages (V2)	3-60
3.5.7	Server Based Features	3-62
3.5.8	uaCSTA Interface	3-64
3.5.9	Local Menu Timeout	3-65
3.6	Free Programmable Keys	3-66
3.6.1	Clear (no feature assigned)	3-67
3.6.2	Selected Dialing	3-67
3.6.3	Repeat Dialing	3-68
3.6.4	Call Forwarding	3-68
3.6.5	Ringer Off	3-69
3.6.6	Hold	3-69
3.6.7	Alternate	3-69
3.6.8	Blind Call Transfer / Move Blind	3-70
3.6.9	Join Two Calls	3-70
3.6.10	Deflect a Call	3-71
3.6.11	Shift Level	3-71
3.6.12	Phone-Based Conference	3-71
3.6.13	Accept Call via Headset	3-72
3.6.14	Do Not Disturb	3-72
3.6.15	Repertory Dial	3-72
3.6.16	Consult and Transfer	3-74
3.6.17	Toggle Call Waiting	3-74
3.6.18	Auto Answer With Zip Tone (V2)	3-75
3.6.19	Server Feature	3-75
3.6.20	Monitoring Another Extension via BLF Key	3-76
3.6.21	Start application	3-79
3.6.22	Send Request via HTTP/HTTPS (V2)	3-79
3.6.23	Start Phonebook (OpenStage 40 with V2R1 only)	3-82
3.6.24	Mute (OpenStage 15 Only)	3-83
3.6.25	Release (OpenStage 15 Only)	3-83
3.7	Fixed Function Keys	3-84
3.7.1	Programmable Call Forwarding Key (V2)	3-84
3.7.2	Programmable Call Forwarding Key (V2R1)	3-86
3.7.3	Programmable Release Key (V2R1)	3-87
3.7.4	Programmable Voice Recognition Key (V2R1)	3-88
3.7.5	Programmable Redial Key (V2R1)	3-88
3.8	Key Modules	3-90
3.9	Dialing	3-92
3.9.1	Canonical Dialing Configuration	3-92
3.9.2	Canonical Dial Lookup	3-96

## Content

3.9.3 Dial Plan (V2) . . . . .	3-98
3.10 Distinctive Ringing (V2) . . . . .	3-100
3.11 Transferring Phone Software, Application and Media Files . . . . .	3-102
3.11.1 FTP/HTTPS Server . . . . .	3-102
3.11.2 Common FTP/HTTPS Settings . . . . .	3-102
3.11.3 Phone Software . . . . .	3-104
3.11.3.1 FTP/HTTPS Access Data . . . . .	3-104
3.11.3.2 Download/Update Phone Software . . . . .	3-106
3.11.4 Music on Hold . . . . .	3-107
3.11.4.1 FTP/HTTPS Access Data . . . . .	3-107
3.11.4.2 Download Music on Hold . . . . .	3-109
3.11.5 Picture Clips . . . . .	3-110
3.11.5.1 FTP/HTTPS Access Data . . . . .	3-110
3.11.5.2 Download Picture Clip . . . . .	3-112
3.11.6 LDAP Template . . . . .	3-113
3.11.6.1 FTP/HTTPS Access Data . . . . .	3-113
3.11.6.2 Download LDAP Template . . . . .	3-115
3.11.7 Logo . . . . .	3-116
3.11.7.1 FTP/HTTPS Access Data . . . . .	3-116
3.11.7.2 Download Logo . . . . .	3-118
3.11.8 Screensaver . . . . .	3-119
3.11.8.1 FTP/HTTPS Access Data . . . . .	3-119
3.11.8.2 Download Screensaver . . . . .	3-121
3.11.9 Ringer File . . . . .	3-122
3.11.9.1 FTP/HTTPS Access Data . . . . .	3-123
3.11.9.2 Download Ringer File . . . . .	3-125
3.11.10 HPT Dongle Key . . . . .	3-126
3.11.10.1 FTP/HTTPS Access Data . . . . .	3-126
3.11.10.2 Download Dongle Key File . . . . .	3-128
3.12 Corporate Phonebook: Directory Settings . . . . .	3-129
3.12.1 LDAP . . . . .	3-129
3.13 Speech . . . . .	3-132
3.13.1 RTP Base Port . . . . .	3-132
3.13.2 Codec Preferences . . . . .	3-133
3.13.3 Audio Settings . . . . .	3-135
3.14 Applications . . . . .	3-136
3.14.1 XML Applications/Xpressions (OpenStage 60/80) . . . . .	3-136
3.14.1.1 Setup/Configuration . . . . .	3-136
3.14.1.2 HTTP Proxy . . . . .	3-140
3.14.1.3 Modify an Existing Application . . . . .	3-142
3.14.1.4 Remove an Existing Application . . . . .	3-143
3.14.1.5 Application Start by Programmable Key . . . . .	3-144
3.15 Password . . . . .	3-145
3.16 Troubleshooting: Lost Password . . . . .	3-146

3.17 Restart Phone .....	3-147
3.18 Factory Reset .....	3-148
3.19 SSH - Secure Shell Access (V2) .....	3-149
3.20 Display License Information .....	3-150
3.21 Diagnostics .....	3-151
3.21.1 Display General Phone Information .....	3-151
3.21.2 LAN Monitoring .....	3-152
3.21.3 LLDP-MED .....	3-153
3.21.4 IP Tests .....	3-155
3.21.5 Process and Memory Information .....	3-156
3.21.6 Fault Trace Configuration .....	3-158
3.21.7 Easy Trace Profiles .....	3-166
3.21.7.1 Bluetooth Handsfree .....	3-166
3.21.7.2 Bluetooth Headset .....	3-166
3.21.7.3 Call Connection .....	3-167
3.21.7.4 Call Log .....	3-167
3.21.7.5 LDAP Phonebook .....	3-168
3.21.7.6 DAS Connection .....	3-168
3.21.7.7 DLS Data Errors .....	3-168
3.21.7.8 802.1x .....	3-169
3.21.7.9 Help Application .....	3-169
3.21.7.10 Sidecar .....	3-169
3.21.7.11 Key Input .....	3-170
3.21.7.12 LAN Connectivity .....	3-170
3.21.7.13 Local Phonebook .....	3-170
3.21.7.14 Messaging .....	3-171
3.21.7.15 Mobility .....	3-171
3.21.7.16 Phone administration .....	3-171
3.21.7.17 Server based applications .....	3-172
3.21.7.18 Speech .....	3-172
3.21.7.19 Tone .....	3-172
3.21.7.20 USB Backup/Restore .....	3-172
3.21.7.21 Voice Dialling .....	3-173
3.21.7.22 Web Based Management .....	3-173
3.21.7.23 No Tracing for All Services .....	3-174
3.21.8 Bluetooth Advanced Traces (V2) .....	3-175
3.21.9 QoS Reports .....	3-176
3.21.9.1 Conditions and Thresholds for Report Generation .....	3-176
3.21.9.2 View Report .....	3-179
3.21.10 Core dump .....	3-183
3.21.11 Remote Tracing - Syslog .....	3-184
3.21.12 HPT Interface (For Service Staff) .....	3-185
3.22 Bluetooth .....	3-186
<b>4 Examples and HowTos .....</b>	<b>4-1</b>

## Content

4.1 Canonical Dialing .....	4-1
4.1.1 Canonical Dialing Settings .....	4-1
4.1.2 Canonical Dial Lookup .....	4-2
4.1.2.1 Conversion examples .....	4-3
4.2 How to Create Logo Files for OpenStage Phones .....	4-5
4.2.1 For OpenStage 40 .....	4-5
4.2.2 For OpenStage 60/80 .....	4-6
4.3 How to Set Up the Corporate Phonebook (LDAP) .....	4-9
4.3.1 Prerequisites: .....	4-9
4.3.2 Create an LDAP Template .....	4-10
4.3.3 Load the LDAP Template into the Phone .....	4-13
4.3.4 Configure LDAP Access .....	4-14
4.3.5 Test .....	4-14
4.4 An LLDP-Med Example .....	4-17
4.5 Dial Plan (V2) .....	4-19
4.5.1 Introduction .....	4-19
4.5.2 Dial Plan Syntax .....	4-19
4.5.3 How To Set Up And Deploy A Dial Plan .....	4-21
<b>5 Technical Reference .....</b>	<b>5-1</b>
5.1 Menus .....	5-1
5.1.1 Web Interface Menu .....	5-1
5.1.1.1 Menu Structure .....	5-1
5.1.1.2 Web Pages .....	5-4
5.1.2 Local Phone Menu .....	5-40
5.2 Troubleshooting: Error Codes .....	5-50
<b>Glossary .....</b>	<b>6-1</b>
<b>Index .....</b>	<b>7-1</b>



# 1 Overview

## 1.1 Important Notes



Do not operate the equipment in environments where there is a danger of explosions.



For safety reasons the phone should only be operating using the supplied plug in power unit.



Use only original Siemens accessories!

Using other accessories may be dangerous, and will invalidate the warranty, extended manufacturer's liability and the CE mark.



Never open the telephone or add-on equipment. If you encounter any problems, contact System Support.

Installation requirement for USA, Canada, Norway, Finland and Sweden: Connection to networks which use outside cables is prohibited. Only in-house networks are permitted.



### **For USA and Canada only:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This product is a UL Listed Accessory, I.T.E., in U.S.A. and Canada.

This equipment also complies with the Part 68 of the FCC Rules and the Industrie Canada CS-03.

## Overview

### Maintenance Notes

## 1.2 Maintenance Notes



Do not operate the telephone in environments where there is a danger of explosions.



Use only original Siemens accessories. Using other accessories may be dangerous, and will invalidate the warranty and the CE mark.



Never open the telephone or a key module. If you encounter any problems, contact System Support.

## 1.3 About the Manual

The instructions within this manual will help you in administering and maintaining the OpenStage phone. The instructions contain important information for safe and proper operation of the phones. Follow them carefully to avoid improper operation and get the most out of your multi-function telephone in a network environment.

This guide is intended for service providers and network administrators who administer VoIP services using the OpenStage phone and who have a fundamental understanding of SIP. The tasks described in this guide are not intended for end users. Many of these tasks affect the ability of a phone to function on the network and require an understanding of IP networking and telephony concepts.

These instructions are laid out in a user-oriented manner, which means that you are led through the functions of the OpenStage phone step by step, wherever expedient. For the users, a separate manual is provided.

You can find further information on the official Siemens Enterprise Communications website (<http://www.enterprise-communications.siemens.com>) and on the Siemens Enterprise Wiki (<http://wiki.siemens-enterprise.com>).

## 1.4 Conventions for this Document

The terms for parameters and functions used in this document are derived from the web interface (WBM). In some cases, the the phone's local menu uses shorter, less specific terms and abbreviations. In a few cases the terminologies differ in wording. If so, the local menu term is added with a preceding "/".

For the parameter described in this document, a WBM screenshot and the path in the local phone menu is provided. All WBM screenshots are taken from OpenStage 60/80. As some WBM input masks have been changed with firmware updates, the screenshots are selected after the following rules:

- If a later version contains more or less parameters compared to previous software versions, the screenshot of the older version is shown.
- If the title of a mask (e.g. "Pixel saver" vs. "Energy saving") or the name of a parameter (e.g. "Time Zone" vs. "DST zone") has changed, the later version is shown.
- If a parameter has moved from one mask to another, both older and later versions are shown. The same is true for the local menu paths.

The focus of this document comprehends the software versions from V1R5 onwards.

## Overview

### The OpenStage Family

## 1.5 The OpenStage Family

### 1.5.1 OpenStage 60/80



1	With the <b>handset</b> , the user can pick up and dial calls in the usual manner.
2	The <b>graphic display</b> provides intuitive support for telephone operation.
3	The <b>mode keys</b> provide easy access to the phone's applications.
4	With the <b>TouchGuide</b> , the user/administrator can navigate in the phone functions, applications, and configuration menus.
5	The <b>free programmable keys</b> enable the user to customize the telephone in line with his/her personal needs by assigning individual phone numbers and functions.
6	The <b>fixed function keys</b> provide access to frequently used telephony functions.
7	With the <b>audio keys</b> , the user can control the audio settings.
8	With the <b>TouchSlider</b> , the user can adjust the volume, e.g. of ringtones.
9	Inbound calls are visually signaled via the <b>call display</b> .
10	The <b>keypad</b> is used for entering phone numbers and text.

## 1.5.2 OpenStage 40



1	With the <b>handset</b> , the user can pick up and dial calls in the usual manner.
2	The <b>graphic display</b> provides intuitive support for telephone operation.
3	The <b>fixed function keys</b> provide access to frequently used telephony functions.
4	With the <b>5-way navigator</b> , the user/administrator can navigate in the various phone functions, applications, and configuration menus.
5	The <b>free programmable keys</b> enable the user to customize the telephone in line with his/her personal needs by assigning individual phone numbers and functions.
6	With the <b>audio keys</b> , the user can control the audio settings.
7	Inbound calls are visually signaled via the <b>call display</b> .
8	The <b>keypad</b> is used for entering phone numbers and text.

## Overview

### The OpenStage Family

#### 1.5.3 OpenStage 20



1	With the <b>handset</b> , the user can pick up and dial calls in the usual manner.
2	The <b>display</b> provides intuitive support for telephone operation.
3	The <b>fixed function keys</b> provide access to frequently used telephony functions.
4	With the <b>audio keys</b> , the user can control the audio settings.
5	With the <b>3-way navigator</b> , the user/administrator can navigate in the various phone functions, applications, and configuration menus.
6	The <b>keypad</b> is used for entering phone numbers and text.

## 1.5.4 OpenStage 15



1	With the <b>handset</b> , the user can pick up and dial calls in the usual manner.
2	The <b>display</b> provides intuitive support for telephone operation.
3	With the <b>audio keys</b> , the user can control the audio settings.
4	The <b>fixed function keys</b> provide access to frequently used telephony functions.
5	The <b>keypad</b> is used for entering phone numbers and text.
6	With the <b>navigation keys</b> , the user/administrator can navigate in the various phone functions, applications, and configuration menus.
7	The <b>free programmable keys</b> enable the user to customize the telephone in line with his/her personal needs by assigning individual phone numbers and functions.

## Overview

### Administration Interfaces

## 1.6 Administration Interfaces

You can configure the OpenStage phone by using any of the methods described in this chapter.

### 1.6.1 Web-based Management (WBM)

This method employs a web browser for communication with the phone via HTTP or HTTPS. It is applicable for remote configuration of individual IP phones in your network. Direct access to the phone is not required.



To use this method, the phone must first obtain IP connectivity.  
The remote configuration is not applicable while the phone is not in idle mode.

### 1.6.2 DLS (Deployment Service)

The Deployment Service (DLS) is a HiPath Management application for administering phones and soft clients in both HiPath and non-HiPath networks. It has a Java-supported, web-based user interface, which runs on an internet browser. For further information, please refer to the Deployment Service Administration Guide.

### 1.6.3 Local Phone Menu

This method provides direct configuration of an the OpenStage phone. Direct access to the phone is required.



As long as the IP connection is not properly configured, you have to use this method to set up the phone.



## **2 Startup**

### **2.1 Prerequisites**

The OpenStage phone acts as an endpoint client on an IP telephony network, and has the following network requirements:

- An Ethernet connection to a network with SIP clients and servers.



Only use **switches** in the LAN, to which the OpenStage phone is connected. An operation at hubs can cause serious malfunctions in the hub and in the whole network.

- Asterisk SIP server.
- An FTP Server for file transfer, e. g. firmware, configuration data, application software.
- A DHCP (Dynamic Host Configuration Protocol) server (recommended).
- DLS (Deployment Service) for advanced configuration and software deployment (recommended).

## Startup

### Assembling and Installing the Phone

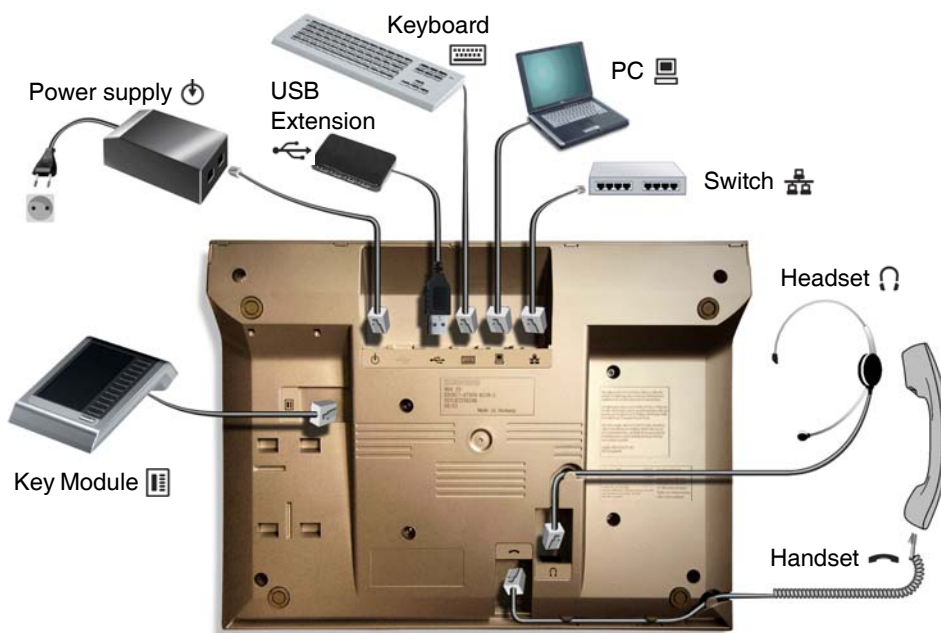
## 2.2 Assembling and Installing the Phone

### 2.2.1 Shipment

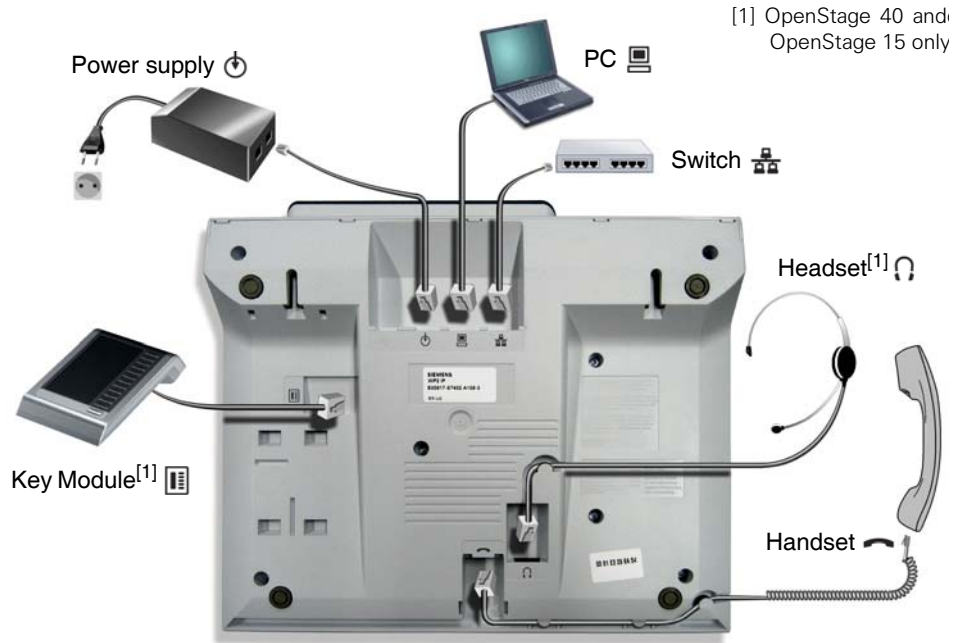
- Phone
- Handset
- Handset cable
- Subpackage:
  - Document "Information and Important Operating Procedures"
  - Emergency number sticker
- Emergency Number Sticker

### 2.2.2 Connectors at the bottom side

#### OpenStage 60



**OpenStage 40 (OpenStage 15 and 20 similar, except <sup>1)</sup>)**



## Startup

### *Assembling and Installing the Phone*

#### **2.2.3 Assembly**

##### **1. Handset**


Insert the plug on the long end of the handset cable into the jack on the base of the telephone and press the cable into the groove provided for it. Next, insert the plug on the short end of the handset cable into the jack on the handset.

##### **2. Emergency Number Sticker**

Write your telephone number and those for the fire and police departments on the included label and attach it to the telephone housing underneath the handset (see arrow).



## 2.2.4 Connecting the Phone

1. Plug the LAN cable into the connector  at the bottom of the telephone and connect the cable to the LAN resp. switch. If PoE (Power over Ethernet) is to be used, the PSE (Power Sourcing Equipment) must meet the IEEE 802.3af specification.

For details about the required power supply, see the following table:


Model	Power Consumption/Supply
OpenStage 15 <sup>1</sup>	Power Class 1
OpenStage 20 E	Power Class 1
OpenStage 20	Power Class 1
OpenStage 20 G	Power Class 2
OpenStage 40 <sup>2</sup>	Power Class 2
OpenStage 40 + 2nd Key Module	Power Class 2
OpenStage 40 G <sup>2</sup>	Power Class 3
OpenStage 40 G + 2nd Key Module	Power Class 3
OpenStage 60/80 <sup>3</sup>	Power Class 3
OpenStage 60/80 + 2nd Key Module	Power Class 3
OpenStage 60/80 G <sup>3</sup>	Power Class 3
OpenStage 60/80 G + 2nd Key Module	External power unit required

1 Includes 1 Key Module 15.


2 Includes 1 Key Module.

3 Includes 1 Key Module + USB-Extension with Acoustic Unit.

2. Only if Power over Ethernet (PoE) is **NOT** supported:








The order no. for the plug-in power supply is region specific:  
 EU: C39280-Z4-C510  
 UK: C39280-Z4-C512  
 USA: C39280-Z4-C511

Plug the power supply unit into the mains. Connect the plug-in power supply unit to the  jack at the bottom of the phone.

## Startup

### *Assembling and Installing the Phone*

3. If applicable, connect the following optional jacks:

-  LAN connection to PC
-  Headset (accessory)
-  Connection to add-on device (accessory)
-  Connection to external keyboard (accessory)
-  USB master for connection to a USB device (e. g. accessory USB Acoustic Adapter)



**To prevent damage on the OpenStage phone, connect an USB stick using the adapter cable C39195-Z7704-A5.**



**Do not connect a USB hub to the phone's USB port, as this may lead to stability problems.**

## 2.3 Quick Start

This section describes a typical case: the setup of an OpenStage endpoint in an environment using a DHCP server and the web interface. For different scenarios, cross-references to the corresponding section of the administration chapter are given.



Alternatively, the DLS (Deployment Service) administration tool can be used. Its Plug & Play functionality allows to provide the phone with configuration data by assigning an existing data profile to the phone's MAC address or E.164 number. For further information, see the Deployment Service Administration Manual.



Any settings made by a DHCP server are not configurable by other configuration tools.

### 2.3.1 Access the Web Interface (WBM)

1. Open your web browser and enter the appropriate URL, which can be an IP address or a DNS name, for example:

`https://192.168.1.15` or `http://myphone.phones` (firmware V2)

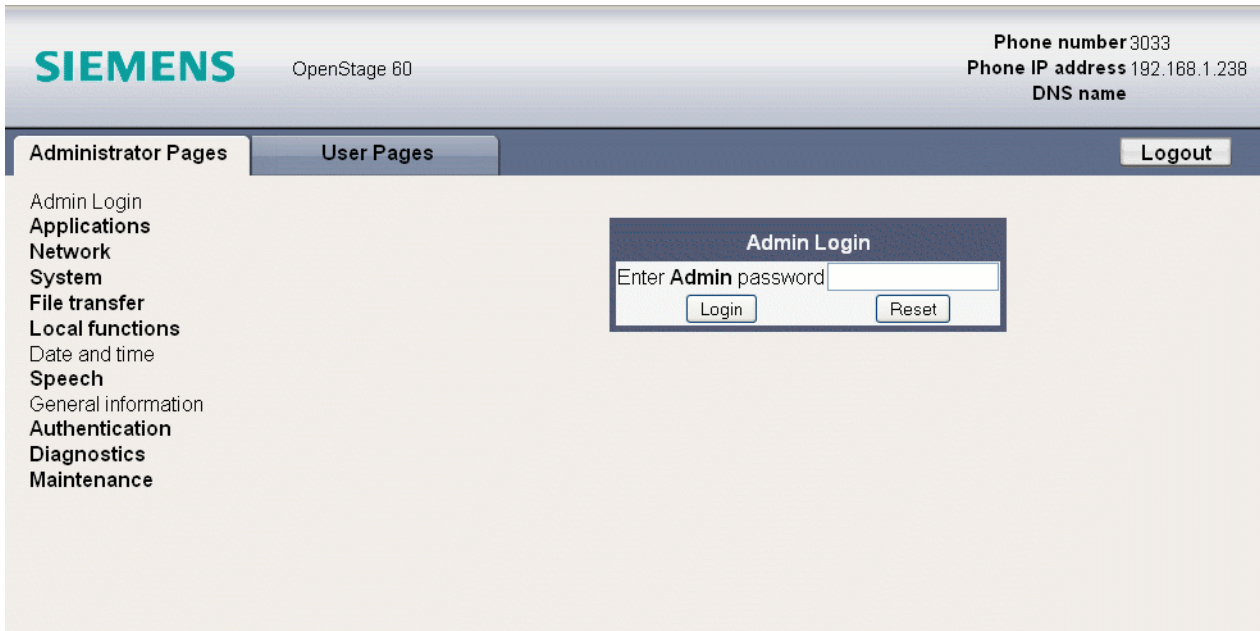
For configuring the phone's DNS name, which is possible which firmware V2, please refer to Section 3.3.6.3, "Terminal Hostname (V2)".

The phone uses the standard port for HTTPS, 443.

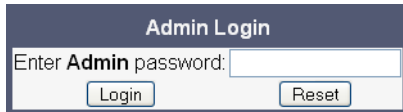
## Startup

### Quick Start

If the browser displays a certificate notification, accept it. The start page of the web interface appears. In the upper right corner, the phone number, the phone's IP address, as well as the DNS name assigned to the phone are displayed. The left corner contains the user menu tree.



2. Click on the tab "Administrator Pages". In the dialog box, enter the admin password:



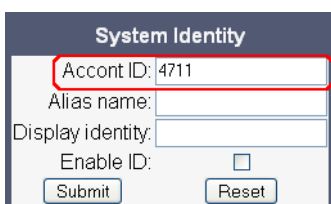
3. The administration main page opens. The left column contains the menu tree. If you click on an item which is printed in normal style, the corresponding dialog opens in the center of the page. If you click on an item printed in bold letters, a sub-menu opens in the right column.



## 2.3.2 Set the Terminal Number

If the user and administrator menus are needed in the course of setup, the terminal number, which by default is identical with the extension number, must be configured first. When the phone is in delivery status, the terminal number input form is presented to the user/administrator right after booting, unless the Plug&Play facility of the DLS is used. For further information about this setting, please refer to Section 3.4.1.1, "Terminal Identity". With the WBM, the terminal number is configured as follows:

In the left column, select System > System Identity to open the "System Identity" dialog. Enter the terminal number, i. e. the SIP name / phone number.



The screenshot shows a dialog box titled "System Identity". It contains the following fields and controls:

- Account ID:** 4711 (highlighted with a red box)
- Alias name:** (empty text field)
- Display identity:** (empty text field)
- Enable ID:**
- Buttons:** Submit and Reset

## 2.3.3 Basic Network Configuration

For basic functionality, the following parameters must be provided, preferably by DHCP:

- **IP Address:** IP Address for the phone.
- **Subnet Mask (option #1):** Subnet mask of the phone.
- **Default Route (option #3 "Router"):** IP Address of the default gateway which is used for connections beyond the subnet.
- **DNS IP Addresses (option #6 "Domain Server"):** IP Addresses of the primary and secondary DNS servers.

If no DHCP server is present, see Section 3.3.3, "IP Address - Manual Configuration" for IP address and subnet mask, and Section 3.3.4, "Default Route/Gateway" for the default route.

## 2.3.4 Date and Time / SNTP

An SNTP (Simple Network Time Protocol) server provides the current date and time for network clients. The IP address of an SNTP server can be given by DHCP.

In order to provide the correct time, it is required to give the timezone offset, i.e. the shift in hours to be added to the UTC time provided by the SNTP server.

The following DHCP options are required:

- **SNTP IP Address (option #42 "NTP Servers"):** IP Address or hostname of the SNTP server to be used by the phone.
- **Timezone offset (option #2 "Time Offset"):** Offset in seconds in relationship to the UTC time provided by the SNTP server.

For manual configuration of date and time see Section 3.4.4, "Date and Time".

## Startup

### Quick Start

#### 2.3.5 SIP Server Address

The IP Address or hostname of the SIP server can be provided by DHCP.

The option's name and code are as follows:

- **option #120 "SIP Servers DHCP Option"**

For manual configuration of the SIP server address see Section 3.4.5.1, "SIP Addresses".

#### 2.3.6 Extended Network Configuration

To have constant access to other subnets, you can enter a total of two more network destinations. For each further domain/subnet you wish to use, first the IP address for the destination, and then that of the router must be given. The option's name and code are as follows:

- **option #33 "Static Routing Table"**

For manual configuration of specific/static routing see Section 3.3.5, "Specific IP Routing".

Also the DNS domain wherein the phone is located can be specified by DHCP. The option's name and code are as follows:

- **option #15 "Domain Name"**

For manual configuration of the DNS domain name see Section 3.3.6.1, "DNS Domain Name".

#### 2.3.7 Vendor Specific: VLAN Discovery And DLS Address



The VLAN ID can also be configured by LLDP-MED (see Section 3.2.2.1, "").

If the phone is to be located in a VLAN (Virtual LAN), a VLAN ID must be assigned. In case the VLAN shall be provided by DHCP, **VLAN Discovery** must be set to "DHCP" (see Section 3.2.2.1, "Automatic VLAN discovery using DHCP").

If a DLS (Deployment Service) server is in use, its IP address must be provided. It is recommended to configure the DLS server address by DHCP, as this method enables full Plug & Play: having received the DLS address from DHCP, the phone will contact the DLS during startup. Provided that the DLS is configured appropriately, it will send all necessary configuration data to the phone. Additionally, this method is relevant to security, as it ensures the authenticity of the DLS server.

For manual configuration of the DLS server address see Section 3.3.7, "Configuration & Update Service (DLS)".

For the configuration of vendor-specific settings by DHCP, there are two alternative methods: 1) the use of a vendor class, or 2) the use of DHCP option 43.

### 2.3.8 Example DHCP server configuration

The following description demonstrates by example how a DHCP server can be configured in order to build up a working infrastructure for OpenStage phones.

The configuration example is tested with ISC DHCP server version 3 running on Debian Linux (packagename: dhcp3-server).

On startup, the OpenStage phone sends a DHCP discovery message which contains the `vendor-class-identifier` option. The fixed value is `OptiIpPhone`. This identifier is used by the DHCP server to send a specified set of sub-options to each OpenStage phone by means of vendor encapsulated options. The `vendor-encapsulated-options` option allows for defining custom-made options in either a single series of bytes or a sequence of parameters which is structured as follows: 1) single-byte vendor-specific option code; 2) single-byte length indication for the option data (the length does not include itself or the option code); 3) the data itself in as many bytes of data as are specified in the length indication.

The value of the `vendor-encapsulated-options` option can either be set directly by coding the bytes in hexadecimal notation, or, preferably, by using the `option space` statement. This statement is available with ISC DHCP 3.0.

To assign the specific `vendor-encapsulated-options` to the appropriate devices, the use of classes is recommended. In the example, the class `vendor-classes` is divided into sub-classes automatically for each `vendor-class-identifier` option that is received from the clients. As OpenStage phones send the value `OptiIpPhone`, the specifications for these phones are defined in the corresponding sub-class.

## Startup

### Quick Start

#### Example dhcpd.conf

```
# General configuration for all clients in the subnet
subnet 192.168.2.0 netmask 255.255.255.0 {
    option domain-name-servers 192.168.2.2;
    option broadcast-address 192.168.2.255;
    option routers 192.168.2.251;
    option subnet-mask 255.255.255.0;
    option domain-name "phones.intranet";
    option ntp-servers 192.43.244.18;
    option time-offset 3600;
    default-lease-time 864000;
    max-lease-time 8640000;
}

# Set up an option space to contain the vendor-encapsulated options
option space OpenStage;
option OpenStage.vendor code 1 = string;
option OpenStage.vlanid code 2 = unsigned integer 32;
option OpenStage.dls code 3 = string;

# Each vendor-class-identifier will constitute a class
class "vendor-classes" {
    match option vendor-class-identifier;
}

# Specifications for OpenStage phones
subclass "vendor-classes" "OptiIpPhone" {
    vendor-option-space OpenStage;
    option OpenStage.vendor "Siemens";
    option OpenStage.vlanid 4;
    option OpenStage.dls "sdlp://192.168.2.103:18443";
    option sip-server 192.168.2.117;
}
```

## 2.3.9 Registering at Asterisk

For registration at the Asterisk SIP server, a SIP user ID and password must be provided by the phone. The following procedure describes the configuration using the web interface (see Section 2.3.1, “Access the Web Interface (WBM)”); if the web interface is not applicable, please refer to Section 3.4.6, “Authenticated Registration”) for configuration via the local menu.

1. In the administration menu, select System > Registration. The **Registration** dialog opens.

The screenshot shows the 'Registration' dialog box with the following fields and values:

- SIP Addressed:**
  - SIP server address: 192.168.1.148
  - SIP registrar address: 192.168.1.148
  - SIP gateway address: (empty)
- SIP Session:**
  - Session timer enabled:
  - Session duration (seconds): 3600
  - Registration timer (seconds): 3600
  - Server type: HiQ8000
  - Realm: (empty)
  - User ID: (empty)
  - Password: (empty)
- SIP Survivability:**
  - Backup registration allowed:
  - Backup proxy address: (empty)
  - Backup registration timer (seconds): 3600
  - Backup transport: UDP
  - Backup OBP flag:

Buttons: Submit, Reset

2. Make sure that **SIP server address** and **SIP registrar address** contain the IP address of your Asterisk server. If not provided by DHCP or a provisioning service, enter the appropriate values. If the phone is to register with a gateway, enter the appropriate **SIP Gateway address**.
3. In the **Server type** field, select "other".
4. In **Realm**, enter the SIP realm the targeted user/password combination refers to.
5. In the **User ID** and **Password** fields, enter the user name/password combination for the phone.



## 3 Administration

This chapter describes the configuration of every parameter available on the OpenStage phones. For access via the local phone menu, see the following; for access using the web interface, please refer to Section 2.3.1, "Access the Web Interface (WBM)".




### 3.1 Access via Local Phone



The data entered in input fields is parsed and controlled by the phone. Thus, data is accepted only if it complies to the value range.

#### 1. Access the Administration Menu

##### **OpenStage 60/80:**

The menu key  toggles between the Settings menu, the Applications menu, and the applications currently running. Press the  key repeatedly until the "Settings" tab is active. (The  key toggles between the Settings menu, the Applications menu, and the applications currently running.)

##### **OpenStage 15/20/40:**

Press the keys , , and  consecutively to select the administration menu.

#### 2. Enter Password

When the Admin menu is active, you will be prompted to enter the administrator password. The default admin password is "123456". It is highly recommended to change the password (see Section 3.15, "Password") after your first login.

For entering passwords with non-numeric characters, please consider the following:

By default, password entry is in numeric mode. For changing the mode, press the # key once or repeatedly, depending on the desired character. The # key cycles around the input modes as follows:

(Abc) -> (abc) -> (123) -> (ABC) -> back to start.

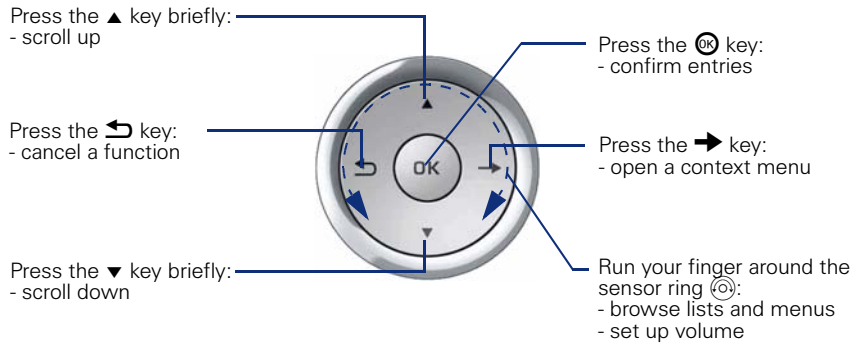
## Administration

### Access via Local Phone

## 3. Navigate within the Administration Menu

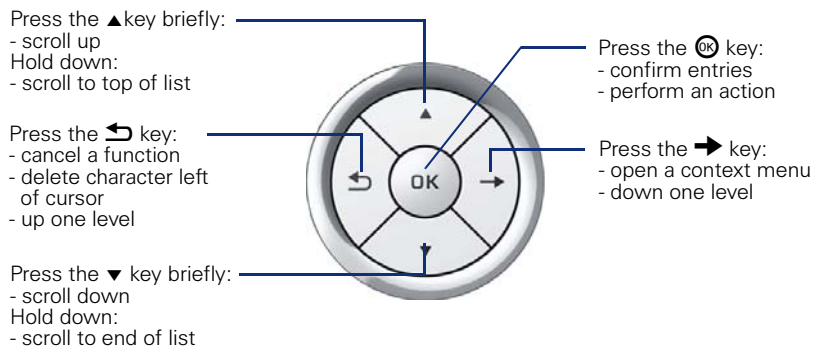
### OpenStage 60/80

Use the TouchGuide to navigate and execute administrative actions in the administration menu.



### OpenStage 40

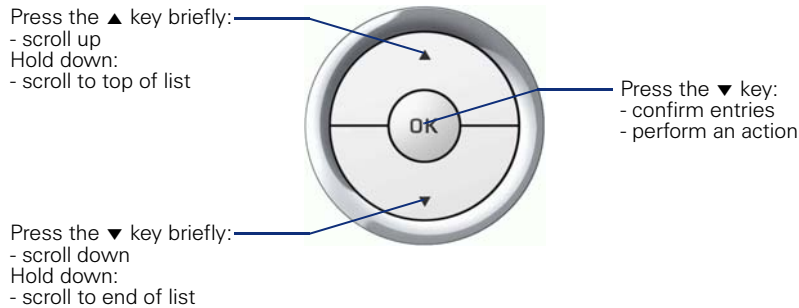
Use the 5-way navigator to navigate and execute administrative actions in the administration menu.





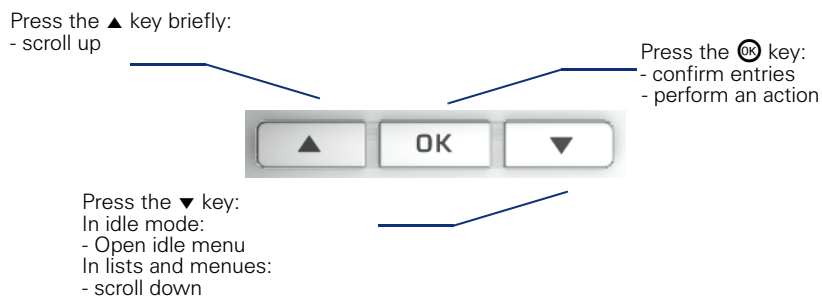
## OpenStage 20

Use the 3-way navigator to navigate and execute administrative actions in the administration menu.



## OpenStage 15

Use the navigation keys to navigate and execute administrative actions in the administration menu.



### 4. Select a parameter

If a parameter is set by choosing a value from a selective list, an arrow symbol appears in the parameter field that has the focus. Press the key to enter the selective list. Use the Sensor Wheel resp. the ▲ and ▼ key to scroll up and down in the selective list. To select a list entry, press the Ⓞ key.

### 5. Enter the parameter value

For selecting numbers and characters, you can use special keys. See the following table:

Key	Function
✱ ◊	Switch to punctuation and special characters.
##-o	Toggle between lowercase characters, uppercase characters, and digits in the following order: (Abc) -> (abc) -> (123) -> (ABC) -> back to start.

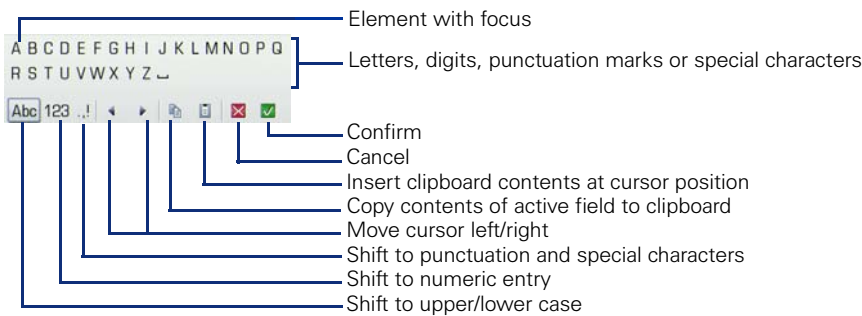
## Administration

### Access via Local Phone

#### OpenStage 60/80

If a parameter is set by entering a number or character data, the onscreen keypad is used. Press the **OK** key to enter the editor. Within the editor, solely use the key numbers or the Sensor Wheel for selecting numbers, characters, or groups of characters. The **←** key deletes one character in the input field, and the **→** key moves the cursor to the OK field.

The following figure describes the elements of the onscreen keypad and their functions:



Additionally, you can use the following keys on the keypad as shortcuts for the selection of character groups

Element	Function
	Switch to punctuation and special characters.
	Toggle between lowercase characters, uppercase characters, and digits.

#### OpenStage 15/20/40

With the OpenStage 20/40, use the keypad for entering parameters. With the 3 way/5 way navigator, you can enter, delete, copy and paste characters and numbers as well as navigate within an entry and toggle the input mode.

#### 6. Save and exit

When you are done, select **Save & exit** and press **OK**.

## 3.2 LAN Settings

### 3.2.1 LAN Port Settings

The OpenStage phone provides an integrated switch which connects the LAN, the phone itself and a PC port. By default, the switch will auto negotiate transfer rate (10/100 Mb/s, 1000 Mb/s with OpenStage 20/40/60/80 G) and duplex method (full or half duplex) with whatever equipment is connected. Optionally, the required transfer rate and duplex mode can be specified manually using the **LAN port speed** parameter.



In the default configuration, the LAN port supports automatic detection of cable configuration (pass through or crossover cable) and will reconfigure itself as needed to connect to the network. If the phone is set up to manually configure the switch port settings, the cable detection mechanism is disabled. In this case, care must be taken to use the correct cable type.

The PC Ethernet port is controlled by the **PC port mode** parameter. If set to "Disabled", the PC port is inactive; if set to "Enabled", it is active. If set to "Mirror", the data traffic at the LAN port is mirrored at the PC port. This setting is for diagnostic purposes. If, for instance, a PC running Ethereal/Wireshark is connected to the PC port, all network activities at the phone's LAN port can be captured.

When **PC port autoMDIX** is enabled, the switch determines automatically whether a regular MDI connector or a MDI-X (crossover) connector is needed, and configures the connector accordingly.

#### Data required

- **LAN port speed / LAN port type:** Settings for the ethernet port connected to a LAN switch.  
Value range: "Automatic," "10 Mbps half duplex", "10 Mbps full duplex", "100 Mbps half duplex", "100 Mbps full duplex", and, additionally, for OpenStage 20/40/60/80 G, "1 Gbps full duplex"  
Default: "Automatic"
- **PC port speed / PC port type:** Settings for the ethernet port connected to a PC.  
Value range: "Automatic," "10 Mbps half duplex", "10 Mbps full duplex", "100 Mbps half duplex", "100 Mbps full duplex", and, additionally, for OpenStage 20/40/60/80 G, "1 Gbps full duplex"  
Default: "Automatic"
- **PC port mode / PC port status:** Controls the PC port.  
Value range: "disabled", "enabled", "mirror"  
Default: "disabled"

## Administration

### LAN Settings

- **PC port autoMDIX:** Switches between MDI and MDI-X automatically.  
Value range: "On", "Off"  
Default: "Off"

### Administration via WBM

Network > Port configuration

Port configuration	
SIP server	5060
SIP registrar	5060
SIP gateway	5060
SIP local	5060
Backup proxy	5060
RTP base	5010
Download server (default)	21
LDAP server	389
HTTP proxy	0
LAN port speed	Automatic
PC port speed	Automatic
PC port mode	disabled
PC port autoMDIX	<input type="checkbox"/>

Submit      Reset

### Administration via Local Phone

Administration  
├─ Network  
│ └─ Port Configuration  
│ ├── LAN port type  
│ ├── PC port status  
│ ├── PC port type  
│ └─ PC port autoMDIX

### 3.2.2 VLAN

VLAN (Virtual Local Area Network) is a technology that allows network administrators to partition one physical network into a set of virtual networks (or broadcast domains).

Physically partitioning the LAN into separate VLANs allows a network administrator to build a more robust network infrastructure. A good example is a separation of the data and voice networks into data and voice VLANs. This isolates the two networks and helps shield the endpoints within the voice network from disturbances in the data network and vice versa.



The implementation of a voice network based on VLANs requires the network infrastructure (the switch fabric) to support VLANs.

In a layer 1 VLAN, the ports of a VLAN-aware switch are assigned to a VLAN statically. The switch only forwards traffic to a particular port if that port is a member of the VLAN that the traffic is allocated to. Any device connected to a VLAN-assigned port is automatically a member of this VLAN, without being a VLAN aware device itself. If two or more network clients are connected to one port, they cannot be assigned to different VLANs. When a network client is moving from one switch to another, the switches' ports have to be updated accordingly by hand.

With a layer 2 VLAN, the assignment of VLANs to network clients is realized by the MAC addresses of the network devices. In some environments, the mapping of VLANs and MAC addresses can be stored and managed by a central database. Alternatively, the VLAN ID, which defines the VLAN whereof the device is a member, can be assigned directly to the device, e. g. by DHCP. The task of determining the VLAN for which an Ethernet packet is destined is carried out by VLAN tags within each Ethernet frame. As the MAC addresses are (more or less) wired to the devices, mobility does not require any administrator action, as opposed to layer 1 VLAN. It is possible to assign one device, i.e. one MAC address, to different VLANs.

It is important that every switch connected to a PC is VLAN-capable. This is also true for the integrated switch of the OpenStage. The phone must be configured as a VLAN aware endpoint if the phone itself is a member of the voice VLAN, and the PC connected to the phone's PC port is a member of the data VLAN.

There are 3 ways for configuring the VLAN ID:

- Manually
- By DHCP
- By LLDP-MED

## Administration

### LAN Settings

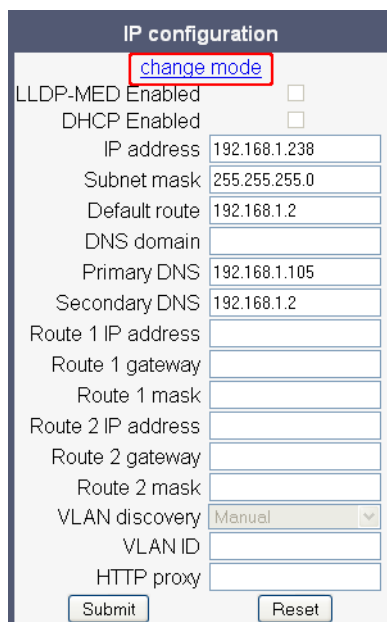
#### 3.2.2.1 Automatic VLAN discovery using DHCP

To automatically discover a VLAN ID using DHCP, the phone must be configured as DHCP enabled, and **VLAN discovery** mode must be set to "DHCP". This is the default configuration. The DHCP server must be configured to supply the Vendor Unique Option in the correct Siemens VLAN over DHCP format. If a phone configured for VLAN discovery by DHCP fails to discover its VLAN, it will proceed to configure itself from the DHCP within the non-tagged LAN. Under these circumstances, network routing may probably not be correct.

### Administration via WBM

Network > IP configuration

First, click on **change mode**. Afterwards, the **IP configuration mode** dialog opens.



**IP configuration**

[change mode](#)

LLDP-MED Enabled

DHCP Enabled

IP address 192.168.1.238

Subnet mask 255.255.255.0

Default route 192.168.1.2

DNS domain

Primary DNS 192.168.1.105

Secondary DNS 192.168.1.2

Route 1 IP address

Route 1 gateway

Route 1 mask

Route 2 IP address

Route 2 gateway

Route 2 mask

VLAN discovery Manual

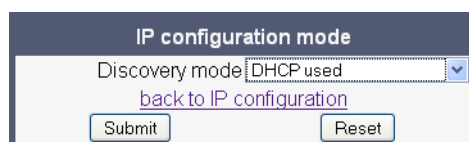
VLAN ID

HTTP proxy

Submit Reset

Network > IP configuration > **change mode**

To enable VLAN discovery by DHCP, select **DHCP used** in the **Discovery mode** menu. Afterwards, click **Submit**.



**IP configuration mode**

Discovery mode DHCP used

[back to IP configuration](#)

Submit Reset

## Administration via Local Phone

To enable VLAN discovery by DHCP, select **DHCP used** in the **Discovery mode** menu.



### 3.2.2.2 Automatic VLAN discovery using LLDP-MED

As an alternative, the VLAN ID can be configured by the network switch using LLDP-MED (Link Layer Discovery Protocol-Media Endpoint Discovery). If this option is selected, and the switch provides an appropriate TLV (Type-Length-Value) element containing the VLAN ID, this VLAN ID will be used. If no appropriate TLV is received, DHCP will be used for VLAN discovery.

## Administration via WBM

Network > IP configuration

First, click on **change mode**. Afterwards, the **IP configuration mode** dialog opens.

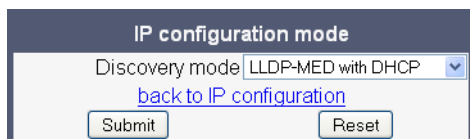
IP configuration	
<a href="#">change mode</a>	
LLDP-MED Enabled	<input type="checkbox"/>
DHCP Enabled	<input type="checkbox"/>
IP address	192.168.1.238
Subnet mask	255.255.255.0
Default route	192.168.1.2
DNS domain	
Primary DNS	192.168.1.105
Secondary DNS	192.168.1.2
Route 1 IP address	
Route 1 gateway	
Route 1 mask	
Route 2 IP address	
Route 2 gateway	
Route 2 mask	
VLAN discovery	Manual
VLAN ID	
HTTP proxy	
Submit	Reset

## Administration

### LAN Settings

Network > IP configuration > **change mode**

To enable VLAN discovery by LLDP-MED, select **LLDP-MED with DHCP** in the **Discovery mode** menu. Afterwards, click **Submit**.



The screenshot shows a web interface titled "IP configuration mode". It features a dropdown menu for "Discovery mode" currently set to "LLDP-MED with DHCP". Below the dropdown is a blue hyperlink labeled "back to IP configuration". At the bottom of the form are two buttons: "Submit" and "Reset".

### Administration via Local Phone

To enable VLAN discovery by DHCP, select **LLDP-MED with DHCP** in the **Discovery mode** menu.

|— Administration  
|— Network  
|— IP Configuration  
|— **Discovery mode**



### 3.2.2.3 Manual configuration of a VLAN ID

To configure layer 2 VLAN manually, first make shure that VLAN discovery is set to "Manual" (see Section 3.2.2.1, "Automatic VLAN discovery using DHCP"). Then, the phone must be provided with a VLAN ID between 1 and 4095. If you mis-configure a phone to an incorrect VLAN, the phone will possibly not connect to the network. In DHCP mode it will behave as though the DHCP server cannot be found, in fixed IP mode no server connections will be possible.

#### Administration via WBM

Network > IP configuration

First, click on **change mode**. Afterwards, the **IP configuration mode** dialog opens.

IP configuration

[change mode](#)

LLDP-MED Enabled

DHCP Enabled

IP address 192.168.1.238

Subnet mask 255.255.255.0

Default route 192.168.1.2

DNS domain

Primary DNS 192.168.1.105

Secondary DNS 192.168.1.2

Route 1 IP address

Route 1 gateway

Route 1 mask

Route 2 IP address

Route 2 gateway

Route 2 mask

VLAN discovery Manual

VLAN ID

HTTP proxy

Submit Reset

Network > IP configuration > **change mode**

To enable manual VLAN configuration, select **Manual settings** in the **Discovery mode** menu. Afterwards, click **Submit**.

IP configuration mode

Discovery mode Manual settings

[back to IP configuration](#)

Submit Reset

## Administration

### LAN Settings

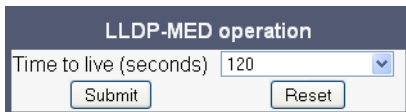
### 3.2.3 LLDP-MED Operation

OpenStage phones support LLDP-MED (Link Layer Discovery Protocol-Media Endpoint Discovery) for auto-configuration and network management. The auto-configurable parameters are VLAN ID (see Section 3.2.2, “VLAN”) and Quality of Service parameters (see Section 3.3.1, “Quality of Service (QoS)”).

The data sent by a network device is stored in neighboring network devices in MIB (Management Information Base) format. In order to keep this information up-to-date, a specific TTL (Time To Live) is specified in LLDP. This value tells a device how long the received information is valid. For OpenStage phones, the value range is **40, 60, 80, 100, 110, 120, 140, 180, 240, 320, 400**.

An example for LLDP-MED operation on OpenStage phones can be found in Section 4.4, “An LLDP-Med Example”.

#### Administration via WBM




#### Administration via Local Phone

```
|__ Administration
  |__ Network
    |__ IP Configuration
      |__ LLDP-MED operation
        |__ TTL
```

### 3.3 IP Network Parameters

#### 3.3.1 Quality of Service (QoS)

The QoS technology based on layer 2 and the two QoS technologies Diffserv and TOS/IP Precedence based on layer 3 are allowing the VoIP application to request and receive predictable service levels in terms of data throughput capacity (bandwidth), latency variations (jitter), and delay.

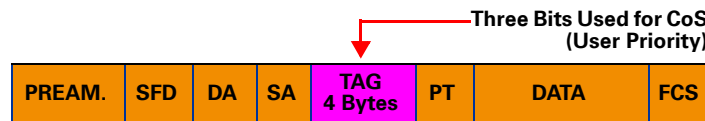


Layer 2 and 3 QoS for voice transmission can be set via LLDP-MED (see Section 3.21.3, “LLDP-MED”). If so, the value can not be changed by any other interface.

##### 3.3.1.1 Layer 2 / 802.1p

QoS on layer 2 is using 3 Bits in the 802.1q/p 4-Byte VLAN tag which has to be added in the Ethernet header.

The CoS (class of service) value can be set from 0 to 7. 7 is describing the highest priority and is reserved for network management. 5 is used for voice (RTP-streams) by default. 3 is used for signaling by default.



#### Data required

- **Layer 2:** Activates or deactivates QoS on layer 2.  
Value range: "Yes", "No"  
Default: "Yes"
- **Layer 2 voice:** Sets the CoS (Class of Service) value for voice data (RTP streams).  
Value range: 0-7  
Default: 5
- **Layer 2 signalling:** Sets the CoS (Class of Service) value for signaling.  
Value range: 0-7  
Default: 3
- **Layer 2 default:** Sets the default CoS (Class of Service) value.  
Value range: 0-7  
Default: 0

## Administration

### IP Network Parameters

## Administration via WBM

### Network > QoS

QoS

Layer 2 :

Layer 2 voice : 5

Layer 2 signalling : 3

Layer 2 default : 0

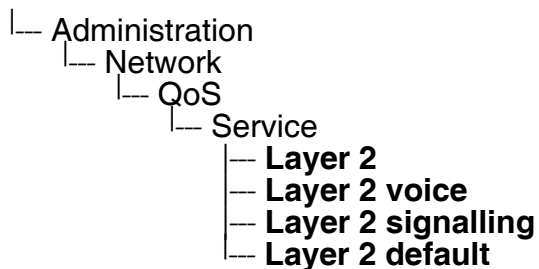
Layer 3 :

Layer 3 voice : BE

Layer 3 signalling : BE

Submit Reset

## Administration via Local Phone



### 3.3.1.2 Layer 3 / Diffserv

Diffserv assigns a class of service to an IP packet by adding an entry in the IP header.

Traffic flows are classified into 3 per-hop behavior groups:

#### 1. Default

Any traffic that does not meet the requirements of any of the other defined classes is placed in the default per-hop behaviour group. Typically, the forwarding has best-effort forwarding characteristics. The DSCP (Diffserv Codepoint) value for Default is "0 0 0 0 0 0".

#### 2. Expedited Forwarding (EF referred to RFC 3246)

Expedited Forwarding is used for voice (RTP streams) by default. It effectively creates a special low-latency path in the network. The DSCP (Diffserv Codepoint) value for EF is "1 0 1 1 1 0".

#### 3. Assured Forwarding (AF referred to RFC 2597)

Assured forwarding is used for signaling messages by default (AF31). It is less stringent than EF in a multiple dropping system. The AF values are containing two digits X and Y (AFX Y), where X is describing the priority class and Y the drop level.

Four classes X are reserved for AFX Y: AF1 Y (high priority), AF2 Y, AF3 Y and AF4 Y (low priority).

Three drop levels Y are reserved for AFX<sub>Y</sub>: AFX<sub>1</sub> (low drop probability), AFX<sub>2</sub> and AFX<sub>3</sub> (High drop probability). In the case of low drop level, packets are buffered over an extended period in the case of high drop level, packets are promptly rejected if they cannot be forwarded.

### Data required

- **Layer 3:** Activates or deactivates QoS on layer 3.  
Value range: "Yes", "No"  
Default: "Yes"
- **Layer 3 voice:** Sets the CoS (Class of Service) value for voice data (RTP streams).  
Value range: "AF11", "AF12", "AF13", "AF21", "AF22", "AF23", "AF31", "AF32", "AF33", "AF41", "AF42", "AF43", "EF", "CS7", "CS3", "CS4", "CS5"  
Default: "EF"
- **Layer 3 signalling:** Sets the CoS (Class of Service) value for signaling.  
Value range: "AF11", "AF12", "AF13", "AF21", "AF22", "AF23", "AF31", "AF32", "AF33", "AF41", "AF42", "AF43", "EF", "CS7", "CS3", "CS4", "CS5"  
Default: "AF31"

### Administration via WBM

Network > QoS

QoS

Layer 2 :

Layer 2 voice : 5

Layer 2 signalling : 3

Layer 2 default : 0

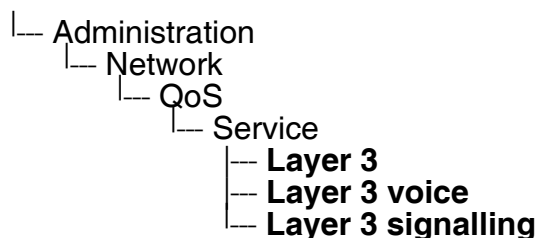
Layer 3 :

Layer 3 voice : BE

Layer 3 signalling : BE

Submit Reset

### Administration via Local Phone



## Administration

### *IP Network Parameters*

#### **3.3.2 Use DHCP**

For an example configuration, see Section 2.3.9, “Example DHCP server configuration”.

If this parameter is set to "Yes" (default), the phone will search for a DHCP server on startup and try to obtain IP data and further configuration parameters from that central server.

If no DHCP server is available in the IP network, please deactivate this option. In this case, the IP address, subnet mask and default gateway/route must be defined manually.

The following parameters can be obtained by DHCP:

##### **Basic Configuration**

- IP Address
- Subnet Mask

##### **Optional Configuration**

- Default Route (Routers option 3)
- IP Routing/Route 1 & 2 (Static Routes option 33)
- SNTP IP Address (NTP Server option 42)
- Timezone offset (Time Server Offset option 2)
- Primary/Secondary IP Addresses (DNS Server option 6)
- DNS Domain Name (DNS Domain option 15)
- SIP Addresses / SIP Server & Registrar (SIP Server option 120)
- Vendor Unique (option 43)

## Administration via WBM

Network > IP configuration

**IP configuration**

[change mode](#)

LLDP-MED Enabled

DHCP Enabled

IP address

Subnet mask

Default route

DNS domain

Primary DNS

Secondary DNS

Route 1 IP address

Route 1 gateway

Route 1 mask

Route 2 IP address

Route 2 gateway

Route 2 mask

VLAN discovery

VLAN ID

HTTP proxy

## Administration via Local Phone

|\_\_ Administration  
|\_\_ Network  
|\_\_ IP Configuration  
|\_\_ **Use DHCP**

## Administration

### IP Network Parameters

#### 3.3.3 IP Address - Manual Configuration

If not provided by DHCP dynamically, the phone's IP address and subnet mask must be specified manually.

By default, IP configuration by DHCP and LLDP-MED is enabled. For manual IP configuration, please proceed as follows:

1. Navigate to **Network > IP configuration** and click **change mode**.

IP configuration

[change mode](#)

LLDP-MED Enabled

DHCP Enabled

DHCP lease reuse

IP address 192.168.1.244

Subnet mask 255.255.255.0

Default route 192.168.1.2

DNS domain

Primary DNS 192.168.1.105

Secondary DNS 192.168.1.2

Route 1 IP address

Route 1 gateway

Route 1 mask

Route 2 IP address

Route 2 gateway

Route 2 mask

VLAN discovery LLDP-MED

VLAN ID

HTTP proxy

Submit Reset

2. The dialog window **IP configuration mode** appears. In the **Discovery mode** menu, select **Manual settings**.

IP configuration mode

Discovery mode LLDP-MED with DHCP

[back to IP c](#)

Submit

LLDP-MED with DHCP

DHCP used

Manual VLAN with DHCP

Manual settings

3. The dialog window **IP configuration** appears, with a reduced choice of parameters. Enter the **IP address** and the **Subnet mask**. If applicable, enter the **Default route** and the **VLAN ID**. When finished, click **Submit**.

IP configuration

IP address

Subnet mask 255.255.255.0

Default route 192.168.1.2

VLAN ID

Discovery mode Manual settings

Submit Reset



4. After the phone's network service has restarted, the other IP parameters can be configured.

IP configuration	
<a href="#">change mode</a>	
LLDP-MED Enabled	<input type="checkbox"/>
DHCP Enabled	<input type="checkbox"/>
DHCP lease reuse	<input type="checkbox"/>
IP address	192.168.1.244
Subnet mask	255.255.255.0
Default route	192.168.1.2
DNS domain	
Primary DNS	192.168.1.105
Secondary DNS	192.168.1.2
Route 1 IP address	
Route 1 gateway	
Route 1 mask	
Route 2 IP address	
Route 2 gateway	
Route 2 mask	
VLAN discovery	Manual
VLAN ID	
HTTP proxy	
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

### Administration via Local Phone

- |— Administration
  - |— Network
    - |— IP Configuration
      - |— **IP address**
      - |— **Subnet mask**

## Administration

### IP Network Parameters

#### 3.3.4 Default Route/Gateway

If not provided by DHCP dynamically (see Section 3.3.2, “Use DHCP”), enter the IP address of the router that links your IP network to other networks. If the value was assigned by DHCP, it can only be read.

#### Administration via WBM

Network > IP configuration

The screenshot shows the 'IP configuration' web interface. It includes a 'change mode' link, checkboxes for 'LLDP-MED Enabled' and 'DHCP Enabled', and input fields for 'IP address' (192.168.1.238), 'Subnet mask' (255.255.255.0), 'Default route' (192.168.1.2), 'DNS domain', 'Primary DNS' (192.168.1.105), 'Secondary DNS' (192.168.1.2), 'Route 1' and 'Route 2' IP addresses, gateways, and masks, 'VLAN discovery' (Manual), 'VLAN ID', and 'HTTP proxy'. 'Submit' and 'Reset' buttons are at the bottom.

#### Administration via Local Phone

|— Administration  
|— Network  
|— IP Configuration  
|— **Route (default)**

### 3.3.5 Specific IP Routing

To have constant access to network subscribers of other domains, you can enter a total of two more network destinations, in addition to the default route/gateway. This is useful if the LAN has more than one router or if the LAN is divided into subnets.

#### Data required

- **Route 1/2 IP address:** IP address of the selected route.
- **Route 1/2 gateway:** IP address of the gateway for the selected route.
- **Route 1/2 mask:** Network mask for the selected route.

#### Administration via WBM

Network > IP configuration

The screenshot shows the 'IP configuration' web page. It includes a 'change mode' link, checkboxes for 'LLDP-MED Enabled' and 'DHCP Enabled', and input fields for 'IP address' (192.168.1.238), 'Subnet mask' (255.255.255.0), 'Default route' (192.168.1.2), 'DNS domain', 'Primary DNS' (192.168.1.105), and 'Secondary DNS' (192.168.1.2). A red box highlights the 'Route 1' and 'Route 2' configuration section, which contains input fields for 'Route 1 IP address', 'Route 1 gateway', 'Route 1 mask', 'Route 2 IP address', 'Route 2 gateway', and 'Route 2 mask'. Below this are 'VLAN discovery' (Manual), 'VLAN ID', and 'HTTP proxy' fields, along with 'Submit' and 'Reset' buttons.

#### Administration via Local Phone

```
|__ Administration
  |__ Network
    |__ IP Configuration
         |__ Route 1 IP
         |__ Route 1 gateway
         |__ Route 1 mask
         |__ Route 2 IP
         |__ Route 2 gateway
         |__ Route 2 mask
```

## Administration

### IP Network Parameters

### 3.3.6 DNS

The main task of the domain name system (DNS) is to translate domain names to IP addresses. For some features and functions of the OpenStage phone, it is necessary to configure the DNS domain the phone belongs to, as well as the nameservers needed for DNS resolving.

#### 3.3.6.1 DNS Domain Name

This is the name of the phone's local domain.

### Administration via WBM

Network > IP configuration

The screenshot shows the 'IP configuration' web interface. At the top, there is a 'change mode' link. Below it are several configuration options:

- LLDP-MED Enabled
- DHCP Enabled
- IP address: 192.168.1.238
- Subnet mask: 255.255.255.0
- Default route: 192.168.1.2
- DNS domain**: (highlighted with a red rectangle)
- Primary DNS: 192.168.1.105
- Secondary DNS: 192.168.1.2
- Route 1 IP address: (empty)
- Route 1 gateway: (empty)
- Route 1 mask: (empty)
- Route 2 IP address: (empty)
- Route 2 gateway: (empty)
- Route 2 mask: (empty)
- VLAN discovery: Manual (dropdown menu)
- VLAN ID: (empty)
- HTTP proxy: (empty)

At the bottom, there are 'Submit' and 'Reset' buttons.

### Administration via Local Phone

Administration  
├── Network  
│ ├── IP Configuration  
│ └── **DNS domain**

### 3.3.6.2 DNS Servers

If not provided by DHCP automatically, a primary and a secondary DNS server can be configured.

#### Data required

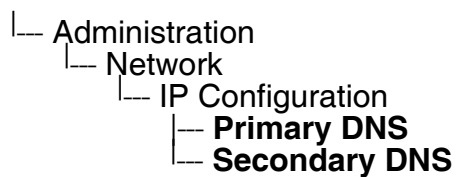
- **Primary DNS:** IP address of the primary DNS server.
- **Secondary DNS:** IP address of the secondary DNS server.

#### Administration via WBM

Network > IP configuration

The screenshot shows the 'IP configuration' web interface. At the top, there is a 'change mode' link. Below it are several configuration options: 'LLDP-MED Enabled' and 'DHCP Enabled' with checkboxes; 'IP address' (192.168.1.238), 'Subnet mask' (255.255.255.0), 'Default route' (192.168.1.2), and 'DNS domain' (empty). The 'Primary DNS' (192.168.1.105) and 'Secondary DNS' (192.168.1.2) fields are highlighted with a red rectangle. Below these are fields for 'Route 1' and 'Route 2' (IP address, gateway, mask). There is also a 'VLAN discovery' dropdown menu set to 'Manual', a 'VLAN ID' field, and an 'HTTP proxy' field. At the bottom are 'Submit' and 'Reset' buttons.

#### Administration via Local Phone



## Administration

### IP Network Parameters

#### 3.3.6.3 Terminal Hostname (V2)

With OpenStage firmware V2, the phone's hostname for registration with the DNS server can be customised. The phone will send the specified hostname to the DNS server using DDNS. Therefore, the DNS server must support DDNS.

The corresponding DNS domain is configured in Network > IP configuration > DNS domain (see Section 3.3.6.1, "DNS Domain Name").

The current DNS name of the phone is displayed at the right-hand side of the banner of the admin and user web pages, under **DNS name**. To see configuration changes, the web page must be reloaded.



It is recommended to inform the user about the DNS name of his/her phone. The complete WBM address can be found under User menu > Network information > Web address.

The DNS name can be constructed from pre-defined parameters and free text. Its composition is defined by the **DNS name construction** parameter. The following options are available:

- "None": The phone does not attempt to change its DNS name via DDNS.
- "MAC based": The DNS name is built from the prefix "OIP" followed by the phone's MAC address.
- "Web name": The DNS name is set to the the string entered in **Web name**.
- "Only number": The DNS name is set to the **Terminal number**, that is, the phone's call number (see Section 3.4.1, "Terminal and User Identity").
- "Prefix number": The DNS name is constructed from the the string entered in **Web name**, followed by the **Terminal number**.

### Administration via WBM

System > System Identity

System Identity	
Terminal number	3333
Terminal name	3333
Display identity	MyPhone
Enable ID	<input checked="" type="checkbox"/>
Web name	
DNS name construction	Only number
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

### Administration via Local Phone

```
|__ Administration
  |__ Identity
    |__ Web name
    |__ DDNS hostname
```

### 3.3.7 Configuration & Update Service (DLS)

The Deployment Service (DLS) is a HiPath Management application for administering work-points in both HiPath and non-HiPath networks. Amongst the most important features are: security (e.g. PSS generation and distribution within an SRTP security domain), mobility for opti-Point and OpenStage SIP phones, software deployment, plug&play support, as well as error and activity logging.

**DLS address**, i.e. the IP address or hostname of the DLS server, and **DLS port**, i.e. the port on which the DLS server is listening, are required to enable proper communication between phone and DLS.

The **Contact gap** parameter controls a security function. It specifies a minimum time interval that must elapse between individual HTTP requests from the phone which are responding to a ContactMe request from the DLS. The ContactMe request is sent by the DLS each time the DLS wants to execute an action on the phone, e. g. software deployment, or a configuration change. Any requests coming within that time will be ignored. The purpose is to prevent DoS (Denial of Service) attacks on the phone.

The **Security mode** determines whether the communication between the phone and the DLS is secure. A secure connection is established by exchanging credentials between the DLS and the phone for mutual authentication. After this, the communication is encrypted, and a different port is used.



With firmware V2, it is possible to operate the DLS server behind a firewall or NAT (Network Address Translation), which prevents the DLS from sending ContactMe messages directly to the phone. Only outbound connections from the phone are allowed. To overcome this restriction, a DLS Contact-Me proxy (DCMP) can be deployed. The phone periodically polls the DCMP (DLS Contact-Me Proxy), which is placed outside of the phone's network, for pending contact requests from the DLS. If there are contact requests, the phone will send a request to the DLS in order to obtain the update, just as with a regular DLS connection. The URI of the DCMP, as well as the polling interval, are configured by the DLS. For this purpose, it is necessary that the phone establishes a first contact to the DLS, e. g. by phone restart or local configuration change.

#### Data required

- **DLS address:** IP address or hostname of the server on which the Deployment Service is running.
- **DLS port:** Port on which the DLS Deployment Service is listening.  
Default: 18443
- **Contact gap:** Minimum time interval in seconds that must elapse between responses to a ContactMe request from the DLS, in order to prevent DoS attacks.  
Default: 300

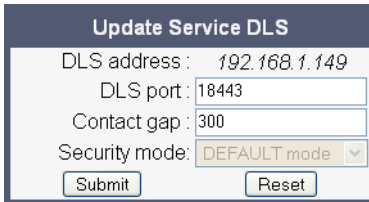
## Administration

### IP Network Parameters

- **Security mode / Security status:** Determines whether the communication between the phone and the DLS is secure.  
Value range: "Default mode", "Secure mode"  
Default: "Default"

### Administration via WBM

Network > Update Service (DLS)



The screenshot shows a web form titled "Update Service DLS". It contains four input fields: "DLS address" with the value "192.168.1.149", "DLS port" with "18443", "Contact gap" with "300", and "Security mode" with a dropdown menu set to "DEFAULT mode". At the bottom of the form are two buttons: "Submit" and "Reset".

### Administration via Local Phone

```
|--- Administration
    |--- Network
        |--- Update Service (DLS)
            |--- DLS address
            |--- DLS port
            |--- Contact gap
            |--- Security status
```



### **3.3.8 SNMP**

The Simple Network Management Protocol is used by network management systems for monitoring network-attached devices for conditions that warrant administrative attention. An SNMP manager surveys and, if needed, configures several SNMP elements, e.g. VoIP phones.

OpenStage phones support SNMPv1.

There are currently 4 trap categories that can be sent by the phones:

#### **Standard SNMP traps**

OpenStage phones support the following types of standard SNMP traps, as defined in RFC 1157:

- **coldStart**: sent if the phone does a full restart.
- **warmStart**: sent if only the phone software is restarted.
- **linkUp**: sent when IP connectivity is restored.

#### **QoS Related traps**

These traps are designed specifically for receipt and interpretation by the QDC collection system. The traps are common to SIP phones, HFA phones, Gateways, etc.

#### **Traps for important high level SIP related problems**

Currently, these traps are related to problems in registering with a SIP Server and to a failure in remotely logging off a mobile user. These traps are aimed at a non-expert user (e.g. a standard Network Management System) to highlight important telephony related problems.

#### **Traps specific to OpenStage phones**

Currently, the following traps are defined:

**TraceEventFatal**: sent if severe trace events occur; aimed at expert users.

**TraceEventError**: sent if severe trace events occur; aimed at expert users.

#### **Data required**

- **Trap sending enabled**: Enables or disables the sending of a TRAP message to the SNMP manager.  
Value range: "Yes", "No"  
Default: "No"
- **Trap destination**: IP address or hostname of the SNMP manager that receives traps.
- **Trap destination port**: Port on which the SNMP manager is receiving TRAP messages.
- Default: 162

## Administration

### *IP Network Parameters*

- **Trap community:** SNMP community string for the SNMP manager receiving TRAP messages.  
Default: "snmp"
- **Queries allowed:** Allows or disallows queries by the SNMP manager.
- **Query password:** Password for the execution of a query by the SNMP manager.
- **Diagnostic sending enabled:** Enables or disables the sending of diagnostic data to the SNMP manager.  
Value range: "Yes", "No"  
Default: "No"
- **Diagnostic destination:** IP address or hostname of the SNMP manager receiving diagnostic data.
- **Diagnostic destination port:** Port on which the SNMP manager is receiving diagnostic data.
- **Diagnostic community:** SNMP community string for the SNMP manager receiving diagnostic data.
- **QoS traps to QCU:** Enables or disables the sending of TRAP messages to the QCU server.  
Value range: "Yes", "No"  
Default: "No"
- **QCU address:** IP address of the QCU server.
- **QCU port:** Port on which the QCU server is listening for messages.  
Default: 12010
- **QCU community:** QCU community string.  
Default: "QOSCD"
- **QoS to generic destination / QoS to generic device:** Enables or disables the sending of QoS traps to a generic destination.  
Value range: "Yes", "No"  
Default: "No"

## Administration via WBM

### System > SNMP

SNMP	
<b>Generic traps</b>	
Trap sending enabled	<input type="checkbox"/>
Trap destination	<input type="text"/>
Trap destination port	162
Trap community	public
Queries allowed	<input type="checkbox"/>
Query password	<input type="text"/>
<b>Diagnostic traps</b>	
Diagnostic sending enabled	<input type="checkbox"/>
Diagnostic destination	<input type="text"/>
Diagnostic destination port	<input type="text"/>
Diagnostic community	<input type="text"/>
Diagnostic to generic destination	<input type="checkbox"/>
<b>QoS report traps</b>	
QoS traps to QCU	<input type="checkbox"/>
QCU address	<input type="text"/>
QCU port	12010
QCU community	public
QoS to generic destination	<input type="checkbox"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Administration

### IP Network Parameters

#### Administration via Local Phone

- |— Administration
  - |— System
    - |— SNMP
      - |— Queries allowed
      - |— Query password
      - |— Trap sending enabled
      - |— Trap destination
      - |— Trap destination port
      - |— Trap community
      - |— Diag sending enabled
      - |— Diag destination
      - |— Diag destination port
      - |— Diag community
      - |— QoS traps to QCU
      - |— QCU address
      - |— QCU port
      - |— QCU community
      - |— QoS to generic device

## 3.4 System Settings

### 3.4.1 Terminal and User Identity

#### 3.4.1.1 Terminal Identity

Within a SIP environment, both Terminal Number and Terminal Name may serve as a phone number. The values are used in the userinfo part of SIP URIs.

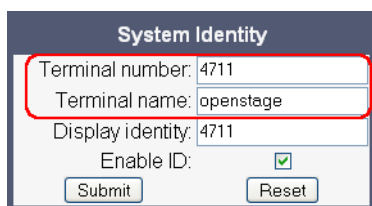
In order to register with a SIP registrar, the phone sends REGISTER messages to the registrar containing the contents of **Terminal number**.

#### Data required

- **Terminal number:** Number to be registered at the SIP registrar.
- **Terminal name:** Name to be registered at the SIP registrar.

#### Administration via WBM

System > System Identity



System Identity	
Terminal number:	4711
Terminal name:	openstage
Display identity:	4711
Enable ID:	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Administration via Local Phone

```
|_ Administration
  |_ System
    |_ Identity
      |_ Terminal number
      |_ Terminal name
```

## Administration

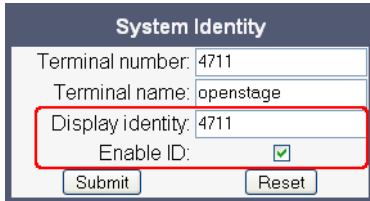
### System Settings

#### 3.4.1.2 Display Identity

If an individual name oder number is entered as **Display identity**, and **Enable ID** is activated, it is displayed in the phone's status bar instead of the Terminal number or Terminal name.

#### Administration via WBM

System > System Identity



System Identity	
Terminal number:	4711
Terminal name:	openstage
Display identity:	4711
Enable ID:	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Administration via Local Phone

- |— Administration
  - |— System
    - |— Identity
      - |— **Display identity**
      - |— **Enable ID**

### 3.4.2 Emergency and Voice Mail

It is important to have an **Emergency number** configured. If the phone is locked, a clickable area for making an emergency call is created.



If more than one emergency number is needed, additional numbers can be configured in the canonical dial settings (Section 3.9.1, “Canonical Dialing Configuration”).

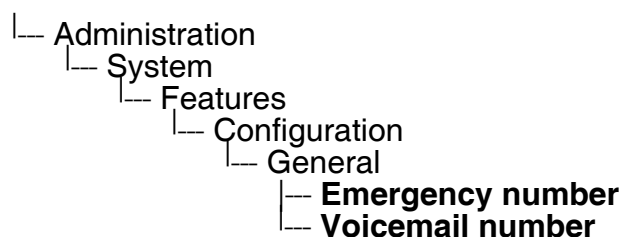
If a mailbox located at a remote server shall be used, its **Voice mail number** must be entered.

#### Administration via WBM

System > Features > Configuration

Configuration	
<b>General</b>	
Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Initial digit timer (seconds)	<input type="text" value="30"/>
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	<input type="text" value="2"/>
Transfer on hangup	<input type="checkbox"/>
<b>Audio</b>	
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	<input type="text" value="Prompt"/>
BLF alerting	<input type="text" value="Beep"/>
<b>Bluetooth</b>	
Enable Bluetooth interface	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Administration via Local Phone



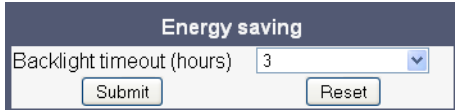
**Administration**  
*System Settings*

### 3.4.3 Energy Saving (OpenStage 40/60/80)

After the phone has been inactive within the timespan specified here, the display backlight is switched off. The length of this timespan ranges from 2 hours to 8 hours. The default value is 3 hours.

#### Administration via WBM

Local functions > Energy saving



Energy saving	
Backlight timeout (hours)	3
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

#### Administration via Local Phone

- |— Administration
  - |— Local Functions
    - |— Energy saving
      - |— **Backlight timeout**



### 3.4.4 Date and Time

If the DHCP server in your network provides the IP address of the SNTP server, no manual configuration is necessary. If not, you have to set the **SNTP IP address** parameter manually.

For correct display of the current time, the **Timezone offset** must be set appropriately. This is the time offset from UTC (Coordinated Universal Time). If, for instance, the phone is located in Munich, Germany, the offset is +1 (or simply 1); if it is located in Los Angeles, USA, the offset is -8. For countries or areas with half-hour time zones, like South Australia or India, non-integer values can be used, for example 10.5 for South Australia (UTC +10:30).

If the phone is located in a country with daylight saving, the administrator can choose whether daylight saving time is activated manually or automatically. If **Daylight saving** is enabled, and **Auto time change** is disabled, daylight saving time (DST) is in effect immediately. If **Auto time change** is enabled, daylight saving is controlled by the **Time zone** parameter. This selects the daylight saving time zone which is characterized by the start and end date for daylight saving time.

The **Difference (minutes)** provides the time difference for daylight saving time in minutes. This parameter is required also when **Auto time change** is enabled. In Germany, for instance, as in most countries, this is +60.

#### 3.4.4.1 SNTP is available, but no automatic configuration by DHCP server

##### Data required

- **SNTP IP address:** IP address or hostname of the SNTP server.
- **Timezone offset (hours):** Shift in hours corresponding to UTC.
- **Daylight saving:** Enables or disables daylight saving time in conjunction with **Auto time change**.  
Value range: "Yes", "No"
- **Difference (minutes):** Time difference when daylight saving time is in effect.
- **Auto time change / Auto DST:** Enables or disables automatic control of daylight saving time according to the **Time zone**.  
Value range: "Yes", "No"
- **Time zone / DST zone:** Area with common start and end date for daylight saving time.  
Value range: "Australia 2007 (ACT, South Australia, Tasmania, Victoria)", "Australia 2007 (New South Wales)", "Australia (Western Australia)", "Australia 2008+ (ACT, New South Wales, South Australia, Tasmania, Victoria)", "Brazil", "Canada", "Canada (Newfoundland)", "Europe (Portugal, United Kingdom)", "Europe (Finland)", "Europe (Rest)", "Mexico", "United States"

## Administration

### System Settings

## Administration via WBM

### Date and Time

Date and time	
<b>Time source</b>	
SNTP IP address	<input type="text"/>
Timezone offset (hours)	<input type="text" value="0"/>
<b>Daylight saving</b>	
Daylight saving	<input type="checkbox"/>
Difference (minutes)	<input type="text" value="60"/>
Auto time change	<input type="checkbox"/>
DST zone	<input type="text" value="Australia 2007 (ACT, South Australia, Tasmania, Victoria)"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Administration via Local Phone

- |— Administration
  - |— Date and Time
    - |— **SNTP IP address**
    - |— **Timezone offset**

### 3.4.4.2 No SNTP server available

If no SNTP server is available, date and time must be set manually.



The manual setting of time and date is located in the user menu, not in the administrator menu.

#### Data required

- **Local time (hh:mm):** Local time.
- **Local date (day, month, year):** Local date.
- **Allow daylight saving:** Defines whether there is daylight is set.
- **Difference (minutes):** Timezone offset in minutes.

#### Administration via WBM

(User pages >) Date and time

Date and time			
Local Time (hh:mm):	15	:	44
Local Date (day, month, year):	30	November	2006
Allow daylight saving :	<input type="checkbox"/>		
Difference (minutes) :	87678		
<input type="button" value="Submit"/>		<input type="button" value="Reset"/>	

#### Administration via Local Phone

- |\_\_ Menu
  - |\_\_ Date and Time
    - **Time**
    - **Date**
    - **Daylight saving**
    - **Difference (mins)**

### 3.4.5 SIP Addresses and Ports

#### 3.4.5.1 SIP Addresses

In this group of parameters, the IP addresses or host names for the SIP server, the SIP registrar, and the SIP gateway are defined.

**SIP server address** provides the IP address or host name of the SIP proxy server. This is necessary for outgoing calls. **SIP registrar address** contains the IP address or host name of the registration server, to which the phone will send REGISTER messages. When registered, the phone is ready to receive incoming calls. **SIP gateway address** gives the IP address or host name of the SIP gateway. A SIP gateway is able to perform a conversion of SIP to TDM, which enables to send calls directly into the public network.

#### Data required

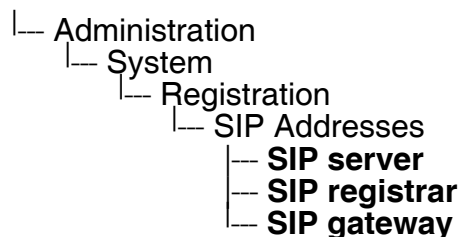
- **SIP server address:** IP address or host name of the SIP proxy server.
- **SIP registrar address:** IP address or host name of the registration server.
- **SIP gateway address:** IP address or host name of the SIP gateway.

#### Administration via WBM

System > Registration

Registration	
<b>SIP Addresses</b>	
SIP server address	192.168.1.165
SIP registrar address	192.168.1.165
SIP gateway address	
<b>SIP Session</b>	
Session timer enabled	<input type="checkbox"/>
Session duration (seconds)	3600
Registration timer (seconds)	3600
Server type	OS Voice
Realm	
User ID	
Password	
<b>SIP Survivability</b>	
Backup registration allowed	<input checked="" type="checkbox"/>
Backup proxy address	
Backup registration timer (seconds)	3600
Backup transport	UDP
Backup OBP flag	<input type="checkbox"/>
Submit      Reset	

## Administration via Local Phone



### 3.4.5.2 SIP Ports

In this group of parameters, the ports for the SIP server, the SIP registrar, and the SIP gateway are defined (for further information see Section 3.4.5.1, “SIP Addresses”), as well as the SIP port used by the phone (**SIP local**).

#### Data required

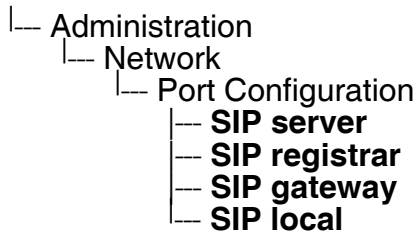
- **SIP server:** Port of the SIP proxy server.  
Default: 5060
- **SIP registrar:** Port of the server at which the phone registers.  
Default: 5060
- **SIP gateway:** Port of the SIP gateway.  
Default: 5060
- **SIP local:** Port used by the phone for sending and receiving SIP messages.  
Default: 5060

## Administration via WBM

Network > Port configuration

Port configuration	
SIP server	5060
SIP registrar	5060
SIP gateway	5060
SIP local	5060
Backup proxy	5060
RTP base	5010
Download server (default)	21
LDAP server	389
HTTP proxy	0
LAN port speed	Automatic
PC port speed	Automatic
PC port mode	disabled
PC port autoMDIX	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Administration via Local Phone



### 3.4.6 SIP Registration

Registration is the process by which centralized SIP Server/Registrars become aware of the existence and readiness of an endpoint to make and receive calls. The phone supports a number of configuration parameters to allow this to happen. Registration can be authenticated or un-authenticated depending on how the server and phone is configured.

For operation with an Asterisk server, set **Server type** to "Other". The expiry time of a registration can be specified by **Registration timer**.

#### Unauthenticated Registration

For unauthenticated registration, the following parameters must be set on the phone: Terminal number or Terminal name (see Section 3.4.1.1, "Terminal Identity"), SIP server and SIP registrar address (see Section 3.4.5.1, "SIP Addresses").

In unauthenticated mode, the server must pre-authenticate the user. This procedure is server specific and is not described here.

#### Authenticated Registration

The phone supports the digest authentication scheme and requires some parameters to be configured in addition to those for unauthenticated registration. By providing a **User ID** and a **Password** which match with a corresponding account on the SIP registrar, the phone authenticates itself. Optionally, a **Realm** can be added. This parameter specifies the protection domain wherein the SIP authentication is meaningful. The protection domain is globally unique, so that each protection domain has its own arbitrary user names and passwords.



A challenge from the server for authentication information is not only restricted to the REGISTER message, but can also occur in response to other SIP messages, e. g. INVITE.



If registration has not succeeded at startup or registration fails after having been previously successfully registered the phone will try to re-register every 30 seconds. This is not configurable.

### Data required

- **Registration timer (seconds):** Expiry time of the registration in seconds.  
Default value: 3600
- **Server type:** Type of server the phone will register to.  
Value range: "Other", "OS Voice"  
Default value: "OS Voice"
- **Realm:** Protection domain for authentication.
- **User ID:** Username required for an authenticated registration.
- **Password:** Password required for an authenticated registration.

### Administration via WBM

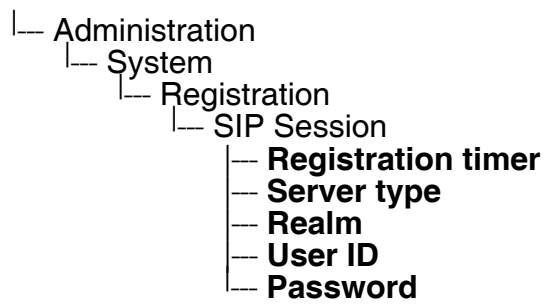
System > Registration

Registration	
<b>SIP Addresses</b>	
SIP server address	192.168.1.165
SIP registrar address	192.168.1.165
SIP gateway address	
<b>SIP Session</b>	
Session timer enabled	<input type="checkbox"/>
Session duration (seconds)	3600
Registration timer (seconds)	3600
Server type	OS Voice
Realm	
User ID	
Password	
<b>SIP Survivability</b>	
Backup registration allowed	<input checked="" type="checkbox"/>
Backup proxy address	
Backup registration timer (seconds)	3600
Backup transport	UDP
Backup OBP flag	<input type="checkbox"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Administration

*System Settings*

### Administration via Local Phone





## 3.4.7 SIP Communication

### 3.4.7.1 Outbound Proxy

If this option set to "Yes", the phone routes outbound requests to the configured proxy. The outbound proxy will fulfill the task of resolving the domain contained in the SIP request. If "No" is set, the phone will attempt to resolve the domain by itself.

If a **Default OBP** (Outbound Proxy) **domain** is set and the number or name dialed by the user does not provide a domain, this value will be appended to the name or number. Otherwise, the domain of the outbound proxy will be appended.

#### Data required

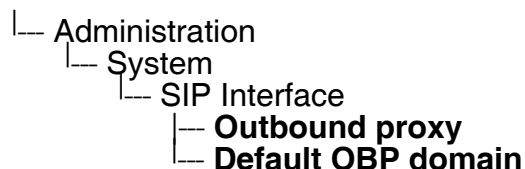
- **Outbound proxy:** Determines whether an outbound proxy is used or not.  
Value range: "Yes", "No"  
Default: "No"
- **Default OBP domain:** Alternative value for the domain that is given in the outbound request.

#### Administration via WBM

System > SIP interface

SIP interface	
Outbound proxy	<input checked="" type="checkbox"/>
Default OBP domain	<input type="text"/>
SIP transport	UDP
Response timer (ms)	32000
NonCall trans. (ms)	32000
Reg. backoff (seconds)	60
Connectivity check timer (seconds)	0

#### Administration via Local Phone





## Administration

### System Settings

#### 3.4.7.2 SIP Transport Protocol

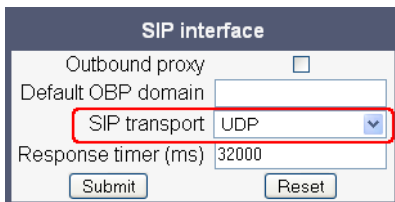
Selects the transport protocol to be used for SIP messages. The values "UDP", "TCP", and "TLS" are available. The default is "UDP".

 Currently, SIP transport via TCP is not supported by Asterisk.

 If TLS is to be used, please ensure that the SIP over TLS connection between phones and server work properly.

### Administration via WBM

System > SIP interface



The screenshot shows the 'SIP interface' configuration page. It includes a checkbox for 'Outbound proxy', a text field for 'Default OBP domain', a dropdown menu for 'SIP transport' (highlighted with a red box and showing 'UDP'), and a text field for 'Response timer (ms)' set to '32000'. There are 'Submit' and 'Reset' buttons at the bottom.

### Administration via Local Phone

```
├─ Administration
│  └─ System
│     └─ SIP Interface
│        └─ SIP transport
```

### 3.4.8 SIP Session Timer

Session timers provide a basic keep-alive mechanism between 2 user agents or phones. This mechanism can be useful to the endpoints concerned or for stateful proxies to determine that a session is still alive. This is achieved by the phone sending periodic re-INVITEs to keep the session alive. If no re-INVITE is received before the interval passes, the session is considered terminated. Both phones are supposed to terminate the call, and stateful proxies can remove any state for the call.

This feature is sufficiently backward compatible such that only one end of a call needs to implement the SIP extension for it to work.

The parameter **Session timer enabled** determines whether the mechanism shall be used, and **Session duration (seconds)** sets the expiration time, and thus the interval between refresh re-INVITEs.



Some server environments support their own mechanism for auditing the health of a session. In these cases, the **Session timer** must be deactivated.

#### Data required

- **Session timer enabled:** Activates or deactivates the session timer mechanism.  
Value range: "Yes", "No"  
Default value: "No"
- **Session duration (seconds):** Sets the expiration time for a SIP session.  
Default: 3600

## Administration System Settings

### Administration via WBM

System > Registration

Registration	
<b>SIP Addresses</b>	
SIP server address	192.168.1.20
SIP registrar address	192.168.1.20
SIP gateway address	
<b>SIP Session</b>	
Session timer enabled	<input type="checkbox"/>
Session duration (seconds)	3600
Registration timer (seconds)	3600
Server type	HiQ8000
Realm	
User ID	
Password	
<b>SIP Survivability</b>	
Backup registration allowed	<input checked="" type="checkbox"/>
Backup proxy address	
Backup registration timer (seconds)	3600
Backup transport	UDP
Backup OBP flag	<input type="checkbox"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

### Administration via Local Phone

```
|-- Administration
  |-- System
    |-- Registration
      |-- SIP session
        |-- Session timer
        |-- Session duration
```

### 3.4.9 Resilience and Survivability

To allow for a stable operation even in the presence of network or server failure, OpenStage phones have the capability to switch to a fallback system. The switchover is controlled by various configurable check and timeout intervals.

In survivability mode, it is expected that some features and functionality will not be available. The user will be informed by a message in the Call View display.

#### 3.4.9.1 TLS Connectivity Check

A regular check ensures that the TLS link to the main SIP server is active. When the **Connectivity check timer** is set to a non-zero value, test messages will be sent at the defined interval. If the link is found to be dead, the phone uses DNS SRV to find another SIP server.



If TLS is to be used, please ensure that the SIP over TLS connection between phones and sever work properly.

### Administration via WBM

System > SIP interface

The screenshot shows a web-based configuration form titled "SIP interface". It contains several fields: "Outbound proxy" with a checkbox, "Default OBP domain" with a text input field, "SIP transport" with a dropdown menu showing "UDP", "Response timer (ms)" with a text input field containing "3700", and "Connectivity check timer (seconds)" with a text input field containing "10". The "Connectivity check timer (seconds)" field is highlighted with a red rectangle. At the bottom of the form are "Submit" and "Reset" buttons.

## Administration

### System Settings

#### 3.4.9.2 Response Timer

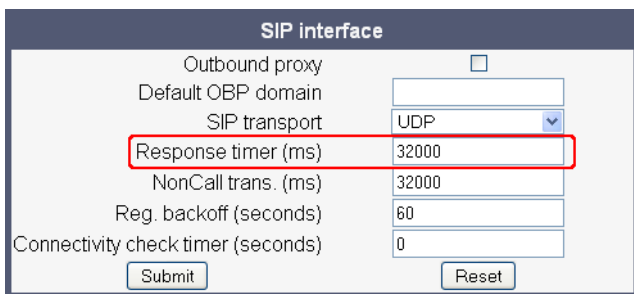
The **Call trans** timer is started whenever the phone sends a new INVITE message to the SIP server.

If the call transaction timer expires before the phone gets a response from the SIP server, the phone assumes that the server had died and then attempts to contact the backup server, if configured. If there is no backup server configured, the phone just tidies up internally.

The data is given in milliseconds. The default value is 32 000.

#### Administration via WBM

System > SIP interface



SIP interface	
Outbound proxy	<input type="checkbox"/>
Default OBP domain	<input type="text"/>
SIP transport	UDP
Response timer (ms)	32000
NonCall trans. (ms)	32000
Reg. backoff (seconds)	60
Connectivity check timer (seconds)	0
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Administration via Local Phone

Administration  
├─ System  
│ └─ SIP Interface  
│ └─ **Response timer (ms)**

### 3.4.9.3 Non-INVITE Transaction Timer

The **NonCall trans** timer is started whenever the phone sends a non-INVITE message to the SIP server. If the timer expires before the phone gets a response from the SIP server, the phone assumes that the server had died and then attempts to contact the backup server, if configured. If no backup server is configured, the phone just tidies up internally.

The data is given in milliseconds. The default value is 32 000.

#### Administration via WBM

System > SIP interface

SIP interface	
Outbound proxy	<input type="checkbox"/>
Default OBP domain	<input type="text"/>
SIP transport	UDP
Response timer (ms)	32000
<b>NonCall trans. (ms)</b>	<b>32000</b>
Reg. backoff (seconds)	60
Connectivity check timer (seconds)	0

Submit      Reset

#### Administration via Local Phone

Administration  
└─ System  
    └─ SIP Interface  
        └─ **NonCall transactions (ms)**

## Administration

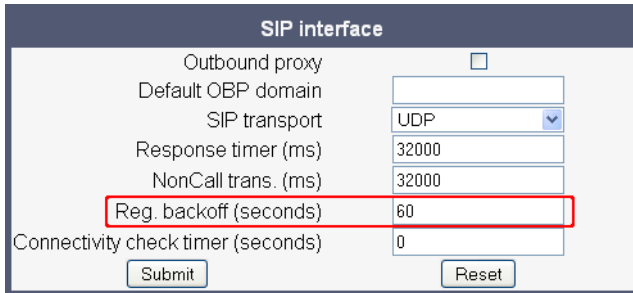
### System Settings

#### 3.4.9.4 Maximum Registration Backoff Time

If a registration attempt should result in a timeout, the phone waits a random time before sending another REGISTER message. The **Reg. backoff (seconds)** parameter determines the maximum waiting time.

#### Administration via WBM

System > SIP interface



SIP interface	
Outbound proxy	<input type="checkbox"/>
Default OBP domain	<input type="text"/>
SIP transport	UDP
Response timer (ms)	32000
NonCall trans. (ms)	32000
Reg. backoff (seconds)	60
Connectivity check timer (seconds)	0

Submit Reset

#### Administration via Local Phone

Administration  
└─ System  
   └─ SIP Interface  
      └─ **Reg. backoff**



### 3.4.9.5 Backup SIP Server

The **Backup registration flag** indicates whether or not the phone treats the backup proxy server as a SIP registrar. If set to "Yes", the phone tries to register its SIP address with the server whose IP address or hostname is specified by **Backup proxy address**.

The **Backup registration timer** determines the duration of a registration with the SIP server.

The **Backup transport** option displays the current transport protocol used to carry SIP messages to the Backup proxy server.

The **Backup OBP flag** indicates whether or not the Backup proxy server is used as an out-bound proxy.

#### Data required

- **Backup registration allowed / Backup registration flag:** Determines whether or not the backup proxy is used as a SIP Registrar.  
Value Range: "Yes", "No"  
Default: "Yes"
- **Backup proxy address:** IP address or hostname of the backup proxy server.
- **Backup registration timer:** Expiry time of the registration in seconds.  
Default: 3600
- **Backup transport:** Transport protocol to be used for messages to the backup proxy.  
Value range: "TCP", "UDP", "TLS"  
Default: "UDP"
- **Backup OBP flag:** Determines whether or not the backup proxy is used as an outbound proxy.  
Value range: "Yes", "No"  
Default: "No"
- Network > Port Configuration > **Backup proxy:** Port of the backup proxy server.  
Default: 5060

## Administration System Settings

### Administration via WBM

#### System > Registration

Registration	
<b>SIP Addresses</b>	
SIP server address	192.168.1.20
SIP registrar address	192.168.1.20
SIP gateway address	
<b>SIP Session</b>	
Session timer enabled	<input type="checkbox"/>
Session duration (seconds)	3600
Registration timer (seconds)	3600
Server type	HiQ8000
Realm	
User ID	
Password	
<b>SIP Survivability</b>	
Backup registration allowed	<input checked="" type="checkbox"/>
Backup proxy address	
Backup registration timer (seconds)	3600
Backup transport	UDP
Backup OBP flag	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Network > Port configuration

Port configuration	
SIP server	5060
SIP registrar	5060
SIP gateway	5060
SIP local	5060
Backup proxy	5060
RTP base	5010
Download server (default)	21
LDAP server	389
HTTP proxy	0
LAN port speed	Automatic
PC port speed	Automatic
PC port mode	disabled
PC port autoMDIX	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Administration via Local Phone

- |— Administration
  - |— System
    - |— Registration
      - |— SIP Session
      - |— SIP Survivability
        - |— **Backup registration flag**
        - |— **Backup proxy address**
        - |— **Backup transport**
        - |— **OBP flag**

- |— Administration
  - |— Network
    - |— Port Configuration
      - |— **Backup proxy**

## Administration

### Features - Configuration

## 3.5 Features - Configuration

### 3.5.1 Allow Refuse

This parameter defines whether the Refuse Call feature is available on the phone. The possible values are "Yes" or "No". The default is "Yes".

#### Administration via WBM

System > Features > Configuration

The screenshot shows the 'Configuration' page in the Asterisk WBM. It is divided into three sections: General, Audio, and Bluetooth. In the 'General' section, the 'Allow refuse' checkbox is checked and highlighted with a red box. Other settings include 'Emergency number', 'Voice mail number', 'Initial digit timer (seconds)' set to 30, 'Allow uaCSTA' checked, 'Server features' unchecked, 'Not used timeout (minutes)' set to 2, and 'Transfer on hangup' unchecked. The 'Audio' section includes 'Group pickup tone allowed' checked, 'Group pickup as ringer' checked, 'Group pickup visual alert' set to 'Prompt', and 'BLF alerting' set to 'Beep'. The 'Bluetooth' section has 'Enable Bluetooth interface' checked. At the bottom are 'Submit' and 'Reset' buttons.

Configuration	
<b>General</b>	
Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Initial digit timer (seconds)	<input type="text" value="30"/>
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	<input type="text" value="2"/>
Transfer on hangup	<input type="checkbox"/>
<b>Audio</b>	
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	<input type="text" value="Prompt"/>
BLF alerting	<input type="text" value="Beep"/>
<b>Bluetooth</b>	
Enable Bluetooth interface	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Administration via Local Phone

Administration  
├─ System  
│ └─ Features  
│ │ └─ Configuration  
│ │ │ └─ General  
│ │ │ │ └─ **Allow refuse**

### 3.5.2 Hot/Warm Phone (V2)

With firmware version V2, hot/warm phone functionality is available. If the phone is configured as hot phone, the number specified in **Hot warm destination** is dialed immediately when the user goes off-hook. For this purpose, **Hot warm phone** must be set to "Hot phone". If set to "Warm phone", the specified destination number is dialed after a delay which is defined in **Initial digit timer (seconds)** (for details, see Section 3.5.3, "Initial Digit Timer"). During the delay period, the user can dial a number which will be used instead of the hot/warm destination. In addition, the user will be provided with a dial tone during the delay period. With the setting "No action", hot phone or warm phone functionality is disabled.

#### Administration via WBM

System > Features > Configuration

The screenshot shows the 'Configuration' page in the Asterisk Web Management Interface (WBM). The page is divided into sections: General, Audio, and Bluetooth. The 'General' section contains the following settings:

Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Hot/warm phone	No action
Hot/warm destination	<input type="text"/>
Initial digit timer (seconds)	30
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	2
Transfer on hangup	<input type="checkbox"/>
Bridging enabled	<input type="checkbox"/>
Dial plan enabled	<input type="checkbox"/>

The 'Audio' section contains the following settings:

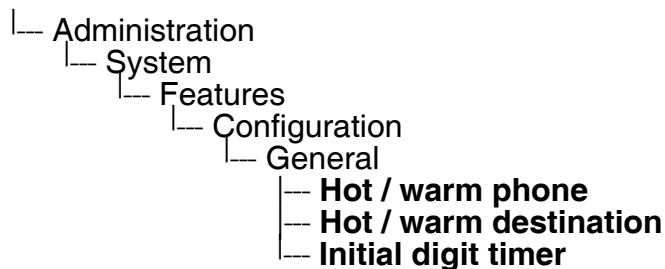
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	Prompt
BLF alerting	Beep

The 'Bluetooth' section contains the following setting:

Enable Bluetooth interface	<input checked="" type="checkbox"/>
----------------------------	-------------------------------------

At the bottom of the page, there are 'Submit' and 'Reset' buttons. A red box highlights the 'Hot/warm phone', 'Hot/warm destination', and 'Initial digit timer (seconds)' settings.

#### Administration via Local Phone



## Administration

### Features - Configuration

#### 3.5.3 Initial Digit Timer

This timer is started when the user goes off-hook, and the dial tone sounds. When the user has not entered a digit until timer expiry, the dial tone is turned off, and the phone changes to idle mode. The **Initial digit timer (seconds)** parameter defines the duration of this timespan.

#### Administration via WBM

Configuration	
<b>General</b>	
Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Hot/warm phone	No action
Hot/warm destination	<input type="text"/>
Initial digit timer (seconds)	30
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	2
Transfer on hangup	<input type="checkbox"/>
Bridging enabled	<input type="checkbox"/>
Dial plan enabled	<input type="checkbox"/>
<b>Audio</b>	
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	Prompt
BLF alerting	Beep
<b>Bluetooth</b>	
Enable Bluetooth interface	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Administration via Local Phone

```
Administration
├── System
│   ├── Features
│   │   ├── Configuration
│   │   │   ├── General
│   │   │   │   └── Initial digit timer
```

## 3.5.4 Call Transfer

### 3.5.4.1 Transfer on Ring

If this function is active, a call can be transferred after the user has dialled the third participant's number, but before the third party has answered the call. This feature is enabled or disabled in the User menu. The default is "Yes".

#### Administration via WBM

(User) Configuration > Outgoing calls

Outgoing calls	
Autodial delay (seconds)	6
Allow callback: busy	<input checked="" type="checkbox"/>
Allow callback: no reply	<input checked="" type="checkbox"/>
Allow busy when dialling	<input type="checkbox"/>
Allow transfer on ring	<input checked="" type="checkbox"/>
Submit      Reset	

#### Administration via Local Phone



### 3.5.4.2 Transfer on Hangup

This feature applies to the following scenario: While A is talking to B, C calls A. A accepts the call, so B is on hold and the call between A and C is active. If **Transfer on hangup** is enabled, and A goes on-hook, B gets connected to C. If disabled, C will be released when A hangs up, and A has the possibility to reconnect to B. By default, the feature is disabled.

## Administration

### Features - Configuration

## Administration via WBM

System > Features > Configuration

Configuration	
<b>General</b>	
Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Initial digit timer (seconds)	<input type="text" value="30"/>
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	<input type="text" value="2"/>
Transfer on hangup	<input type="checkbox"/>
<b>Audio</b>	
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	<input type="text" value="Prompt"/>
BLF alerting	<input type="text" value="Beep"/>
<b>Bluetooth</b>	
Enable Bluetooth interface	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Administration via Local Phone

|— Administration  
|— System  
|— Features  
|— Configuration  
|— General  
|— **Transfer on hangup**



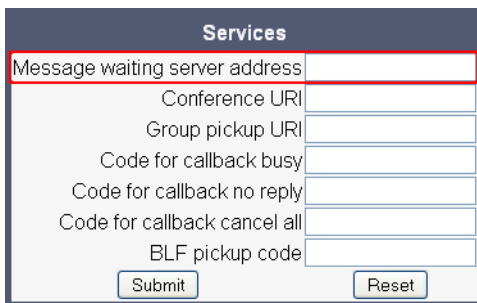
### 3.5.5 Message Waiting Address

The MWI (Message Waiting Indicator) is an optical signal which indicates that voicemail messages are on the server. Depending on the SIP server / gateway in use, the **Message waiting server address**, that is the address or host name of the server that sends message waiting notifications to the phone, must be configured.

With Asterisk, this setting is not typically necessary for enabling MWI functionality.

#### Administration via WBM

System > Features > Services



Services	
Message waiting server address	<input type="text"/>
Conference URI	<input type="text"/>
Group pickup URI	<input type="text"/>
Code for callback busy	<input type="text"/>
Code for callback no reply	<input type="text"/>
Code for callback cancel all	<input type="text"/>
BLF pickup code	<input type="text"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Administration via Local Phone

|— Administration  
|— System  
|— Features  
|— Addressing  
|— **MWI server URI**

## Administration

### Features - Configuration

#### 3.5.6 Indicate Messages (V2)

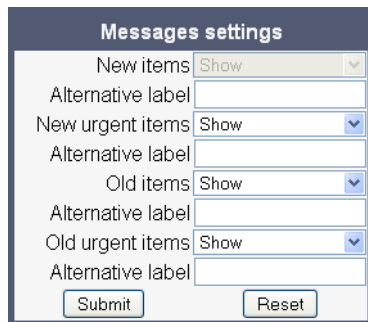
With firmware version V2, the indication of old and new messages on the display can be configured. There are 4 categories of voicemail messages: new, new urgent, old, and old urgent. For each category, the administrator can define whether the message count is shown or hidden, and set a header for the category.

##### Data required

- **New items:** Determines whether new items are indicated.  
Fixed Value: "Show"
- **Alternative label:** Label for new items.
- **New urgent items:** Determines whether new urgent items are indicated.  
Value range: "Show", "Hide"
- **Alternative label:** Label for new urgent items.
- **Old items:** Determines whether new urgent items are indicated.  
Value range: "Show", "Hide"
- **Alternative label:** Label for old items.
- **Old urgent items:** Determines whether old urgent items are indicated.  
Value range: "Show", "Hide"
- **Alternative label:** Label for old urgent items.

##### Administration via WBM

Local functions > Messages settings



The screenshot shows a web interface titled "Messages settings". It contains four rows of configuration options, each with a dropdown menu and a text input field for an alternative label. The first row is for "New items" with a dropdown set to "Show". The second row is for "New urgent items" with a dropdown set to "Show". The third row is for "Old items" with a dropdown set to "Show". The fourth row is for "Old urgent items" with a dropdown set to "Show". At the bottom of the form are "Submit" and "Reset" buttons.

## **Administration via Local Phone**

- |— Administration
  - |— Local functions
    - |— Messages settings
      - |— **New items**
      - |— **Alternative label**
      - |— **New urgent items**
      - |— **Alternative label**
      - |— **Old items**
      - |— **Alternative label**
      - |— **Old urgent items**
      - |— **Alternative label**

## Administration

### Features - Configuration

#### 3.5.7 Server Based Features



Please note that the **Servers features** parameter, despite the name similarity, is not related to the Server feature functionality as described in Section 3.6.19, “Server Feature”.

The use of server based call forwarding is enabled or disabled here. When DND and phone based call forwarding are to be used, **Server features** must be deactivated. This is the default setting. For using server based Call Forwarding, it must be activated.



Before switching **Server features** on or off, please ensure that Call Forwarding is not activated. Otherwise, the user will not be able to control the feature any more. It is recommended to set **Server features** when setting up the phone, and avoid further changes, as possible.

#### Administration via WBM

System > Features > Configuration

#### Administration via Local Phone

Administration  
├── System  
│ ├── Features  
│ │ ├── Configuration  
│ │ │ ├── General  
│ │ │ │ └── **Server features**



## Administration

### Features - Configuration

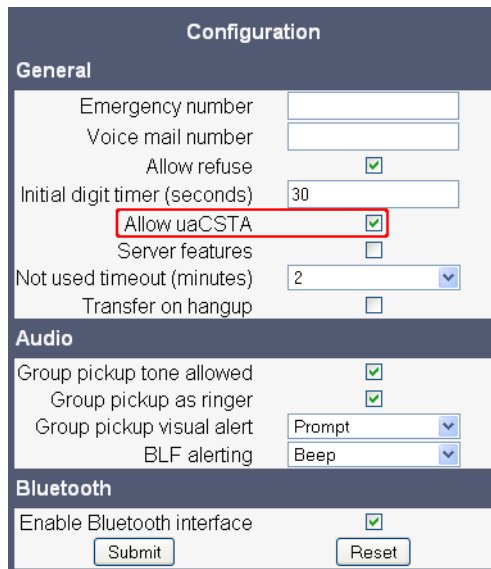
#### 3.5.8 uaCSTA Interface

User Agent CSTA (uaCSTA) is a limited subset of the CSTA protocol, which allows external CTI applications to interact with the phone.

If **Allow uaCSTA** is enabled, applications which support the uaCSTA standard will have access to the OpenStage phone. The default is "Yes".

#### Administration via WBM

System > Features > Configuration



The screenshot shows the 'Configuration' page with three sections: General, Audio, and Bluetooth. In the General section, the 'Allow uaCSTA' checkbox is checked and highlighted with a red box. Other settings include Emergency number, Voice mail number, Allow refuse (checked), Initial digit timer (30), Server features (unchecked), Not used timeout (2), and Transfer on hangup (unchecked). The Audio section includes Group pickup tone allowed (checked), Group pickup as ringer (checked), Group pickup visual alert (Prompt), and BLF alerting (Beep). The Bluetooth section has 'Enable Bluetooth interface' checked. 'Submit' and 'Reset' buttons are at the bottom.

Section	Setting	Value/Status
General	Emergency number	
	Voice mail number	
	Allow refuse	<input checked="" type="checkbox"/>
	Initial digit timer (seconds)	30
	Allow uaCSTA	<input checked="" type="checkbox"/>
	Server features	<input type="checkbox"/>
	Not used timeout (minutes)	2
Audio	Transfer on hangup	<input type="checkbox"/>
	Group pickup tone allowed	<input checked="" type="checkbox"/>
	Group pickup as ringer	<input checked="" type="checkbox"/>
	Group pickup visual alert	Prompt
Bluetooth	BLF alerting	Beep
	Enable Bluetooth interface	<input checked="" type="checkbox"/>

#### Administration via Local Phone

Administration  
├── System  
│ ├── Features  
│ │ ├── Configuration  
│ │ │ ├── General  
│ │ │ └── **Allow uaCSTA**

### 3.5.9 Local Menu Timeout

The timeout for the local user and admin menu is configurable. When the time interval is over, the menu is closed and the administrator/user is logged out.

The timeout may be helpful in case a user does a long press on a program key unintentionally, and thereby invokes the key configuration menu. The menu will close after the timeout, and the key will return to normal line key operation.



With firmware version V2, the current position in the user or admin menu is kept in case the user/admin has exited the menu, e.g. for receiving a call. Thus, if the user/admin re-enters the menu, he is directed to exactly that submenu, or parameter, which he had been editing before.

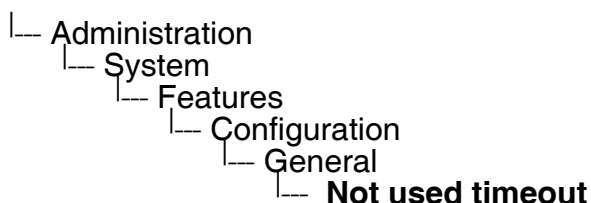
The timeout ranges from 1 to 5 minutes. The default value is 2.

### Administration via WBM

System > Features > Configuration

Configuration	
<b>General</b>	
Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Initial digit timer (seconds)	<input type="text" value="30"/>
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	<input type="text" value="2"/>
Transfer on hangup	<input type="checkbox"/>
<b>Audio</b>	
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	<input type="text" value="Prompt"/>
BLF alerting	<input type="text" value="Beep"/>
<b>Bluetooth</b>	
Enable Bluetooth interface	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

### Administration via Local Phone



## Administration

### Free Programmable Keys

## 3.6 Free Programmable Keys

OpenStage 15/40/60/80 phones feature free programmable keys (FPKs) which can be associated with special phone functions.

In the Administrator pages of the WBM, the programmable keys menu can be accessed via System > Features > Program keys.

At the phone, the configuration menu for a specific key is called by a long press on the related key. With firmware version V2R1, this can be disabled by deactivating **FPK program timer**. When this parameter is disabled, it is not possible to enter programming mode by long key press. However, the other methods for key programming remain enabled.

The functions available and their parameters are described in the following sub-sections.

### Administration via WBM (V2R1)

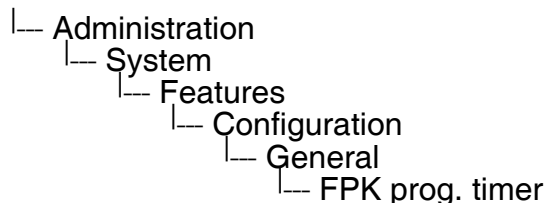
System > Features > Configuration > General

The screenshot shows the 'Configuration' page in the WBM interface, specifically the 'General' section. The 'FPK program timer' is set to 'On' and is highlighted with a red box. Other settings include 'Emergency number', 'Voice mail number', 'Allow refuse' (checked), 'Hot/warm phone' (No action), 'Hot/warm destination', 'Initial digit timer (seconds)' (30), 'Allow uaCSTA' (checked), 'Server features' (unchecked), 'Not used timeout (minutes)' (2), 'Transfer on hangup' (unchecked), 'Bridging enabled' (unchecked), 'Dial plan enabled' (unchecked), 'Group pickup tone allowed' (checked), 'Group pickup as ringer' (checked), 'Group pickup visual alert' (Prompt), 'BLF alerting' (Beep), and 'Enable Bluetooth interface' (checked). There are 'Submit' and 'Reset' buttons at the bottom.

Configuration	
<b>General</b>	
Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Hot/warm phone	No action
Hot/warm destination	<input type="text"/>
Initial digit timer (seconds)	30
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	2
Transfer on hangup	<input type="checkbox"/>
Bridging enabled	<input type="checkbox"/>
Dial plan enabled	<input type="checkbox"/>
<b>FPK program timer</b>	On
<b>Audio</b>	
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	Prompt
BLF alerting	Beep
<b>Bluetooth</b>	
Enable Bluetooth interface	<input checked="" type="checkbox"/>
Submit      Reset	



## Administration via Local Phone



### 3.6.1 Clear (no feature assigned)

The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys

Clear (no feature assigned)	
Key.label 3	<input type="text"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

### 3.6.2 Selected Dialing

On key press, a pre-defined call number is called.

The label displayed to the left of the key is defined in **Key label <key number>**.

The call number defined in the **Dial number** parameter is dialed on key press.

#### Administration via WBM

System > Features > Program keys > Selected dialling

Selected dialling	
Key.label 4	<input type="text" value="Selected diallin"/>
Dial number	<input type="text"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Administration

### Free Programmable Keys

#### 3.6.3 Repeat Dialing

On key press, the call number that has been dialed lastly is dialed again.

The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Repeat dialling



The screenshot shows a web browser window with a title bar that says "Repeat Dialling". Inside the window, there is a form with two input fields: "Key.label 3" and "Repeat Dialling". Below these fields are two buttons: "Submit" and "Reset".

#### 3.6.4 Call Forwarding

This key function controls phone based call forwarding. If forwarding is enabled, the phone will forward incoming calls to the predefined call number, depending on the current situation.



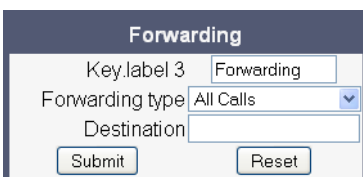
To use phone based call forwarding, **Server features** must be switched off (see Section 3.5.7, "Server Based Features").

The label displayed to the left of the key is defined in **Key label <key number>**.

The **Forwarding type** parameter determines the forwarding behaviour. If "All calls" is selected, any incoming call will be forwarded. If "On no reply" is set, the call will be forwarded when the user has not answered within a specified timespan. The timespan is configured in the WBM user pages under Configuration > Incoming calls > Forwarding > No replay delay (seconds). If "On busy" is selected, incoming calls will be forwarded when the phone is busy.

#### Administration via WBM

System > Features > Program keys > Forwarding



The screenshot shows a web browser window with a title bar that says "Forwarding". Inside the window, there is a form with three input fields: "Key.label 3" with a dropdown menu showing "Forwarding", "Forwarding type" with a dropdown menu showing "All Calls", and "Destination" with a text input field. Below these fields are two buttons: "Submit" and "Reset".

### 3.6.5 Ringer Off

Turns off the ringtone. Incoming calls are indicated via LEDs and display only.  
The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Ringer off



### 3.6.6 Hold

The call currently selected or active is put on hold.  
The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Hold

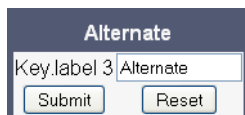


### 3.6.7 Alternate

Toggles between two calls; the currently active call is put on hold.  
The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Alternate



## Administration

### Free Programmable Keys

#### 3.6.8 Blind Call Transfer / Move Blind

A call is transferred without consultation, as soon as the phone goes on-hook or the target phone goes off-hook.

The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Move blind



Move blind	
Key.label 3	Move blind
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

#### 3.6.9 Join Two Calls

Call transfer, applicable when there is one active call and one call on hold. The active call and the held call are connected to each other, while the phone that has initiated the transfer is disconnected.

The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Join



Join	
Key.label 3	Join
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

### 3.6.10 Deflect a Call

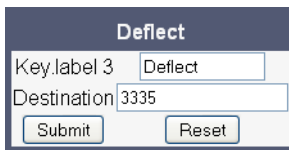
On key press, an incoming call is deflected to the specified destination.

The label displayed to the left of the key is defined in **Key label <key number>**.

The target destination is defined in the **Destination** parameter.

#### Administration via WBM

System > Features > Program keys > Deflect



The screenshot shows a web form titled "Deflect". It contains two input fields: "Key.label 3" with the value "Deflect" and "Destination" with the value "3335". Below the fields are two buttons: "Submit" and "Reset".

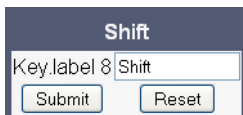
### 3.6.11 Shift Level

Shift the level for the programmable keys. When activated, the functions assigned to the shifted level are available on the keys.

The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Shift



The screenshot shows a web form titled "Shift". It contains one input field: "Key.label 8" with the value "Shift". Below the field are two buttons: "Submit" and "Reset".

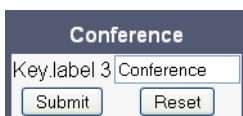
### 3.6.12 Phone-Based Conference

Establishes a three-party conference from an active call and a held call.

The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Conference



The screenshot shows a web form titled "Conference". It contains one input field: "Key.label 3" with the value "Conference". Below the field are two buttons: "Submit" and "Reset".

## Administration

### Free Programmable Keys

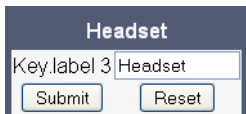
#### 3.6.13 Accept Call via Headset

On key press, incoming call is accepted via headset. This feature is available on OpenStage 40/60/80 phones.

The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Headset



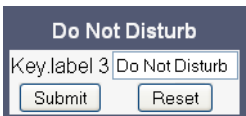
#### 3.6.14 Do Not Disturb

If this feature is activated, incoming calls will not be indicated to the user.

The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Do Not Disturb



#### 3.6.15 Repertory Dial

This feature is similar to the selected dialing function, but additionally, special calling functions are possible. The desired number and/or function is selected via the **Dial string** parameter. The following call functions are available:

- "<" disconnect a call.
- "~" start a consultation call. Example: "~3333>"
- ">" (preceded by a call number) start a call. Example: "3333>"
- "-" enter a pause, e. g. for exit-code or international dialing. Example: "0-011511234567>"

The label displayed to the left of the key is defined in **Key label <key number>**.

## Administration via WBM

System > Features > Program keys > Repertory dial

**Repertory dial**

Key.label 3

Use the following characters in the Dial string field

Clear	<
Consult	~
Okay	>
Pause	-

Dial string

## Administration

### Free Programmable Keys

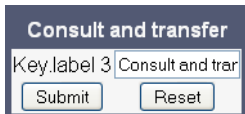
#### 3.6.16 Consult and Transfer

When the phone is engaged in an active call, this function opens a dialing menu to make a consultation call.

The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Consult and transfer



Consult and transfer	
Key.label 3	Consult and trar
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

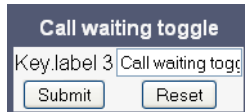
#### 3.6.17 Toggle Call Waiting

Enables or disables the call waiting feature. If enabled, calls from a third party are allowed during an active call.

The label displayed to the left of the key is defined in **Key label <key number>**.

#### Administration via WBM

System > Features > Program keys > Call waiting toggle




Call waiting toggle	
Key.label 3	Call waiting togg
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>



### 3.6.18 Auto Answer With Zip Tone (V2)

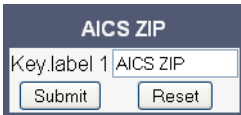
This feature is primarily designed for call centers. If activated, and a headset is used, the phone will automatically accept incoming calls without ringing and without the necessity to press a key. Moreover, additional signalling information from Asterisk is not required.

To indicate a new call to the user, a zip tone is played through the headset when the call is accepted.

 The feature is available for OpenStage 40/60/80, which provide a headset jack; it only operates if the headset is plugged in. In case the key for feature activation has been pressed before the headset is connected, the feature will be automatically activated when the headset is plugged in.

#### Administration via WBM

System > Features > Program keys > AICS Zip tone



### 3.6.19 Server Feature

Invokes a feature on the SIP server. The status of the feature can be monitored via the LED associated to the key.

The label displayed to the left of the key is defined in **Key label <key number>**.

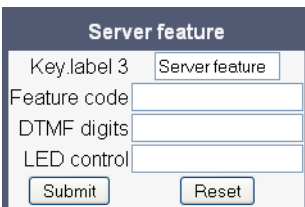
The code entered in **Feature code** will be sent in a SIP INVITE to the SIP server.

The code entered in **DTMF digits** will be sent to the SIP server as a DTMF signal. As a pre-condition, an audio path routed via the SIP server must exist.

The SIP URI configured in **LED control** will receive status notifications (SIP NOTIFY) from the SIP server. The LED is switched on or off accordingly.

#### Administration via WBM

System > Features > Program keys > Server feature



## Administration

### Free Programmable Keys

#### 3.6.20 Monitoring Another Extension via BLF Key

This function offers the possibility to monitor another extension, and to pick up calls for the monitored extension. The LED of the key will indicate the state of the extension monitored:

- Extension is busy: LED is glowing.
- Extension is ringing: LED is blinking.

The label for the key is defined in **Key label <key number>**.

The **Monitored phone** parameter stores the call number or SIP URI of the monitored phone.

If **Audible alert** is enabled, an alert beep or ringtone will indicate an incoming call for the monitored phone. The **BLF alerting** parameter in System > Features > Configuration determines whether the alert beep or the ringtone is used.

If **Popup alert** is enabled, a popup window will indicate an incoming call for the monitored phone.

With firmware version V2R1 onwards, the BLF key can be used to pick up calls for the monitored extension. For this purpose, the appropriate SIP code must be entered in System > Features > Services > **BLF pickup code**.

## Administration via WBM

System > Features > Program keys > BLF

BLF	
Key label 3	<input type="text" value="BLF"/>
Monitored phone	<input type="text"/>
Audible alert	<input type="checkbox"/>
Popup on alert	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

System > Features > Configuration

Configuration	
<b>General</b>	
Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Hot/warm phone	<input type="text" value="Warm phone"/>
Hot/warm destination	<input type="text" value="3333"/>
Initial digit timer (seconds)	<input type="text" value="30"/>
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	<input type="text" value="5"/>
Transfer on hangup	<input type="checkbox"/>
Bridging enabled	<input type="checkbox"/>
Dial plan enabled	<input type="checkbox"/>
<b>Audio</b>	
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	<input type="text" value="Prompt"/>
BLF alerting	<input type="text" value="Beep"/>
<b>Bluetooth</b>	
Enable Bluetooth interface	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Administration

### Free Programmable Keys

System > Features > Services (V2R1)

Services	
Message waiting server address	<input type="text"/>
Conference URI	<input type="text"/>
Group pickup URI	<input type="text"/>
Code for callback busy	<input type="text"/>
Code for callback no reply	<input type="text"/>
Code for callback cancel all	<input type="text"/>
BLF pickup code	<input type="text"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

### 3.6.21 Start application

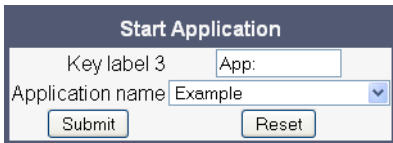
With this key, the user can start a pre-defined XML application (see Section 3.14, “Applications”). XML applications are available for OpenStage 60/80 phones.

The label displayed to the left of the key is defined in **Key label <key number>**.

The **Application name** parameter selectes the XML application to be started.

#### Administration via WBM

System > Features > Program keys



### 3.6.22 Send Request via HTTP/HTTPS (V2)

With this function, the phone can send a specific HTTP or HTTPS request to a server. The function is available at any time, irrespective of registration and call state. Possible uses are HTTP-controlled features on the system, e. g. hunt group login/logout, or functions on a web server that can only be triggered by HTTP/HTTPS request, e. g. login/logout for flexible working hours.

The **Protocol** parameter defines whether HTTP or HTTPS is to be used for sending the URL to the server.

The **Web server address** is the IP address or DNS name of the remote server to which the URL is to be sent.

The **Port** is the target port at the server to which the URL is to be sent.

The **Path** is the server-side path to the desired function, i. e. the part of the URL that follows the IP address or DNS name. Example: `webpage/checkin.html`

In the **Parameters** field, one or more key/value pairs in the format "`<key>=<value>`" can be added to the request, separated by an ampersand (&).

Example: `phonenumber=3338&action=huntGroupLogon`



The question mark will be automatically added between the path and the parameters. If a question mark has been entered at the start of the parameters, it will be stripped off automatically.

## Administration

### Free Programmable Keys

The **Method** parameter determines the HTTP method to be used, which can either be GET or POST. If GET is selected, the additional parameters (**Parameters**) and the user id/password (**Web server user ID/Web server password**) are part of the URL. If POST is selected, these data form the body of the message.

In case the web server requires user authentication, the parameters **Web server user ID** and **Web server password** can be used. If not null, the values are appended between the server-side path (**Path**) and the additional parameters (**Parameter**).

If the **LED controller URI** is given, the LED associated with this key indicates the state of the call number or SIP URI specified here, provided the SIP server sends a notification:

- Busy notification: LED is glowing.
- Ringing notification: LED is blinking.
- Idle notification (state=terminated): LED is dark.

This function is similar to the LED function of the BLF key described in Section 3.6.20, "Monitoring Another Extension via BLF Key".

With firmware version V2R2, the **Push support** parameter is available. If activated, the LED is controllable by a combination of an HTTP push request and an XML document. For further information, see the XML Applications Developer's Guide.



If you want to use the HTTP push solution, please ensure that the **LED controller URI** field is empty. Otherwise, the phone will only use the SIP mechanism for LED control, and ignore the push request.

The **Symbolic name**, which is available with firmware version V2R2, is used to assign a push request from the application server to the appropriate free programmable key resp. fixed function key. This value must be unique for all keys involved.

### Data required

- **Key label <n>**: Label for the key.
- **Protocol**: Transfer protocol to be used.  
Value range: "HTTP", "HTTPS"
- **Web server address**: IP address or DNS name of the remote server.
- **Port**: Target port at the server.
- **Path**: Server-side path to the function.
- **Parameters**: Optional parameters to be sent to the server.
- **Method**: HTTP method used for transfer.  
Value range: "GET", "POST"
- **Web server user ID**: User id for user authentication at the server.
- **Web server password**: Password for user authentication at the server.
- **LED controller URI**: Indicates the state of the call number specified.
- **Push support (V2R2)**: Enables or disables LED control by push requests from the server.

- **Symbolic name (V2R2):** Assigns a push request to the appropriate free programmable key resp. fixed function key.

## Administration

### Free Programmable Keys

## Administration via WBM

System > Features > Program keys > Send URL

Send URL	
Key label 1	<input type="text" value="Send URL"/>
<b>Message details</b>	
Protocol	<input type="text" value="HTTPS"/>
Web server address	<input type="text"/>
Port	<input type="text"/>
Path	<input type="text"/>
Parameters	<input type="text"/>
<small>(key1=value1&amp;key2=value2)</small>	
Method	<input type="text" value="GET"/>
<b>Authenticate phone</b>	
Web server user ID	<input type="text"/>
Web server password	<input type="text"/>
<b>SIP response handling</b>	
LED controller URI	<input type="text"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>



### **3.6.23 Mute (OpenStage 15 Only)**

On pressing this key, the microphone is turned off. This programmable key function is available only for OpenStage 15 phones, which have no fixed mute key.

#### **Administration via WBM**

System > Features > Program keys > Mute

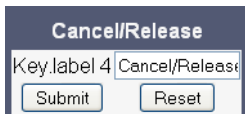


### **3.6.24 Release (OpenStage 15 Only)**

On pressing this key, the current call is disconnected. This programmable key function is available only for OpenStage 15 phones, which have no fixed release key.

#### **Administration via WBM**

System > Features > Program keys > Release




## 3.7 Fixed Function Keys

### 3.7.1 Programmable Call Forwarding Key (V2)



This feature is available for all OpenStage phones except OpenStage 15, which has no forwarding key.

By default, the fixed forwarding key  controls the phone's built-in forwarding functionality. Alternatively, server-based call forwarding can be assigned to this key. For this purpose, an appropriate feature code or DTMF signal is sent to the SIP server in order to toggle forwarding. The parameters **Feature code**, **DTMF digits**, and **LED control** are the same as with the server feature key; please refer to Section 3.6.19, "Server Feature".

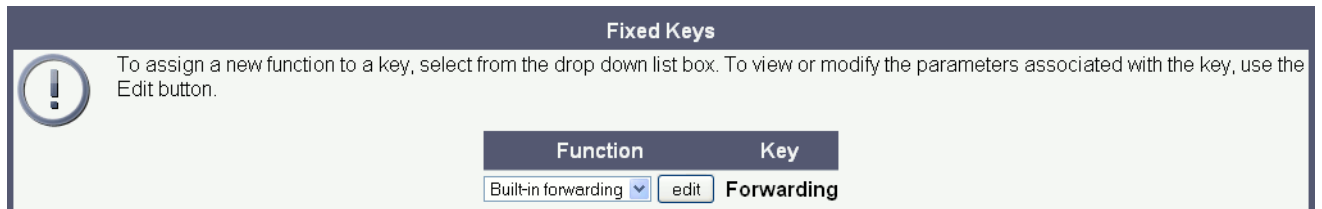
The **Key functionality** parameter controls the behaviour of the forwarding key. To have the LED of the forwarding key controlled by the SIP server, the SIP URI/Call number entered in **LED control** must relate to the corresponding SIP subscription. The following options are possible:

- "Toggle call forwarding": On pressing the key, the user will be presented with a prompt "Toggle call forwarding", allowing him/her to accept or reject the action. When accepted, the configured feature code or DTMF sequence will be sent to the external server. The LED and the forwarding icon in the call view screen are controlled by the SIP server.
- "Unspecified call forwarding": No prompt will be presented to the user. The configured feature code or DTMF sequence will be sent to the external server immediately. It is not assumed that the key is used to toggle call forwarding, but that the key is generally call forwarding related. The phone's built-in forwarding is disabled, and the LED will be controlled by the SIP server, but not the forwarding icon in the call view screen.
- "Unspecified": No prompt will be presented to the user. The configured feature code or DTMF sequence will be sent to the external server immediately. No assumptions will be made as to the operation of the key. The phone's built-in forwarding is not disabled. The LED will be controlled by the SIP server, but not the forwarding icon in the call view screen.

## Administration via WBM

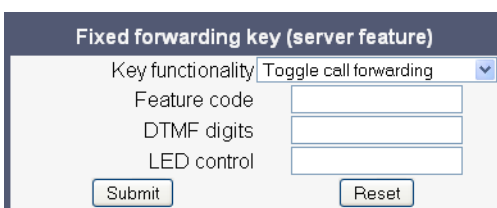
System > Features > Fixed Keys

### 1. Built-in forwarding selected:



The screenshot shows the 'Fixed Keys' configuration page. At the top, there is a header 'Fixed Keys'. Below the header, there is a warning icon and a message: 'To assign a new function to a key, select from the drop down list box. To view or modify the parameters associated with the key, use the Edit button.' Below this, there is a table with two columns: 'Function' and 'Key'. The 'Function' column has a dropdown menu with 'Built-in forwarding' selected. The 'Key' column has a button labeled 'edit' and the text 'Forwarding'.

### 2. Server feature selected:



The screenshot shows the 'Fixed forwarding key (server feature)' configuration page. It has a title 'Fixed forwarding key (server feature)'. Below the title, there are four fields: 'Key functionality' with a dropdown menu showing 'Toggle call forwarding', 'Feature code' with an empty text box, 'DTMF digits' with an empty text box, and 'LED control' with an empty text box. At the bottom, there are two buttons: 'Submit' and 'Reset'.

## 3.7.2 Programmable Redial Key (V2R1)



This feature is available only for OpenStage 20/40; the other models have no fixed redial key.

## Administration

### Key Modules

## 3.8 Key Modules

A key module provides 12 additional free programmable keys. Key modules are available for OpenStage 15/40/60/80 phones. A maximum of 2 key modules can be connected to one phone.

The following table shows which key modules can be connected to the particular phone types.

Phone Type	OpenStag Key Module 15	OpenStage Key Module
OpenStage 15	1	-
OpenStage 40	1	2
OpenStage 60/80	-	2



Please note that OpenStage Key Modules (self-labeling) and OpenStage Key Module 15 (paper label) can not be combined. For key labelling, a special tool is available; please refer to:


[http://wiki.siemens-enterprise.com/index.php/Key\\_Labeling\\_Tool](http://wiki.siemens-enterprise.com/index.php/Key_Labeling_Tool)

The configuration of a key on the key module is exactly the same as the configuration of a phone key.

## Administration via WBM


System > Features > Key module 1/2

















































**Key Module 1**

 To assign a new function to a key, select from the drop down list box. To view or modify the parameters associated with the key, use the Edit button.

Normal	Key	Shifted
Clear (no feature assigned) <input type="button" value="edit"/>	1	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	2	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	3	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	4	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	5	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	6	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	7	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	8	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	9	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	10	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	11	Clear (no feature assigned) <input type="button" value="edit"/>
Clear (no feature assigned) <input type="button" value="edit"/>	12	Clear (no feature assigned) <input type="button" value="edit"/>

**Key Module 2**

 To assign a new function to a key, select from the drop down list box. To view or modify the parameters associated with the key, use the Edit button.

Normal	Key	Shifted
Clear (no feature assigned)  	<b>1</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>2</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>3</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>4</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>5</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>6</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>7</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>8</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>9</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>10</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>11</b>	Clear (no feature assigned)  
Clear (no feature assigned)  	<b>12</b>	Clear (no feature assigned)  

## Administration

### Dialing

## 3.9 Dialing

### 3.9.1 Canonical Dialing Configuration

Call numbers taken from a directory application, LDAP for instance, are mostly expressed in canonical format. Moreover, call numbers entered into the local phone book are automatically converted and stored in canonical format, thereby adding "+", **Local country code**, **Local national code**, and **Local enterprise number** as prefixes. If, for instance, the user enters the extension "1234", the local country code is "49", the local national code is "89", and the local enterprise number is "722", the resulting number in canonical format is "+49897221234".

For generating an appropriate dial string, a conversion from canonical format to a different format may be required. The following parameters determine the local settings of the phone, like **Local country code** or **Local national code**, and define rules for converting from canonical format to the format required by the PBX.



To enable the number conversion, all parameters not marked as optional must be provided, and the canonical dial lookup settings must be configured (see Section 3.9.2, "Canonical Dial Lookup").

#### Data required

- **Local country code:** E.164 Country code, e.g. "49" for Germany, "44" for United Kingdom. Maximum length: 5
- **National prefix digit:** Prefix for national connections, e.g. "0" in Germany and United Kingdom. Maximum length: 5
- **Local national code:** Local area code or city code, e.g. "89" for Munich, "20" for London. Maximum length: 6
- **Minimal local number length:** Minimum number of digits in a local PSTN number, e.g. 3335333 = 7 digits.
- **Local enterprise number:** Number of the company/PBX wherein the phone is residing. Maximum length: 10 (Optional)
- **PSTN access code:** Access code used for dialing out from a PBX to a PSTN. Maximum length: 10 (Optional)
- **International access code:** International prefix used to dial to another country, e.g. "00" in Germany and United Kingdom. Maximum length: 5.
- **Operator codes:** List of extension numbers for a connection to the operator. The numbers entered here are not converted to canonical format. Maximum length: 50 (Optional)
- **Emergency number:** List of emergency numbers to be used for the phone. If there are more than one numbers, they must be separated by commas. The numbers entered here are not converted to canonical format. Maximum length: 50 (Optional)

These emergency numbers can also be dialed when the phone is locked, in line with the emergency number configured in **Features > Configuration** (see Section 3.4.2, “Emergency and Voice Mail”).

- **Initial extension digits / Initial digits:** List of initial digits of all possible extensions in the local enterprise network. When a call number could not be matched as a public network number, the phone checks if it is part of the local enterprise network. This is done by comparing the first digit of the call number to the value(s) given here. If it matches, the call number is recognized as a local enterprise number and processed accordingly. If, for instance, the extensions 3000-5999 are configured in the PBX, each number will start with 3, 4, or 5. Therefore, the digits to be entered are 3, 4, 5.

- **Internal numbers**



To enable the phone to discern internal numbers from external numbers, it is crucial that a canonical lookup table is provided (Section 3.9.2, “Canonical Dial Lookup”).

- "Local enterprise form": Default value. Any extension number is dialed in its simplest form. For an extension on the local enterprise node, the node ID is omitted. If the extension is on a different enterprise node, then the appropriate node ID is prefixed to the extension number. Numbers that do not correspond to an enterprise node extension are treated as external numbers.
- "Always add node": Numbers that correspond to an enterprise node extension are always prefixed with the node ID, even those on the local node. Numbers that do not correspond to an enterprise node extension are treated as external numbers.
- "Use external numbers": All numbers are dialed using the external number form.
- **External numbers**
  - "Local public form": Default value. All external numbers are dialed in their simplest form. Thus a number in the local public network region does not have the region code prefix. Numbers in the same country but not in the local region are dialed as national numbers. Numbers for a different country are dialed using the international format.
  - "National public form": All numbers within the current country are dialed as national numbers, thus even local numbers will have a region code prefix (as dialling from a mobile). Numbers for a different country are dialed using the international format.
  - "International form": All numbers are dialed using their full international number format.
- **External access code**
  - "Not required": The access code to allow a public network number to be dialed is not required.

## Administration

### Dialing

- "For external numbers": Default value. All public network numbers will be prefixed with the access code that allows a number a call to be routed outside the enterprise network. However, international numbers that use the + prefix will not be given access code.
- **International gateway code:**
  - "Use national code": Default value. All international formatted numbers will be dialled explicitly by using the access code for the international gateway to replace the "+" prefix.
  - "Leave as +": All international formatted numbers will be prefixed with "+".

## Administration via WBM

Local functions > Locality > Canonical dial settings

Canonical dial settings	
Local country code	49
National prefix digit	0
Local national code	89
Minimum local number length	4
Local enterprise node	723
PSTN access code	0
International access code	00
Operator codes	
Emergency numbers	
Initial extension digits	1,2,3,4
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

Local functions > Locality > Canonical dial

Canonical dial	
Internal numbers	Local enterprise form
External numbers	Local public form
External access code	Not required
International gateway code	Use national code
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	



## Administration via Local Phone

- |— Administration
  - |— Local Functions
    - |— Locality
      - |— Canonical dial settings
        - |— **Local country code**
        - |— **National prefix digit**
        - |— **Local national code**
        - |— **Minimum local number length**
        - |— **Local enterprise node**
        - |— **PSTN access code**
        - |— **International access code**
        - |— **Operator code**
        - |— **Emergency number**
        - |— **Initial digits**

- |— Administration
  - |— Local Functions
    - |— Locality
      - |— Canonical dial
        - |— **Internal numbers**
        - |— **External numbers**
        - |— **External access code**
        - |— **International access code**

## Administration

### Dialing

## 3.9.2 Canonical Dial Lookup

The parameters given here are important for establishing outgoing calls and for recognizing incoming calls.

In the local phonebook, and, mostly, in LDAP directories, numbers are stored in canonical format. In order to generate an appropriate dial string according to the settings in **Internal numbers** and **External numbers** (-> Section 3.9.1), internal numbers must be discerned from external numbers. The canonical lookup table provides patterns which allow for operation.

Furthermore, these patterns enable the phone to identify callers from different local or international telephone networks by looking up the caller's number in the phone book. As incoming numbers are not always in canonical format, their composition must be analyzed first. For this purpose, an incoming number is matched against one or more patterns consisting of country codes, national codes, and enterprise nodes. Then, the result of this operation is matched against the entries in the local phone book.



To make sure that canonical dial lookup works properly, at least the following parameters of the phone must be provided:

- **Local country code** (-> Section 3.9.1)
- **Local area code** (-> Section 3.9.1)
- **Local enterprise code** (-> Section 3.9.1)

Up to 5 patterns can be defined. The **Local code 1 ... 5** parameters define up to 5 different local enterprise nodes, whilst **International code 1... 5** define up to 5 international codes, that is, fully qualified E.164 call numbers for use in a PSTN.

### Data required

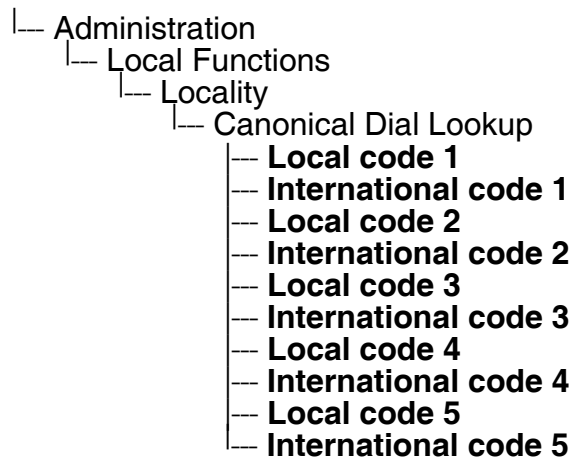
- **Local code 1 ... 5:** Local enterprise code for the node/PBX the phone is connected to.  
Example: "722" for Siemens Munich.
- **International code 1 ... 5:** Sequence of "+", local country code, local area code, and local enterprise node corresponding to to one or more phone book entries.  
Example: "+4989722" for Siemens Munich.

### Administration via WBM

Locality > Canonical dial lookup

Canonical dial lookup			
Local code 1:	<input type="text"/>	International code 1:	<input type="text"/>
Local code 2:	<input type="text"/>	International code 2:	<input type="text"/>
Local code 3:	<input type="text"/>	International code 3:	<input type="text"/>
Local code 4:	<input type="text"/>	International code 4:	<input type="text"/>
Local code 5:	<input type="text"/>	International code 5:	<input type="text"/>
<input type="button" value="Submit"/>		<input type="button" value="Reset"/>	

## Administration via Local Phone



## Administration

### Dialing

#### 3.9.3 Dial Plan (V2)

With firmware version V2, OpenStage phones may optionally use a phone-side dial plan. By means of the dial plan, the phone can infer from the digits entered by the user that a complete call number has been entered. Thus, the phone can start the dialing process without the user explicitly having to select a further option such as "dial" or "OK" after entering the last digit. The standard timer, which is found on the WBM under User menu > Configuration > Outgoing calls > Autodial delay (seconds), is overridden.

A dial plan consists of rules defining patterns, timeouts and actions to be performed when a pattern is matched and/or a timeout has expired. The phone can store one dialplan, which can contain up to 48 different rules.

It is very important that the phone's dial plan does not interfere with the dial plan in the SIP server, PBX, or public network.

The dial plan can be created and uploaded to the phone using the DLS (please refer to the Deployment Service Administration Manual). The DLS can also export and import dial plans in .csv format. For details about the composition of a dial plan, please refer to Section 4.5.3, "How To Set Up And Deploy A Dial Plan".

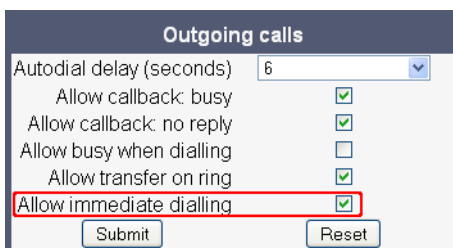
The current dial plan, along with its status (enabled/disabled) and error status can be displayed on the WBM via Diagnostics > Fault trace configuration > Download dial plan file.

To make use of the dial plan facility, the following requirements must be met:

- A correct dial plan must be loaded to the phone.
- In the user menu, **Allow immediate dialing** must be enabled
- **Dial plan enabled** must be checked.

#### Administration via WBM

User menu > Configuration > Outgoing calls > Allow immediate dialing



Outgoing calls	
Autodial delay (seconds)	6
Allow callback: busy	<input checked="" type="checkbox"/>
Allow callback: no reply	<input checked="" type="checkbox"/>
Allow busy when dialling	<input type="checkbox"/>
Allow transfer on ring	<input checked="" type="checkbox"/>
<b>Allow immediate dialing</b>	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

System > Features > Configuration > Dial plan enabled

Configuration	
<b>General</b>	
Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Hot/warm phone	No action <input type="button" value="v"/>
Hot/warm destination	<input type="text"/>
Initial digit timer (seconds)	30 <input type="text"/>
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	2 <input type="button" value="v"/>
Transfer on hangup	<input type="checkbox"/>
Bridging enabled	<input type="checkbox"/>
Dial plan enabled	<input type="checkbox"/>
<b>Audio</b>	
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	Prompt <input type="button" value="v"/>
BLF alerting	Beep <input type="button" value="v"/>
<b>Bluetooth</b>	
Enable Bluetooth interface	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

### Administration via Local Phone

|\_\_ User  
|\_\_ Configuration  
|\_\_ Outgoing calls  
|\_\_ **Immediate dialing**

|\_\_ Administration  
|\_\_ Features  
|\_\_ Configuration  
|\_\_ General  
|\_\_ **Dial plan**

## Administration

### *Distinctive Ringing (V2)*

#### 3.10 Distinctive Ringing (V2)

The SIP server may provide information indicating a specific type of call within an incoming call. With firmware V2, the phone can use this information to choose a ring tone according to the call type.

The relevant information is carried as a string in the SIP Alert-Info header. When the string sent via Alert-Info matches the string specified in the **Name** parameter, the corresponding ringer is triggered. In the Asterisk dial plan (`extensions.conf`), this is done by the `SIPAddHeader()` function. The following example line from an `extensions.conf`, which precedes the line containing the `Dial()` function, adds the specific string `alert-internal` to the SIP header for a specific number pattern:

```
exten => _3XXX,1,SIPAddHeader("Alert-Info:alert-internal")
```

Thus, in this example, the value for **Name** would be "alert-internal".

The **Ringer sound** parameter determines whether a pattern, i. e. melody, or a specific sound file shall be used as ringer.

**Pattern Melody** selects the melody pattern that will be used if **Ringer sound** is set to "Pattern".

**Pattern sequence** determines the length for the melody pattern, and the interval between the repetitions of the pattern. There are 3 variants:

- "1": 1 sec ON, 4 sec OFF
- "2": 1 sec ON, 2 sec OFF
- "3": 0.7 sec ON, 0.7 sec OFF, 0.7 sec ON, 3 sec OFF

The **Duration** parameter determines how long the phone will ring on an incoming call. The range is 0-300 sec.

With the **Audible** parameter, the ringer can be muted. In this case, an incoming call will be indicated only visually.

**Administration via WBM**

Ringer setting

**Ringer setting**

This page allows you to set up interworking with other IP phone systems that support distinctive ringing

Name	Ringer sound	Pattern melody	Pattern sequence	Duration (sec)	Audible
alert-internal	Pattern <input type="button" value="v"/>	8 <input type="button" value="v"/>	3 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>

## Administration

### Transferring Phone Software, Application and Media Files

## 3.11 Transferring Phone Software, Application and Media Files

New software images, hold music, picture clips for phonebook entries, LDAP templates, company logos, screensaver images, and ringtones can be uploaded to the phone via DLS (Deployment Service) or WBM (Web Based Management).



For all user data, which includes files as well as phonebook content, the following amounts of storage place are available:

- OpenStage 15/20/40: 4 MB
- OpenStage 60/80: 8 MB

### 3.11.1 FTP/HTTPS Server

There are no specific requirements regarding the FTP server for transferring files to the OpenStage phone. Any FTP server providing standard functionality will do.

### 3.11.2 Common FTP/HTTPS Settings

For each one of the various file types, e.g. phone software, hold music, and picture clips, specific FTP/HTTPS access data can be defined. If some or all file types have the parameters **Download method**, **FTP Server**, **FTP Server port**, **FTP account**, **FTP username**, **FTP path**, and **HTTPS base URL** in common, they can be specified here. These settings will be used for a specific file type if its **Use defaults** parameter is set to "Yes".



If **Use defaults** is activated for a specific file type, any specific settings for this file type are overridden by the defaults.

#### Data required

- **Download method:** Selects the protocol to be used.  
Value range: "FTP", "HTTPS"  
Default: "FTP"
- **FTP Server address:** IP address or hostname of the FTP server in use.
- **FTP Server port:** Port number of the FTP server in use. For HTTPS, port 443 is assumed, unless a different port is specified in the HTTPS base URL.  
Default: 21
- **FTP account:** Account at the server (if applicable).
- **FTP username:** User name for accessing the server.
- **FTP password:** Password corresponding to the user name.
- **FTP path:** Path of the directory containing the files.
- **HTTPS base URL:** IP address or hostname of the HTTPS server in use. If no port number is specified here, port 443 is used. Only applicable if **Download method** is switched to "HTTPS".



## Administration via WBM

File transfer > Defaults

Defaults	
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	••••••
FTP path	
HTTPS base URL	
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Administration via Local Phone

- |— Administration
  - |— File Transfer
    - |— Defaults
      - |— **Download method**
      - |— **FTP Server**
      - |— **FTP Port**
      - |— **FTP Account**
      - |— **FTP Username**
      - |— **FTP Password**
      - |— **FTP path**
      - |— **HTTPS base URL**

## Administration

### Transferring Phone Software, Application and Media Files

#### 3.11.3 Phone Software

The firmware for the phone can be updated by downloading a new software file to the phone.



Do not disconnect the phone from the LAN or power unit during software update. An active update process is indicated by blinking LEDs and/or in the display.

##### 3.11.3.1 FTP/HTTPS Access Data

If the default FTP/HTTPS Access settings (see Section 3.11.2, “Common FTP/HTTPS Settings”) are to be used, **Use default** must be set to "Yes", and only the **Filename** must be specified.

##### Data required (in every case)

- **Use default:** Specifies whether the default FTP/HTTPS access settings shall be used.  
Value range: "Yes", "No"  
Default: "No"
- **Filename:** Specifies the file name of the phone software.

##### Data required (if not derived from Defaults)

- **Download method:** Selects the protocol to be used.  
Value range: "FTP", "HTTPS"  
Default: "FTP"
- **FTP Server address:** IP address or hostname of the FTP/HTTPS server in use.
- **FTP Server port:** Port number of the FTP/HTTPS server in use.  
Default: 21
- **FTP account:** Account at the server (if applicable).
- **FTP username:** User name for accessing the server.
- **FTP password:** Password corresponding to the user name.
- **FTP path:** Path of the directory containing the files.
- **HTTPS base URL:** IP address or hostname of the HTTPS server in use; only applicable if **Download method** is switched to "HTTPS".

## Administration via WBM

File transfer > Phone application

Phone application	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	••••••
FTP path	
HTTPS base URL	
Filename	
After submit	do nothing
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Administration via Local Phone

- |— Administration
  - |— File Transfer
    - |— Phone app
      - |— **Use default**
      - |— **Download method**
      - |— **FTP Server**
      - |— **FTP Port**
      - |— **FTP Account**
      - |— **FTP Username**
      - |— **FTP Password**
      - |— **FTP path**
      - |— **HTTPS base URL**
      - |— **Filename**

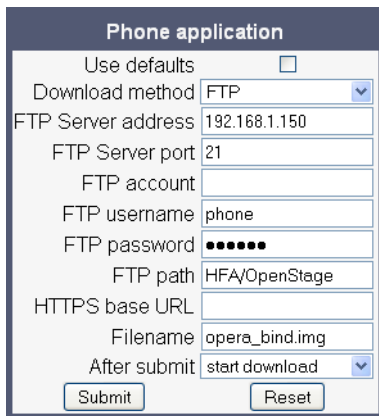
## Administration

### Transferring Phone Software, Application and Media Files

#### 3.11.3.2 Download/Update Phone Software

If applicable, phone software should be deployed using a provisioning service, such as the Deployment Service (DLS). Alternatively, the download can be triggered from the web interface or from the Local phone menu. When the download has been successful, the phone will restart and boot up using the new software.

#### Start Download via WBM



Phone application	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	192.168.1.150
FTP Server port	21
FTP account	
FTP username	phone
FTP password	••••••
FTP path	HFA/OpenStage
HTTPS base URL	
Filename	opera_bind.img
After submit	start download
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

In the **File transfer** > Phone application dialog, set **After submit** to "start download" and press the **Submit** button.

#### Start Download via Local Phone

1. In the administration menu, set the focus to **Phone app**.

```
|__ Administration
  |__ File Transfer
    |__ Phone app
```

2. Press the **→** key. A context menu opens. In the context menu, select **Download**. The download will start immediately.

### 3.11.4 Music on Hold

If enabled by the user, the Music on Hold (MoH) sound file is played when a call is put on hold.



The file size for a Music on Hold file is limited to 1MB. If the file is too large or the contents of the file are not valid, the file will not be stored in the phone.

The following formats for Music on Hold are supported:

- Proprietary Music on Hold format for optiPoint 410/420 phones
- WAV format. The recommended specifications are:
  - Audio format: PCM
  - Bitrate: 16 kB/sec
  - Sampling rate: 8 kHz
  - Quantization level: 16 bit
- MIDI format
- MP3 format (OpenStage 60/80 only). A bitrate of 48 kB/sec is recommended.

#### 3.11.4.1 FTP/HTTPS Access Data

If the default FTP/HTTPS access settings (see Section 3.11.2, "Common FTP/HTTPS Settings") are to be used, **Use Default** must be set to "Yes", and only the **Filename** must be specified.

##### Data required (in every case)

- **Use default:** Specifies whether the default FTP/HTTPS access settings shall be used.  
Value range: "Yes", "No"  
Default: "No"
- **Filename:** Specifies the file name of the phone software.

##### Data required (if not derived from Defaults)

- **Download method:** Selects the protocol to be used.  
Value range: "FTP", "HTTPS"  
Default: "FTP"
- **FTP Server address:** IP address or hostname of the FTP/HTTPS server in use.
- **FTP Server port:** Port number of the FTP/HTTPS server in use.  
Default: 21
- **FTP account:** Account at the server (if applicable).
- **FTP username:** User name for accessing the server.
- **FTP password:** Password corresponding to the user name.

## Administration

### Transferring Phone Software, Application and Media Files

- **FTP path:** Path of the directory containing the files.
- **HTTPS base URL:** IP address or hostname of the HTTPS server in use; only applicable if **Download method** is switched to "HTTPS".

## Administration via WBM

File transfer > Hold music

Hold music

Use defaults

Download method FTP

Server address

Server port 21

FTP account

FTP username

FTP password

FTP path

HTTPS base URL

Filename

After submit do nothing

Submit Reset

## Administration via Local Phone

```
|--- Administration
  |--- File Transfer
    |--- Hold Music
      |--- Use default
      |--- Download method
      |--- FTP Server
      |--- FTP Port
      |--- FTP Account
      |--- FTP Username
      |--- FTP Password
      |--- FTP path
      |--- HTTPS base URL
      |--- Filename
```

### 3.11.4.2 Download Music on Hold

If applicable, Music on Hold should be deployed using a provisioning service, such as the Deployment Service (DLS). Alternatively, the download can be triggered from the web interface or from the Local phone menu.

#### Start Download via WBM

In the **File transfer** > Hold music dialog, set **After submit** to "start download" and press the **Submit** button.

#### Start Download via Local Phone

1. In the administration menu, set the focus to **Hold Music**.

```

├─ Administration
│   └─ File Transfer
│       └─ Hold Music

```

2. Press the **→** key. A context menu opens. In the context menu, select **Download**. The download will start immediately.

## Administration

### Transferring Phone Software, Application and Media Files

#### 3.11.5 Picture Clips



Picture clips are available only on OpenStage 60/80 phones.



The file size for a picture clip is limited to 300 KB. If the file is too large or the contents of the file are not valid, the file will not be stored in the phone.

Picture Clips are small images used for displaying a picture of a person that is calling on a line. The supported file formats for picture clips are JPEG and PNG (recommended).

##### 3.11.5.1 FTP/HTTPS Access Data

If the default FTP/HTTPS access settings (see Section 3.11.2, "Common FTP/HTTPS Settings") are to be used, **Use default** must be set to "Yes", and only the **Filename** must be specified.

##### Data required (in every case)

- **Use default:** Specifies whether the default FTP/HTTPS access settings shall be used.  
Value range: "Yes", "No"  
Default: "No"
- **Filename:** Specifies the file name of the phone software.

##### Data required (if not derived from Defaults)

- **Download method:** Selects the protocol to be used.  
Value range: "FTP", "HTTPS"  
Default: "FTP"
- **FTP Server address:** IP address or hostname of the FTP/HTTPS server in use.
- **FTP Server port:** Port number of the FTP/HTTPS server in use.  
Default: 21
- **FTP account:** Account at the server (if applicable).
- **FTP username:** User name for accessing the server.
- **FTP password:** Password corresponding to the user name.
- **FTP path:** Path of the directory containing the files.
- **HTTPS base URL:** IP address or hostname of the HTTPS server in use; only applicable if **Download method** is switched to "HTTPS".



## Administration via WBM

File transfer > Picture clip

**Picture Clip**

Use defaults

Download method FTP

FTP Server address

FTP Server port 21

FTP account

FTP username

FTP password ●●●●●●

FTP path

HTTPS base URL

Filename

After submit do nothing

Submit Reset

## Administration via Local Phone

- └ Administration
  - └ File Transfer
    - └ Picture Clip
      - └ Use default
      - └ Download method
      - └ FTP Server
      - └ FTP Port
      - └ FTP Account
      - └ FTP Username
      - └ FTP Password
      - └ FTP path
      - └ HTTPS base URL
      - └ Filename

## Administration

### Transferring Phone Software, Application and Media Files

#### 3.11.5.2 Download Picture Clip

The download can be triggered from the web interface or from the local phone menu.

##### Start Download via WBM

Picture Clip	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	192.168.1.150
FTP Server port	21
FTP account	
FTP username	phone
FTP password	••••••
FTP path	media
HTTPS base URL	
Filename	einstein.jpg
After submit	start download
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

In the **File transfer** > Picture clip dialog, set **After submit** to "start download" and press the **Submit** button.

##### Start Download via Local Phone

1. In the administration menu, set the focus to **Picture clip**.

```
|___ Administration
  |___ File Transfer
    |___ Picture clip
```

2. Press the **→** key. A context menu opens. In the context menu, select **Download**. The download will start immediately.

### 3.11.6 LDAP Template



LDAP is available only on OpenStage 60/80 phones.

The LDAP template is an ASCII text file that uses an allocation list to assign directory server attributes to input and output fields on an LDAP client. The LDAP template must be modified correctly for successful communication between the directory server and the LDAP client.



The OpenStage phone supports LDAPv3.

#### 3.11.6.1 FTP/HTTPS Access Data

If the default FTP/HTTPS access settings (see Section 3.11.2, “Common FTP/HTTPS Settings”) are to be used, **Use default** must be set to "Yes", and only the **Filename** must be specified.

##### Data required (in every case)

- **Use default:** Specifies whether the default FTP/HTTPS access settings shall be used.  
Value range: "Yes", "No"  
Default: "No"
- **Filename:** Specifies the file name of the phone software.

##### Data required (if not derived from Defaults)

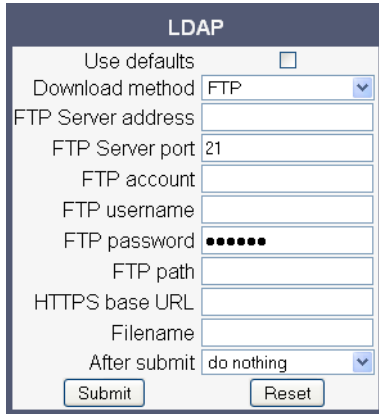
- **Download method:** Selects the protocol to be used.  
Value range: "FTP", "HTTPS"  
Default: "FTP"
- **FTPServer address:** IP address or hostname of the FTP/HTTPS server in use.
- **FTP Server port:** Port number of the FTP/HTTPS server in use.  
Default: 21
- **FTP account:** Account at the server (if applicable).
- **FTP username:** User name for accessing the server.
- **FTP password:** Password corresponding to the user name.
- **FTP path:** Path of the directory containing the files.
- **HTTPS base URL:** IP address or hostname of the HTTPS server in use; only applicable if **Download method** is switched to "HTTPS".

## Administration

*Transferring Phone Software, Application and Media Files*

### Administration via WBM

File transfer > LDAP



The screenshot shows a web form titled "LDAP" with the following fields and controls:

- Use defaults:
- Download method: FTP (dropdown menu)
- FTP Server address: [text input]
- FTP Server port: 21 (text input)
- FTP account: [text input]
- FTP username: [text input]
- FTP password: [password input, masked with dots]
- FTP path: [text input]
- HTTPS base URL: [text input]
- Filename: [text input]
- After submit: do nothing (dropdown menu)
- Submit button
- Reset button

### Administration via Local Phone

- |— Administration
  - |— File Transfer
    - |— LDAP
      - |— Use default
      - |— Download method
      - |— FTP Server
      - |— FTP Port
      - |— FTP Account
      - |— FTP Username
      - |— FTP Password
      - |— FTP path
      - |— HTTPS base URL
      - |— Filename

### 3.11.6.2 Download LDAP Template

If applicable, LDAP templates should be deployed using a provisioning service, such as the Deployment Service (DLS). Alternatively, the download can be triggered from the web interface or from the Local phone menu.



The OpenStage phone supports LDAPv3.

#### Start Download via WBM

In the **File transfer** > LDAP dialog, set **After submit** to "start download" and press the **Submit** button.

#### Start Download via Local Phone

1. In the administration menu, set the focus to **LDAP**.

```

└─ Administration
  └─ File Transfer
    └─ LDAP
  
```

2. Press the **→** key. A context menu opens. In the context menu, select **Download**. The download will start immediately.

## Administration

### *Transferring Phone Software, Application and Media Files*

#### 3.11.7 Logo

On OpenStage 40/60/80, a custom background image for the telephony interface can be supplied. In most cases, this will be the company logo.

On OpenStage 40, monochrome bitmap files (BMP) are supported. The ideal size is as follows:

- Width: 144 px
- Height: 32 px

On OpenStage 60/80, the supported file formats are JPEG and PNG. The ideal size values are as follows:

OpenStage 60:

- Width: 240 px
- Height: 70 px

OpenStage 80:

- Width: 480 px
- Height: 142 px

If the size should deviate from these values, the image will appear skewed.

For guidance on creating a logo file for OpenStage 40/60/80, see Section 4.2, “How to Create Logo Files for OpenStage Phones”.

##### 3.11.7.1 FTP/HTTPS Access Data

If the default FTP/HTTPS access settings (see Section 3.11.2, “Common FTP/HTTPS Settings”) are to be used, **Use default** must be set to "Yes", and only the **Filename** must be specified.

##### Data required (in every case)

- **Use default:** Specifies whether the default FTP/HTTPS access settings shall be used.  
Value range: "Yes", "No"  
Default: "No"
- **Filename:** Specifies the file name of the phone software.

**Data required (if not derived from Defaults)**

- **Download method:** Selects the protocol to be used.  
Value range: "FTP", "HTTPS"  
Default: "FTP"
- **FTP Server address:** IP address or hostname of the FTP/HTTPS server in use.
- **FTP Server port:** Port number of the FTP/HTTPS server in use.  
Default: 21
- **FTP account:** Account at the server (if applicable).
- **FTP username:** User name for accessing the server.
- **FTP password:** Password corresponding to the user name.
- **FTP path:** Path of the directory containing the files.
- **HTTPS base URL:** IP address or hostname of the HTTPS server in use; only applicable if **Download method** is switched to "HTTPS".

**Administration via WBM**

File transfer &gt; Logo

**Administration via Local Phone**

```

|__ Administration
  |__ File Transfer
    |__ Logo
        |__ Use default
        |__ Download method
        |__ FTP Server
        |__ FTP Port
        |__ FTP Account
        |__ FTP Username
        |__ FTP Password
        |__ FTP path
        |__ HTTPS base URL
        |__ Filename
  
```

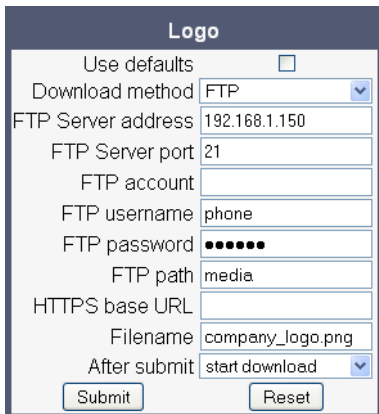
## Administration

### Transferring Phone Software, Application and Media Files

#### 3.11.7.2 Download Logo

If applicable, logos should be deployed using a provisioning service, such as the Deployment Service (DLS). Alternatively, the download can be triggered from the web interface or from the Local phone menu.

#### Start Download via WBM



In the **File transfer** > Logo dialog, set **After submit** to "start download" and press the **Submit** button.

#### Start Download via Local Phone

1. In the administration menu, set the focus to **Logo**.

```
|_ Administration
  |_ File Transfer
    |_ Logo
```

2. Press the **→** key. A context menu opens. In the context menu, select **Download**. The download will start immediately.



### 3.11.8 Screensaver

The screensaver is displayed when the phone is in idle mode. It performs a slide show consisting of images which can be uploaded using the web interface.



Screensavers are available only on OpenStage 60/80 phones.



The file size for a screensaver image is limited to 300 KB. If the file is too large or the contents of the file are not valid, the file will not be stored in the phone.

For screensaver images, the following specifications are valid:

- Data format: JPG or PNG. JPG is recommended.
- Screen format: 4:3. The images are resized to fit in the screen, so that images with a width/height ratio differing from 4:3 will appear with deviant proportions.
- Resolution: The phone's screen resolution is the best choice for image resolution:
  - OpenStage 60: 320x240
  - OpenStage 80: 640x480

#### 3.11.8.1 FTP/HTTPS Access Data

If the default FTP/HTTPS access settings (see Section 3.11.2, "Common FTP/HTTPS Settings") are to be used, **Use default** must be set to "Yes", and only the **Filename** must be specified.

##### Data required (in every case)

- **Use default:** Specifies whether the default FTP/HTTPS access settings shall be used.  
Value range: "Yes", "No"  
Default: "No"
- **Filename:** Specifies the file name of the phone software.

##### Data required (if not derived from Defaults)

- **Download method:** Selects the protocol to be used.  
Value range: "FTP", "HTTPS"  
Default: "FTP"
- **FTP Server address:** IP address or hostname of the FTP/HTTPS server in use.
- **FTP Server port:** Port number of the FTP/HTTPS server in use.  
Default: 21
- **FTP account:** Account at the server (if applicable).

## Administration

### *Transferring Phone Software, Application and Media Files*

- **FTP username:** User name for accessing the server.
- **FTP password:** Password corresponding to the user name.
- **FTP path:** Path of the directory containing the files.
- **HTTPS base URL:** IP address or hostname of the HTTPS server in use; only applicable if **Download method** is switched to "HTTPS".

## Administration via WBM

File transfer > Screensaver

**Screensaver**

Use defaults

Download method FTP

FTP Server address

FTP Server port 21

FTP account

FTP username

FTP password .....

FTP path

HTTPS base URL

Filename

After submit do nothing

Submit Reset

## Administration via Local Phone

```
├ Administration
│   └ File Transfer
│       └ Screensaver
│           └ Use default
│           └ Download method
│           └ FTP Server
│           └ FTP Port
│           └ FTP Account
│           └ FTP Username
│           └ FTP Password
│           └ FTP path
│           └ HTTPS base URL
│           └ Filename
```

### 3.11.8.2 Download Screensaver

If applicable, screensavers should be deployed using a provisioning service, such as the Deployment Service (DLS). Alternatively, the download can be triggered from the web interface or from the Local phone menu.

#### Start Download via WBM

In the **File transfer** > Screensaver dialog, set **After submit** to "start download" and press the **Submit** button.

#### Start Download via Local Phone

1. In the administration menu, set the focus to **Screensaver**.

```

├─ Administration
│   └─ File Transfer
│       └─ Screensaver

```

2. Press the **→** key. A context menu opens. In the context menu, select **Download**. The download will start immediately.

## Administration

### Transferring Phone Software, Application and Media Files

#### 3.11.9 Ringer File

Custom Ringtones can be uploaded to the phone.



The file size for a ringer file is limited to 1 MB. If the file is too large or the contents of the file are not valid, the file will not be stored in the phone.

The following file formats are supported:

- WAV format. The recommended specifications are:
  - Audio format: PCM
  - Bitrate: 16 kB/sec
  - Sampling rate: 8 kHz
  - Quantization level: 16 bit
- MIDI format.
- MP3 format (OpenStage 60/80 only). The OpenStage 60/80 phones are able to play MP3 files from 32 kbit/s up to 320 kbit/s. As the memory for user data is limited to 8 MB, a constant bitrate of 48 kbit/sec to 112 kbit/s and a length of max. 1 minute is recommended. Although the phone software can play stereo files, mono files are recommended, as the phone has only 1 loudspeaker.

See the following table for estimated file size (mono files):

Length	64 kbit/s	80 kbit/s	96 kbit/s	112 kbit/s
0:15 min	0,12 MB	0,15 MB	0,18 MB	0,21 MB
0:30 min	0,23 MB	0,29 MB	0,35 MB	0,41 MB
0:45 min	0,35 MB	0,44 MB	0,53 MB	0,62 MB
1:00 min	0,47 MB	0,59 MB	0,70 MB	0,82 MB

### 3.11.9.1 FTP/HTTPS Access Data

If the default FTP/HTTPS access settings (see Section 3.11.2, "Common FTP/HTTPS Settings") are to be used, **Use default** must be set to "Yes", and only the **Filename** must be specified.

#### Data required (in every case)

- **Use default:** Specifies whether the default FTP/HTTPS access settings shall be used.  
Value range: "Yes", "No"  
Default: "No"
- **Filename:** Specifies the file name of the phone software.

#### Data required (if not derived from Defaults)

- **Download method:** Selects the protocol to be used.  
Value range: "FTP", "HTTPS"  
Default: "FTP"
- **FTP Server address:** IP address or hostname of the FTP/HTTPS server in use.
- **FTP Server port:** Port number of the FTP/HTTPS server in use.  
Default: 21
- **FTP account:** Account at the server (if applicable).
- **FTP username:** User name for accessing the server.
- **FTP password:** Password corresponding to the user name.
- **FTP path:** Path of the directory containing the files.
- **HTTPS base URL:** IP address or hostname of the HTTPS server in use; only applicable if **Download method** is switched to "HTTPS".

### Administration via WBM

File transfer > Ringer file

Ringer file	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	••••••
FTP path	
HTTPS base URL	
Filename	
After submit	do nothing
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Administration

*Transferring Phone Software, Application and Media Files*

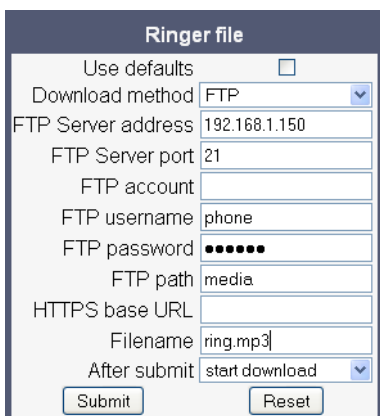
### Administration via Local Phone

- |— Administration
  - |— File Transfer
    - |— Ringer
      - |— **Use default**
      - |— **Download method**
      - |— **FTP Server**
      - |— **FTP Port**
      - |— **FTP Account**
      - |— **FTP Username**
      - |— **FTP Password**
      - |— **FTP path**
      - |— **HTTPS base URL**
      - |— **Filename**

### 3.11.9.2 Download Ringer File

If applicable, ring tone files should be deployed using a provisioning service, such as the Deployment Service (DLS). Alternatively, the download can be triggered from the web interface or from the Local phone menu.

#### Start Download via WBM



In the File transfer > Ringer dialog, set **After submit** to "start download" and press the **Submit** button.

#### Start Download via Local Phone

1. In the administration menu, set the focus to **Ringer**.

```
|__ Administration
  |__ File Transfer
    |__ Ringer
```

2. Press the **→** key. A context menu opens. In the context menu, select **Download**. The download will start immediately.

## Administration

### *Transferring Phone Software, Application and Media Files*

#### 3.11.10 HPT Dongle Key

The HPT dongle key is a special file that contains a secret hash number which is required to connect the HPT tool to the phone. This testing tool is used exclusively by the service staff.

##### 3.11.10.1 FTP/HTTPS Access Data

If the default FTP/HTTPS access settings (see Section 3.11.2, “Common FTP/HTTPS Settings”) are to be used, **Use default** must be set to „Yes“, and only the **Filename** must be specified.

##### Data required (in every case)

- **Use default:** Specifies whether the default FTP/HTTPS access settings shall be used.  
Value range: „Yes“, „No“  
Default: „No“
- **Filename:** Specifies the file name of the phone software.

##### Data required (if not derived from Defaults)

- **Download method:** Selects the protocol to be used.  
Value range: „FTP“, „HTTPS“  
Default: „FTP“
- **Server address:** IP address or hostname of the FTP/HTTPS server in use.
- **Server port:** Port number of the FTP/HTTPS server in use.  
Default: 21
- **FTP account:** Account at the server (if applicable).
- **FTP username:** User name for accessing the server.
- **FTP password:** Password corresponding to the user name.
- **FTP path:** Path of the directory containing the files.
- **HTTPS base URL:** IP address or hostname of the HTTPS server in use; only applicable if **Download method** is switched to „HTTPS“.



## Administration via WBM

### File transfer > Dongle key

The screenshot shows a web form titled "Dongle key" with the following fields and controls:

- Use defaults
- Download method:
- FTP Server address:
- FTP Server port:
- FTP account:
- FTP username:
- FTP password:
- FTP path:
- HTTPS base URL:
- Filename:
- After submit:
- 

## Administration via Local Phone

- |— Administration
  - |— File Transfer
    - |— Dongle key
      - |— **Use default**
      - |— **Download method**
      - |— **Server**
      - |— **Port**
      - |— **Account**
      - |— **Username**
      - |— **Password**
      - |— **FTP path**
      - |— **HTTPS base URL**
      - |— **Filename**

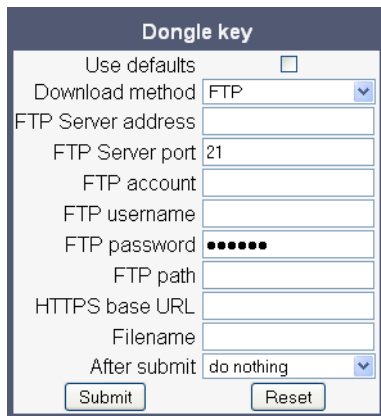
## Administration

### Transferring Phone Software, Application and Media Files

#### 3.11.10.2 Download Dongle Key File

If applicable, dongle key files should be deployed using a provisioning service, such as the Deployment Service (DLS). Alternatively, the download can be triggered from the web interface or from the Local phone menu.

#### Start Download via WBM



In the **File transfer** > **Dongle key** dialog, set **After submit** to „start download“ and press the **Submit** button.

#### Start Download via Local Phone

1. In the administration menu, set the focus to **Dongle key**.

```
|__ Administration
  |__ File Transfer
    |__ Dongle key
```

2. Press the **→** key. A context menu opens. In the context menu, select **Download**. The download will start immediately.

## 3.12 Corporate Phonebook: Directory Settings

### 3.12.1 LDAP



LDAP is available only on OpenStage 60/80 phones.


The Lightweight Directory Access Protocol enables access to a directory server via an LDAP client. Various personal information is stored there, e.g. the name, organisation and contact data of persons working in an organisation. When the LDAP client has found a person's data, e. g. by looking up the surname, the user can call this person directly using the displayed number.



The OpenStage phone supports LDAPv3.

For connecting the phone's LDAP client to a LDAP server, the required access data must be configured. The parameters **Server address** and **Server port** specify the IP address and host-name as well as the port used by the LDAP server. If the **Authentication** is not set to "Anonymous", the user must authenticate himself with the server by providing a **User name** and a corresponding **Password**. The user name is the string in the LDAP bind request, e. g. "C=GB,O=SIEMENS COMM,OU=COM,L=NTH,CN=BAYLIS MICHAEL". The internal structure will depend on the specific corporate directory.

For a quick guide on setting up LDAP on an OpenStage phone, please refer to Section 4.3, "How to Set Up the Corporate Phonebook (LDAP)".

With firmware V2, the OpenStage 60/80 GUI features a new search field for LDAP requests. The search string is submitted to the LDAP server as soon as the  key is pressed, or when the **Search trigger timeout** expires.

#### Data required

- **Server address:** IP address or hostname of the LDAP server.
- **Server port:** Port on which the LDAP server is listening for requests.  
Default: 389
- **Authentication:** Authentication method used for connecting to the LDAP server.  
Value range: "Anonymous", "Simple".  
Default: "Anonymous"
- **User name:** User name used for authentication with the LDAP server in the LDAP bind request.
- **Password:** Password used for authentication with the LDAP server.

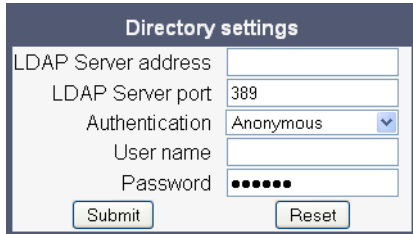
## Administration

### Corporate Phonebook: Directory Settings

- **Search trigger timeout (V2 on OpenStage 60/80):** Timespan between entering the last character and search string submission to the LDAP server.

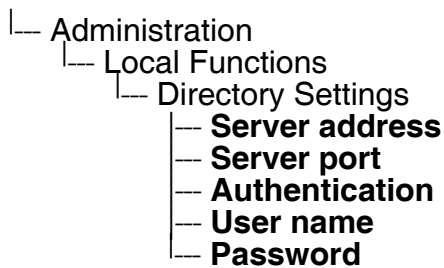
## Administration via WBM

Local Functions > Directory settings



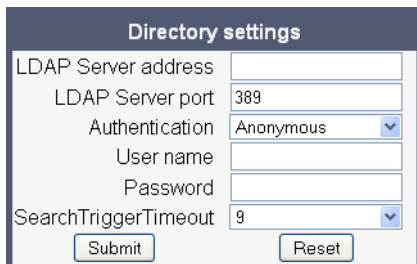
Directory settings	
LDAP Server address	<input type="text"/>
LDAP Server port	389
Authentication	Anonymous
User name	<input type="text"/>
Password	••••••
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Administration via Local Phone



## Administration via WBM (V2)

Local Functions > Directory settings



Directory settings	
LDAP Server address	<input type="text"/>
LDAP Server port	389
Authentication	Anonymous
User name	<input type="text"/>
Password	<input type="text"/>
SearchTriggerTimeout	9
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## **Administration via Local Phone (V2)**

- |— Administration
  - |— Local Functions
    - |— LDAP Settings
      - |— **server address**
      - |— **server port**
      - |— **Timeout (sec)**
      - |— **authentication**
      - |— **user name**
      - |— **password**

## Administration

### Speech

## 3.13 Speech

### 3.13.1 RTP Base Port

The port used for RTP is negotiated during the establishment of a SIP connection. The RTP base port number defines the starting point from which the phone will count up when negotiating. The default value is 5010.

The number of the port used for RTCP will be the RTP port number increased by 1.

### Administration via WBM

Network > Port Configuration

Port configuration	
SIP server	5060
SIP registrar	5060
SIP gateway	5060
SIP local	5060
Backup proxy	5060
RTP base	5010
Download server (default)	21
LDAP server	389
LAN port speed	Automatic
PC port speed	Automatic
PC port mode	disabled
PC port autoMDIX	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

### Administration via Local Phone

|--- Administration  
|--- Network  
|--- Port Configuration  
|--- **RTP base**

### 3.13.2 Codec Preferences

If **Silence suppression** is activated, the transmission of data packets is suppressed on no conversation, that is, if the user doesn't speak.

The OpenStage phone provides the codecs **G.711**, **G.722**, and **G.729**. When a SIP connection is established between two endpoints, the phones negotiate the codec to be used. The result of the negotiation is based on the general availability and ranking assigned to each codec. The administrator can allow or disallow a codec as well as assign a ranking number to it.

The **Packet size**, i. e. length in milliseconds, of the RTP packets for speech data, can be set to 10ms, 20ms, 30ms or to automatic detection.

#### Data required

- **Silence suppression:** Suppression of data transmission on no conversation.  
Value range: "On", "Off"  
Default: "Off"
- **Packet size:** Size of RTP packets in milliseconds.  
Value range: "10 ms", "20ms", "30ms", "Automatic"  
Default: "Automatic"
- **G.711:** Parameters for the G. 711 codec.  
Value Range: "Choice 1", "Choice 2", "Choice 3", "Disabled", "Enabled"  
Default: "Choice 1"
- **G.729:** Parameters for the G. 729 codec.  
Value Range: "Choice 1", "Choice 2", "Choice 3", "Disabled", "Enabled"  
Default: "Choice 2"
- **G.722:** Parameters for the G. 722 codec.  
Value Range: "Choice 1", "Choice 2", "Choice 3", "Disabled", "Enabled"  
Default: "Disabled"

#### Administration via WBM

Speech > Codec preferences

## Administration

*Speech*

### Administration via Local Phone

- |— Administration
  - |— Speech
    - |— Codec Preferences
      - |— **Silence suppression**
      - |— **Packet size**
      - |— **G.711**
      - |— **G.729**
      - |— **G.722**



### 3.13.3 Audio Settings

The usage of microphone and speaker for speakerphone mode can be controlled by the administrator.

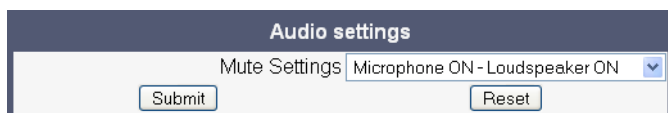
Both microphone and loudspeaker can be switched on or off separately. By default, both microphone and loudspeaker are switched on.



The microphone control is not valid for OpenStage 20E, as this model has no built-in microphone.

#### Administration via WBM

Speech > Audio Settings



#### Administration via Local Phone

- |— Administration
  - |— Speech
    - |— Audio Settings
      - |— **Disable microphone**
      - |— **Disable loudspeech**

## 3.14 Applications

### 3.14.1 XML Applications/Xpressions (OpenStage 60/80)

#### 3.14.1.1 Setup/Configuration

The XML interface enables server-based applications with a set of GUI elements. The technologies commonly used in web applications can be used: Java Servlets, JSP, PHP, CGI etc., delivered by servers such as Tomcat, Apache, Microsoft IIS.



A maximum number of 20 XML applications can be configured on OpenStage 60/80 phones.

There are several types of XML applications, which mainly differ in the way they are started and stopped:

- Regular XML applications are started by navigating to the applications menu using the ☰ key, or by pressing a programmable key (see Section 3.6.21, “Start application”). They can be stopped via the applications menu. Regular XML applications are configured via **Applications > XML applications > Add application**.
- Xpressions is a special Unified Communications application which also uses the XML interface. Thus, the configuration is just the same as with other XML applications, except a few parameters, which are pre-configured. For details, please refer to the relevant Xpressions documentation. When configured on the phone, a press on the messages mode key ☑ will invoke this application. Xpressions is configured via **Applications > XML applications > Xpressions**.
- A messages application is configured like a regular application. It is started and stopped via the messages mode key ☑, thus enabling the deployment of an alternative voicemail server. From firmware version V2R1 onwards, the XML application can control the white LED which indicates new messages. A messages application is configured via **Applications > XML applications > Add messages application**.
- A phonebook application is configured like a regular application. It is started and stopped via the phonebook mode key ☒, thus enabling the deployment of a remote phonebook in place of the personal (local) or corporate (LDAP) phonebook. A messages application is configured via **Applications > XML applications > Add phonebook application**.
- A call log application is configured like a regular application. It is started and stopped via the call log mode key ☓, thus enabling the deployment of a remote application that handles call history. From firmware version V2R1 onwards, the XML application can control the white LED which indicates missed calls. A call log application is configured via **Applications > XML applications > Add call log application**.
- A help application is configured like a regular application. It is started and stopped via the help mode key ☔, thus enabling the deployment of a remote help. A help application is configured via **Applications > XML applications > Add help application**.

For detailed information about the OpenStage XML application interface, please see the OpenStage 60/80 XML Applications Developer's Guide. You can find the current version under [http://wiki.siemens-enterprise.com/index.php/OpenStage\\_XML\\_Applications](http://wiki.siemens-enterprise.com/index.php/OpenStage_XML_Applications)

To set up a new XML application, enter the access data for the application on the server, which is described in the following.

The **Display name** can be defined freely. This name will appear in the applications tab once the application is configured, and it will appear in a newly created tab when the application is running. With Xpressions, this value is predefined as "Xpressions".

The **Application name** is used by the phone software to identify the XML application running on the phone. With Xpressions, this value is predefined as "Xpressions".

The **Protocol** for exchanging XML data with the server-side program can be set to "HTTP" or "HTTPS".

The **HTTP Server address** is the IP address or domain name of the server which hosts the remote program. **Server port number** specifies the corresponding port.

**Program name/Program name on server** specifies the relative path to the servlet or to the first XML page of the application on the server. The relative path refers to the root directory for documents on the web server. The program name cannot be longer than 100 characters.

**XML trace enabled** determines whether debugging information is sent to a special debugging program on the remote server. The relative path for the debugging program is given by the **Debug program name** parameter.

If desired, XML applications can have internal tabs. The number of these tabs is specified in **Number of tabs**.



For an XML application with a number of tabs > 0, one of the entries between **Tab 1 Application Name** and **Tab 3 Application Name** must be set to the same value as the **Application name** that it is associated with. When the XML application is started, the tab which has the same name as the XML application is the tab that initially gets focus.

**Tab 1...3 Display Name** provides the label text for the corresponding tab.

**Tab 1...3 Application Name** is required if the application has internal tabs. This is a unique name for the specified tab. The remote program will use this name to provide the tab with specific content.

**Auto restart / Restart after change (V2)**: If checked, a running XML application is automatically restarted after it has been modified. This might be especially useful for special XML applications, like messages applications, or phonebook applications, as these cannot be stopped or restarted by the user. Please note that a restart will take place even if no changes have been

## Administration

### Applications

made for the application selected in the **Modify/Delete application** mask, and **Submit** has been pressed. After the XML application has restarted, this option is automatically unchecked. If the option is checked whilst the XML application is not running, there will be no restart, and the option is automatically unchecked.

### Data required

- **Display name:** Program name to be displayed on the phone.  
Value specifications:
  - It must be unique on the phone.
  - It cannot contain the '^' character.
  - It cannot not be empty.
  - Its length cannot not exceed 20 characters.
- **Application name:** Used internally to identify the XML application running on the phone.  
Value specifications:
  - It must be unique on the phone.
  - It cannot contain non-alphanumeric characters, spaces for instance.
  - The first character must be a letter.
  - It must not be empty.
  - Its length must not exceed 20 characters.
- **Protocol:** Communication protocol for the data exchange with the server.  
Value range: "HTTP", "HTTPS"  
Default: "HTTPS"
- **HTTP Server address:** IP address or domain/host name of the server that provides the application or the XML document.
- **Server port number:** Number of the port that the server uses to provide the application or XML document.
- **Program name:** Relative path to the servlet or to the first XML page of the application on the server.
- **XML trace enabled:** Enables or Disables the debugging of the XML application.  
Value range: "Yes", "No"  
Default: "No"
- **Debug program name:** The relative path to a special servlet that receives the debug information.

## Administration via WBM

Applications > XML Applications > Add application

Add application	
Display name	<input type="text"/>
Application name	<input type="text"/>
HTTP Server address	<input type="text"/>
HTTP Server port	<input type="text"/>
Protocol	http <input type="button" value="v"/>
Program name on server	<input type="text"/>
Use proxy	Yes <input type="button" value="v"/>
XML Trace enabled	Yes <input type="button" value="v"/>
Debug program on server	<input type="text"/>
Number of tabs	0 <input type="button" value="v"/>
Tab 1 Display Name	<input type="text"/>
Tab 1 Application Name	<input type="text"/>
Tab 2 Display Name	<input type="text"/>
Tab 2 Application Name	<input type="text"/>
Tab 3 Display Name	<input type="text"/>
Tab 3 Application Name	<input type="text"/>
Restart after change	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

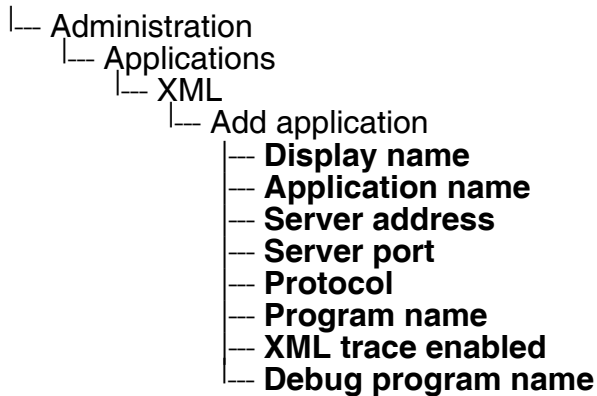
Applications > XML Applications > Modify application

Modify application	
Select application	Example <input type="button" value="v"/>
<input type="button" value="Modify"/> <input type="button" value="Delete"/>	
Settings	
Display name	Example
Application name	<i>Example</i>
HTTP Server address	192.168.1.150
HTTP Server port	80
Protocol	http <input type="button" value="v"/>
Program name on server	ipp/example.xml
Use proxy	No <input type="button" value="v"/>
XML Trace enabled	No <input type="button" value="v"/>
Debug program on server	<input type="text"/>
Number of tabs	0 <input type="button" value="v"/>
Tab 1 Display Name	<input type="text"/>
Tab 1 Application Name	<input type="text"/>
Tab 2 Display Name	<input type="text"/>
Tab 2 Application Name	<input type="text"/>
Tab 3 Display Name	<input type="text"/>
Tab 3 Application Name	<input type="text"/>
Restart after change	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Administration

### Applications

### Administration via Local Phone



#### 3.14.1.2 HTTP Proxy

For the HTTP data transfer between the phone and the server hosting the remote program, an HTTP proxy can be used.

First, the proxy itself must be configured. Enter the IP address of the proxy it in the Network > IP configuration > HTTP proxy parameter, and the corresponding port in the Network > Port configuration > HTTP proxy parameter.

**Use proxy** enables or disables the use of the proxy. If disabled, the phones connects directly to the server. By default, the use of a proxy is disabled.

### Administration via WBM

Applications > XML Applications > Add application

Add application	
Display name	<input type="text"/>
Application name	<input type="text"/>
HTTP Server address	<input type="text"/>
HTTP Server port	<input type="text"/>
Protocol	http <input type="button" value="v"/>
Program name on server	<input type="text"/>
Use proxy	Yes <input type="button" value="v"/>
XML Trace enabled	Yes <input type="button" value="v"/>
Debug program on server	<input type="text"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

Applications > XML Applications > Modify application

**Modify application**

Select application: Weather [v]  
[Modify] [Delete]

**Settings**

Display name	Weather
Application name	Weather
HTTP Server address	87.106.21.36
HTTP Server port	8080
Protocol	http [v]
Program name on server	WRWR
Use proxy	No [v]
XML Trace enabled	No [v]
Debug program on server	

[Submit] [Reset]

Network > IP Configuration

**IP configuration**

[Disable DHCP]

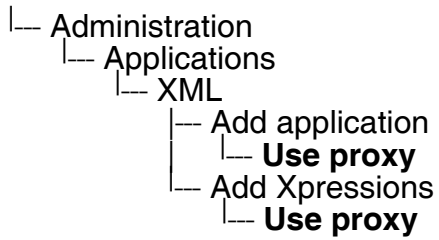
IP address	192.168.1.12
Subnet mask	255.255.255.0
Default route	192.168.1.251
DNS domain	
Primary DNS	192.168.1.105
Secondary DNS	194.25.0.53
Route 1 IP address	
Route 1 gateway	
Route 1 mask	
Route 2 IP address	
Route 2 gateway	
Route 2 mask	
VLAN discovery	DHCP [v]
VLAN ID	
HTTP proxy	

[Submit] [Reset]

## Administration

### Applications

## Administration via Local Phone



### 3.14.1.3 Modify an Existing Application

An existing application can be modified by changing its parameters. Please ensure to select the desired application before changing the parameters.

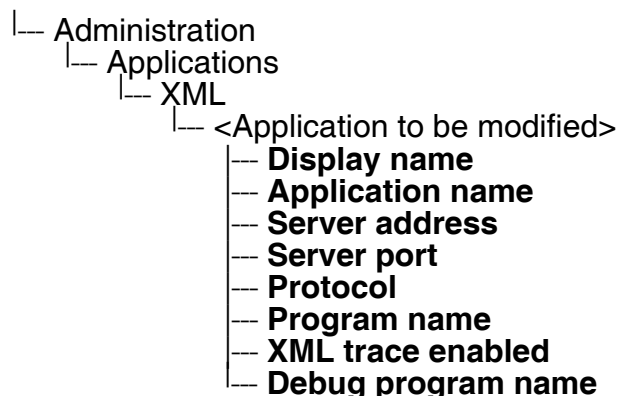
## Administration via WBM

Applications > XML applications > Modify application

Modify application	
Select application	Weather
Modify	Delete
Settings	
Display name	Weather
Application name	Weather
Server address	87.106.21.36
Server port	8080
Protocol	http
Program name on server	WRWR
Use proxy	No
XML Trace enabled	No
Debug program on server	
Submit	Reset



## Administration via Local Phone



### 3.14.1.4 Remove an Existing Application

An existing application can be removed. Please ensure to select the desired application before changing the parameters.

## Administration via WBM

Applications > XML applications > Modify application

The screenshot shows a web form titled "Modify application". At the top, there is a dropdown menu for "Select application" with "Weather" selected. Below this are two buttons: "Modify" and "Delete". The "Delete" button is highlighted with a red rectangular box. Below the buttons is a section titled "Settings" containing several input fields and dropdown menus:

Display name	Weather
Application name	Weather
Server address	87.106.21.36
Server port	8080
Protocol	http
Program name on server	WRWR
Use proxy	No
XML Trace enabled	No
Debug program on server	

At the bottom of the form are two buttons: "Submit" and "Reset".

## Administration

### Applications

### Administration via Local Phone

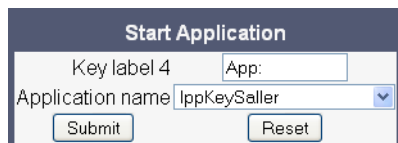
- |— Administration
  - |— Applications
    - |— XML
      - |— <Application to be deleted>

#### 3.14.1.5 Application Start by Programmable Key

To offer more convenience to the user, a previously configured application can be started by a free programmable key. For this purpose, the appropriate **Application name** and a **Key label** must be entered.

### Administration via WBM

System > Features > Program Keys



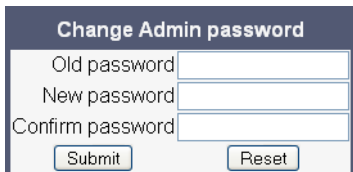
Start Application	
Key label 4	App:
Application name	IppKeySaller
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

### 3.15 Password

The passwords for user and administrator can be set here. They have to be confirmed after entering. The factory setting is "123456"; it should be changed after the first login.

#### Administration via WBM

Authentication > Change Admin password




Change Admin password

Old password

New password

Confirm password

Authentication > Change User password



Change User password

Admin password

New password

Confirm password

#### Administration via Local Phone

- | Administration
  - | Password
    - | Admin
    - | Confirmation
    - | User
    - | Confirmation

## Administration

### *Troubleshooting: Lost Password*

#### **3.16 Troubleshooting: Lost Password**

If the administration and/or user password is lost, and there is no DLS available, new passwords must be provided. For this purpose, a factory reset is necessary. Take the following steps to initiate a factory reset:

1. On the phone, press the ☰ key to activate the administration menu (the ☰ key toggles between the user's configuration menu and the administration menu).
2. Press the number keys 2-8-9 simultaneously. The factory reset menu opens.
3. In the input field, enter the special password for factory reset: "124816".
4. Confirm by pressing Ⓚ.

### **3.17 Restart Phone**

If necessary, the phone can be restarted from the administration menu.

#### **Administration via WBM**



## Administration

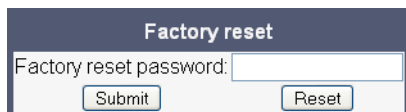
### Factory Reset

## 3.18 Factory Reset

This function resets all parameters to their factory settings. A special reset password is required for this operation: "124816".

### Administration via WBM

Maintenance > Factory reset



The screenshot shows a web browser window titled "Factory reset". Inside the window, there is a text input field labeled "Factory reset password:" followed by a "Submit" button and a "Reset" button.


### Administration via Local Phone

- |— Administration
  - |— Maintenance
    - |— **Factory reset**

### 3.19 SSH - Secure Shell Access (V2)

With firmware V2, the phone's operating system can be accessed via SSH for special troubleshooting tasks. Hereby, the administrator is enabled to use the built-in Linux commands. As soon as SSH access has been enabled using the WBM, the system can be accessed by the user "admin" for a specified timespan. When this timespan has expired, no connection is possible any more. The user "admin" has the following permissions:

- Log folder and files: read only
- User data folder and files: read/write access
- Opera deploy folders and files: read only
- Version folder: read/write access; version files: read only

 It is not possible to logon as root via SSH.

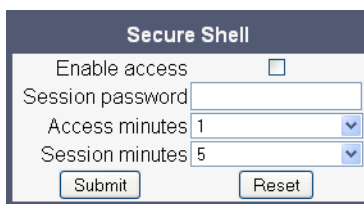
When **Enable access** is enabled, and the parameters described underneath are specified, SSH access is activated. By default, SSH access is disabled.

With the **Session password** parameter, a password for the "admin" user is created. This password is required. It will be valid for the timespan specified in the parameters described underneath.

**Access minutes** defines the timespan in minutes within which the SSH connection must be established. After it has expired, a logon via SSH is not possible. The possible values are 1, 3, 5, 10, 15.

**Session minutes** defines the maximum length in minutes for an SSH connection. After it has expired, the "admin" user is logged out. The possible values are 5, 10, 20, 30, 60.

#### Administration via WBM



## **Administration**

*Display License Information*

### **3.20 Display License Information**

The license information for the OpenStage phone software currently loaded can be viewed via the local menu.

|— Administration  
|— **Licence information**



## 3.21 Diagnostics

### 3.21.1 Display General Phone Information

General information about the status of the phone can be displayed if desired.

#### Displayed Data

- **MAC address:** Shows the phone's MAC address.
- **Software version:** Displays the version of the phone's firmware.
- **Last restart:** Shows date and time of the last reboot.

#### Display on the WBM

General information

General information	
MAC address:	0001e323f9a1
Software version:	0.7.5.0004-061027
Last restart:	""

#### Display on the Local Phone

```
|_ Administration
  |_ General Information
     |_ MAC address
     |_ Software version
     |_ Last restart
```

## Administration

### Diagnostics

#### 3.21.2 LAN Monitoring

The LAN port mirror facility allows for monitoring all network traffic at the phone's LAN port. For further information, see Section 3.2.1, "LAN Port Settings".

Additionally, there is a possibility to monitor LAN traffic and port settings in the Local user menu:

```
|-- User
  |-- Network information
    |-- IP address
    |-- WBM URL
    |-- DNS domain
    |-- LAN RX
    |-- LAN TX
    |-- PC RX
    |-- PC TX
    |-- LAN autonegotiated
    |-- LAN information
    |-- PC autonegotiated
    |-- PC information
```

### 3.21.3 LLDP-MED

When the phone is connected to a switch with LLDP-MED capabilities, it can receive a VLAN ID and QoS parameters and advertise its own network-related properties. The data is exchanged in TLV (Type-Length-Value) format.

Both sent and received LLDP-MED data can be monitored at the administrator interface.



For details on LLDP-MED, please refer to the ANSI/TIA-1057 standard.

For a network configuration example that shows LLDP-MED in operation, please refer to Section 4.4, "An LLDP-Med Example".

#### Displayed Data

- **Extended Power:** Power Consumption; relevant for PoE.
- **Network policy (voice):** VLAN ID and QoS (Quality of Service) parameters for voice transport.
- **Network policy (signalling):** VLAN ID and QoS (Quality of Service) parameters for signalling.
- **LLDEP-MED capabilities:** The LLDP-MED TLVs supported by the phone and the switch as well as the specific device class they belong to.
- **MAC\_Phy configuration:** Identifies the possible duplex and bit-rate capability of the sending device, its current duplex and bit-rate capability, and whether these settings are the result of auto-negotiation during the initialization of the link, or of manual set override actions.
- **System capabilities:** The devices advertise their potential and currently enabled functions, e. g. "Bridge", "Telephone".
- **TTL: Time To Live.** This parameter determines how long the TLVs are valid. When expired, the devices TTL will send a new set of TLVs.

## Administration

### Diagnostics

## View Data From WBM

### Diagnostics > LLDEP-MED TLVs

LLDP-MED TLVs	
Sent	Received
Sent: Mon Oct 27 10:51:14 2008	Received: Mon Oct 27 10:51:14 2008
Chassis ID TLV Data .Subtype = Network address .IANA_TYPE = IPv4 Address .ID = 192.168.6.109	Chassis ID TLV Data .Subtype = MAC address .ID = 00:1E:F7:05:2D:04
Port ID TLV Data .Subtype = MAC address .ID = 00:01:83:2D:66:38	Port ID TLV Data .Subtype = Locally assigned .ID = Fa0/2
TTL TLV data .seconds = 120	TTL TLV data .seconds = 120
System Caps TLV Data .Supported = Bridge, Telephone, .Enabled = Telephone,	System Caps TLV Data .Supported = Other, Repeater, Bridge, Router, .Enabled = Other, Repeater,
MAC_Phy config TLV data .Auto-set supported = Yes .Auto-set enabled = Yes .PMD = 0x6000 .PMD1 = 10BASE-T half duplex mode .PMD2 = 10BASE-T full duplex mode .PMD3 = 100BASE-TX half duplex mode .PMD4 = 100BASE-TX full duplex mode .MAU = 100BaseTFFD : 0x10	MAC_Phy config TLV data .Auto-set supported = Yes .Auto-set enabled = Yes .PMD = 0x36 .PMD1 = Symmetric PAUSE for full-duplex .PMD2 = Asy and Sym PAUSE for full-duplex links .PMD3 = 1000BASE-X, -LX, -SX, -CX full duplex .PMD4 = 1000BASE-T half duplex mode .MAU = 100BaseTXFD : 0x10
LLDP-MED Caps TLV Data .Caps - LLDP-MED = Yes .Caps - Network Policy = Yes .Caps - Location ID = No .Caps - Extended Power Hdi PD = Yes .Caps - Extended Power Hdi Pse = No	LLDP-MED Caps TLV Data .Caps - LLDP-MED = Yes .Caps - Network Policy = Yes .Caps - Location ID = Yes .Caps - Extended Power Hdi PD = Yes .Caps - Extended Power Hdi Pse = Yes .Caps - Inventory = Yes .Type = Network Connectivity

## View Data From Local Menu

If both sent and received values are concordant, **OK** is appended to the parameter. If not, an error message is displayed.

- \_\_\_ Administration
  - \_\_\_ Network
    - \_\_\_ LLDP-MED operation
      - \_\_\_ **Extended Power**
      - \_\_\_ **Network policy (voice)**
      - \_\_\_ **LLDEP-MED cap's**
      - \_\_\_ **MAC\_Phy config**
      - \_\_\_ **System cap's**
      - \_\_\_ TTL

### 3.21.4 IP Tests

For network diagnostics, the OpenStage phone can ping any host or network device to determine whether it is reachable. Additionally, the IP route to a host or network device can be traced using the traceroute tool contained in the phone software.

The **Pre Defined Ping tests** provide pinging for a pre-defined selection of servers: SIP server and SIP registrar.

**Ping tests** enables the pinging of a random IP address.

The **Pre Defined Trace tests** provide traceroute tests for a pre-defined selection of servers: DLS, SIP server, and SIP registrar.

**Traceroute** enables traceroute tests for a random IP address.

#### Administration via WBM

Diagnostics > Miscellaneous > IP tests

The screenshot shows a web-based configuration interface for IP tests. It is titled "IP tests" and contains four sections:

- Pre Defined Ping tests:** A dropdown menu set to "Ping DLS" and a "Ping" button.
- Ping tests:** An empty text input field and a "Ping" button.
- Pre Defined Trace tests:** A dropdown menu set to "Traceroute DLS" and a "Traceroute" button.
- Traceroute:** An empty text input field and a "Traceroute" button.

## Administration

### Diagnostics

#### 3.21.5 Process and Memory Information

The processes currently running on the phone's operating system as well as their CPU and memory usage can be monitored here. 100 processes are displayed on the web page. For further information, please refer to the manual of the "top" command for Unix/Linux systems, or to related documentation.

With firmware version V2, the amount of free memory is checked on a regular basis in order to prevent problems caused by low memory. This check determines whether a recovery is necessary.

When **Disable reboot** is checked, no reboot will take place when a memory problem has been found. However, recovery requires a reboot.

The recovery process will be triggered when the available main memory (RAM) falls below a given threshold value. As memory consumption is assumed to be higher during working hours, two thresholds are configurable. The **High Threshold (MBs)** parameter defines the threshold for off-time. For OpenStage 15/20/40, the default value is 10 MB, and for OpenStage 60/80, it is 30 MB. With **Low Threshold (MBs)**, the threshold for off-time is defined. For OpenStage 15/20/40, the default value is 8 MB, and for OpenStage 60/80, it is 20 MB.

The beginning and end of the working hours are defined in 24 hours format with **Working Hour Start** (Default: 5) and **Working Hour End** (Default: 24).

When memory shortage has occurred, information about the incident is written to a log file which can be viewed via the **Download memory info file** link. If there has been a previous case of memory shortage, the corresponding log file can be viewed via **Download memory info file**.

#### Administration via WBM (V1R5)

#### Diagnostics > Miscellaneous > Memory information

Memory information							
Mem: 118368K used, 6208K free, OK shrd, OK buff, 50672K cached							
Load average: 0.25, 0.22, 0.18 (State: S=sleeping R=running, W=waiting)							
PID	USER	STATUS	RSS	PPID	%CPU	%MEM	COMMAND
2	root	SW	0	1	2.6	0.0	keventd
729	root	S N	15M	541	2.5	12.5	PhoneletLaunche
717	root	S N	38M	542	1.3	31.4	SvcConfig
798	root	S N	38M	542	1.2	31.4	SvcConfig
592	root	S N	38M	542	1.2	31.4	SvcConfig
716	root	S N	38M	542	0.8	31.4	SvcConfig
740	root	S N	22M	589	0.4	18.7	PhoneletLaunche
591	root	S N	38M	542	0.2	31.4	SvcConfig
590	root	S N	38M	542	0.2	31.4	SvcConfig
556	root	S N	38M	542	0.2	31.4	SvcConfig
666	root	S N	38M	542	0.1	31.4	SvcConfig
545	root	S N	38M	542	0.1	31.4	SvcConfig
9380	root	R <	720	5660	0.1	0.5	menu_tree.cmd
543	root	S <	38M	542	0.0	31.4	SvcConfig
594	root	S N	38M	542	0.0	31.4	SvcConfig
748	root	S N	38M	542	0.0	31.4	SvcConfig
751	root	S N	38M	542	0.0	31.4	SvcConfig
749	root	S N	38M	542	0.0	31.4	SvcConfig
856	root	S N	38M	542	0.0	31.4	SvcConfig
593	root	S N	38M	542	0.0	31.4	SvcConfig

## Administration via WBM (V2)

### Diagnostics > Miscellaneous > Memory information

Memory information

**Memory Monitor Configuration**

Disable Reboot

High Threshold(MBs)

Low Threshold(MBs)

Working Hour Start

Working Hour End

[Download memory info file](#)

[Download old memory info file](#)

**Device Memory Information**

Mem: 90340K used, 33744K free, OK shrd, OK buff, 46896K cached  
 Load average: 1.06, 0.59, 0.39 (State: S=sleeping R=running, W=waiting)

PID	USER	STATUS	RSS	PPID	%CPU	%MEM	COMMAND
1425	root	R	620	909	74.6	0.4	/Opera_Deploy/appWeb/web/menu_tree.cmd
1428	root	R	432	795	22.3	0.3	top -d 0 -a -n 1 -l 600 -B
821	root	S N	13M	671	1.5	11.0	Phoneletlauncher desktopphonelet.phd V2 R0.1.0
2	root	SW	0	1	1.5	0.0	keventd
822	root	S <	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
675	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
690	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
692	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
691	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
699	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
700	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
685	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
907	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
676	root	S <	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
671	root	S	29M	643	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
814	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
686	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
694	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
695	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0
809	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 R0.1.0

### 3.21.6 Fault Trace Configuration

Error tracing and logging can be configured separately for all components, i. e. the services and applications running on the OpenStage phone. The resulting files can be viewed in the WBM web pages over the **Download** links.

The **File size (bytes)** parameter sets the maximum file size. When it is reached, the data is saved as old file, and a new file is generated. From then on, the trace data is written to the new file. When the maximum file size is reached again, the data is saved as old file once more, thereby overwriting the previous old file. The default value is 65536.



The absolute maximum file size is 6 290 000 bytes. However, on OpenStage 15/20/40 phones, a maximum size no greater than 500 000 bytes is recommended due to the amount of available memory.

The **Trace timeout (minutes)** determines when to stop tracing. When the timeout is reached, the trace settings for all components are set to OFF, but ERROR and STATUS messages are still written to the trace file ad infinitum. When the trace file has reached its maximum size, the data is saved, and a new file is created (for more information, see **File size (bytes)** above). If the value is 0, the trace data will be written without time limit.

If **Automatic clear before start** is checked, the existing trace file will be deleted on pressing the **Submit** button, and a new, empty trace file will be generated. By default, it is unchecked.

You can read the log files by clicking on the appropriate hyperlinks (the hyperlinks work only if the file in question has been created). The following logs can be viewed:

- **Download trace file**  
The trace data according to the settings specified for the services.
- **Download boot file** (not present with V2)  
The system messages of the booting process. With firmware version V2, these messages are incorporated in the syslog file (see **Download syslog file** underneath).
- **Download saved trace file**  
Normally, the trace file is saved only in the phone RAM. When the phone restarts in a controlled manner, the trace file will be saved in permanent memory.
- **Download saved boot file** (not present with V2)  
Normally, the boot file is saved only in the phone RAM. When the phone restarts in a controlled manner, the boot file will be saved in permanent memory. With firmware version V2, these messages will be incorporated in the syslog file (see **Download syslog file** underneath).
- **Download upgrade trace file**  
The trace log created during a software upgrade.
- **Download upgrade error file**  
The error messages created during a software upgrade. With firmware version V2, these messages will be incorporated in the syslog file (see **Download syslog file** underneath).



- **Download exception file** (not present with V2)  
If an exceptions occurs in a process running on the phone, a message is written to this file. With firmware version V2, these messages will be incorporated in the syslog file (see **Download syslog file** underneath).
- **Download old exception file** (not present with V2)  
The exception file is stored permanent memory. When the file has reached its size limit, it will be saved as old exception file, and the current exception file is emptied for future messages. The old exception file can be viewed here.
- **Download old trace file**  
The trace file is stored in permanent memory. When the file has reached its size limit, it will be saved as old trace file, and the current exception file is emptied for future messages. The old trace file can be viewed here.
- **Download error file** (not present with V2)  
All error messages the phone has created, according to the settings for the individual services.
- **Download syslog file**  
Messages from the phone's operating system, including error and exception messages.
- **Download old syslog file (V2)**  
Old messages from the phone's operating system.
- **Download saved syslog file (V2)**  
Saved messages from the phone's operating system.
- **Download Database file (V2)**  
Configuration parameters of the phone in SQLite format.
- **Download HPT remote service log file (V2)**  
Log data from the HPT service.
- **Download dial plan file**  
If a dial plan has been uploaded to the phone, it is displayed here, along with its status (enabled/disabled) and error status. For details, please refer to Section 3.9.3, "Dial Plan (V2)" and Section 4.5, "Dial Plan (V2)".

By pressing **Submit**, the trace settings are submitted to the phone. With **Reset**, the recent changes can be canceled.

The following trace levels can be selected:

- **OFF**: Default value. Only error messages are stored.
- **ERROR**: Error messages are stored.
- **TRACE**: Trace messages are stored. These contain detailed information about the processes taking place in the phone.
- **DEBUG**: All types of messages are stored.

## Administration

### *Diagnostics*

#### **Brief Descriptions of the Components/Services**

- **Administration**

Deals with the changing and setting of parameters within the phone database, from both the User and Admin menus.

- **Application framework**

All applications within the phone, e.g. Call view, Call log or Phonebook, are run within the application framework. It is responsible for the switching between different applications and bringing them into and out of focus as appropriate.

- **Application menu**

This is where applications to be run on the phone can be started and stopped.

- **Bluetooth service**

Handles the Bluetooth interactions between external Bluetooth devices and the phone. Bluetooth is available only on OpenStage 60/80 phones.

- **Call log**

The Call log application displays the call history of the phone.

- **Call view**

Handles the representation of telephony calls on the phone screen.

- **Certificate management**

Handles the verification and exchange of certificates for security and verification purposes.

- **Communications**

Involved in the passing of call related information and signaling to and from the CSTA service.

- **Component registrar**

Handles data relating to the type of phone, e.g. OpenStage 20/40 HFA/SIP, OpenStage 60/80 HFA/SIP.

- **CSTA service**

Any CSTA messages are handled by this service. CSTA messages are used within the phone by all services as a common call progression and control protocol.

- **Data Access service**

Allows other services to access the data held within the phone database.

- **Desktop**

Responsible for the shared parts of the phone display. Primarily these are the status bar at the top of the screen and the FPK labels.

- **Digit analysis service**

Analyses and modifies digit streams which are sent to and received by the phone, e.g. canonical conversion.

- **Directory service**

Performs a look up for data in the phonebook, trying to match incoming and outgoing numbers with entries in the phonebook.

- **DLS client management**

Handles interactions with the DLS (only with OpenScape Voice).

- **Health service**  
Monitors other components of the phone for diagnostic purposes and provides a logging interface for the services in the phone.
- **Help**  
Handles the help function.
- **Instrumentation service**  
Used by the Husim phone tester to exchange data with the phone for remote control, testing and monitoring purposes.
- **Java**  
Any Java applications running on the phone will be run in the Java sandbox controlled by the Java service.
- **Journal service**  
Responsible for saving and retrieving call history information, which is used by the Call log application.
- **Media control service**  
Provides the control of media streams (voice, tones, ringing etc. ) within the phone.
- **Media processing service**  
This is a layer of software between the media control service, the tone generation, and voice engine services. It is also involved in the switching of audio devices such as the handset and loudspeaker.
- **Mobility service**  
Handles the mobility feature whereby users can log onto different phones and have them configured to their own profile.
- **OBEX service**  
Involved with Bluetooth accesses to the phone.  
Bluetooth is available only on OpenStage 60/80 phones.
- **Openstage client management**  
Provides a means by which other services within the phone can interact with the database.
- **Phonebook**  
Responsible for the phonebook application.
- **POT service**  
Takes over control of basic telephony if the callview application fails.
- **Performance Marks**  
Aid for measuring the performance of the phone. For events triggered by the user, a performance mark is written to the trace file, together with a timestamp in the format hh:mm:ss yyyy.milliseconds, and information about the event. The timespan between two performance marks is an indicator for the performance of the phone.



The trace level must be set to "TRACE" or "DEBUG".

- **Password management service**  
Verifies passwords used in the phone.
- **Physical interface service**  
Handles any interactions with the phone via the keypad, mode keys, fixed feature buttons, clickwheel and slider.
- **Service framework**  
This is the environment within which other phone services operate. It is involved in the starting and stopping of services.
- **Service registry**  
Keeps a record of all services currently running inside the phone.
- **SIP call control**  
Contains the call model for the phone and is associated with telephony and call handling.
- **SIP messages**  
Traces the SIP messages exchanged by the phone.



After changing the level for the tracing of SIP messages, the phone must be rebooted. Otherwise the changes would have no effect.

- **SIP signalling**  
Involved in the creation and parsing of SIP messages. This service communicates directly with the SIP stack.
- **Sidecar service**  
Handles interactions between the phone and any attached sidecars.
- **Team Service**  
Primarily concerned with keyset operation.
- **Tone generation service**  
Handles the generation of the tones and ringers on the phone.
- **Transport service**  
Provides the IP (LAN) interface between the phone and the outside world.
- **USB backup service**  
Used to make backup/restore to/from USB stick by using password. This item is available in the phone GUI.
- **vCard parser service**  
Handles parsing and identification of VCard information while sending or getting VCards via Bluetooth.
- **Voice engine**

Provides a switching mechanism for voice streams within the phone. This component is also involved in QDC, Music on hold and voice instrumentation.

- **Voice mail**

Handles the voice mail functionality.

- **Voice recognition**

Used by the voice dial facility for recognizing spoken dialing commands.

- **Web Server service**

Provides access to the phone via web browser.

- **802.1x service**

Provides authentication to devices attached to a LAN port, establishing a point-to-point connection or preventing access from that port if authentication fails. The service is used for certain closed wireless access points.

# Administration

## Diagnostics

### Administration via WBM (V1R5)

#### Diagnostics > Fault Trace Configuration

Fault trace configuration			
File size (bytes)	<input type="text" value="65536"/>	Trace timeout (minutes)	<input type="text"/>
Automatic clear before start <input type="checkbox"/>			
Trace levels for components			
Administration	<input type="text" value="OFF"/>	Application framework	<input type="text" value="OFF"/>
Application menu	<input type="text" value="OFF"/>	Bluetooth service	<input type="text" value="OFF"/>
Call Log	<input type="text" value="OFF"/>	Call View	<input type="text" value="TRACE"/>
Certificate management	<input type="text" value="OFF"/>	Communications	<input type="text" value="TRACE"/>
Component registrar	<input type="text" value="TRACE"/>	CSTA service	<input type="text" value="TRACE"/>
Data Access service	<input type="text" value="OFF"/>	Desktop	<input type="text" value="OFF"/>
Digit analysis service	<input type="text" value="OFF"/>	Directory service	<input type="text" value="OFF"/>
DLS client management	<input type="text" value="OFF"/>	Health service	<input type="text" value="LOG"/>
Help	<input type="text" value="OFF"/>	Instrumentation service	<input type="text" value="OFF"/>
Java	<input type="text" value="OFF"/>	Journal service	<input type="text" value="OFF"/>
Media control service	<input type="text" value="OFF"/>	Media processing service	<input type="text" value="OFF"/>
Mobility service	<input type="text" value="OFF"/>	OBEX service	<input type="text" value="OFF"/>
OpenStage client management	<input type="text" value="OFF"/>	Phonebook	<input type="text" value="OFF"/>
POT service	<input type="text" value="OFF"/>	Password management service	<input type="text" value="OFF"/>
Physical interface service	<input type="text" value="OFF"/>	Service framework	<input type="text" value="OFF"/>
Service registry	<input type="text" value="TRACE"/>	Sidecar service	<input type="text" value="OFF"/>
SIP call control	<input type="text" value="DEBUG"/>	SIP messages	<input type="text" value="DEBUG"/>
SIP signalling	<input type="text" value="DEBUG"/>	Team service	<input type="text" value="OFF"/>
Tone generation service	<input type="text" value="OFF"/>	Transport service	<input type="text" value="OFF"/>
vCard parser service	<input type="text" value="OFF"/>	Voice engine service	<input type="text" value="OFF"/>
Voice mail	<input type="text" value="OFF"/>	Web server service	<input type="text" value="OFF"/>
USB backup service	<input type="text" value="OFF"/>	Voice recognition	<input type="text" value="OFF"/>
802.1x service	<input type="text" value="OFF"/>		
<i>SIP messaging traces are enabled after reboot</i>			
<a href="#">Download trace file</a>	<a href="#">Download boot file</a>	<a href="#">Download saved trace file</a>	<a href="#">Download saved boot file</a>
<a href="#">Download upgrade trace file</a>	<a href="#">Download upgrade error file</a>	<a href="#">Download exception file</a>	<a href="#">Download old exception file</a>
<a href="#">Download old trace file</a>	<a href="#">Download error file</a>	<a href="#">Download old error file</a>	<a href="#">Download syslog file</a>
<input type="button" value="Submit"/>		<input type="button" value="Reset"/>	

## Administration via WBM (V2)

### Diagnostics > Fault Trace Configuration

Fault trace configuration			
File size (Max 6290000 bytes)	<input type="text" value="65536"/>	Trace timeout (minutes)	<input type="text" value="0"/> Automatic clear before
Trace levels for components			
Administration	<input type="text" value="OFF"/>	Application framework	<input type="text" value="OFF"/>
Application menu	<input type="text" value="OFF"/>	Bluetooth service	<input type="text" value="OFF"/>
Call Log	<input type="text" value="OFF"/>	Call View	<input type="text" value="OFF"/>
Certificate management	<input type="text" value="OFF"/>	Communications	<input type="text" value="OFF"/>
Component registrar	<input type="text" value="OFF"/>	CSTA service	<input type="text" value="OFF"/>
Data Access service	<input type="text" value="OFF"/>	Desktop	<input type="text" value="OFF"/>
Digit analysis service	<input type="text" value="OFF"/>	Directory service	<input type="text" value="OFF"/>
DLS client management	<input type="text" value="OFF"/>	Health service	<input type="text" value="OFF"/>
Help	<input type="text" value="OFF"/>	Instrumentation service	<input type="text" value="OFF"/>
Java	<input type="text" value="OFF"/>	Journal service	<input type="text" value="OFF"/>
Media control service	<input type="text" value="OFF"/>	Media processing service	<input type="text" value="OFF"/>
Mobility service	<input type="text" value="OFF"/>	OBEX service	<input type="text" value="OFF"/>
OpenStage client management	<input type="text" value="OFF"/>	Phonebook	<input type="text" value="OFF"/>
Performance Marks	<input type="text" value="OFF"/>	Password management service	<input type="text" value="OFF"/>
Physical interface service	<input type="text" value="OFF"/>	Service framework	<input type="text" value="OFF"/>
Service registry	<input type="text" value="OFF"/>	Sidecar service	<input type="text" value="OFF"/>
SIP call control	<input type="text" value="OFF"/>	SIP messages	<input type="text" value="OFF"/>
SIP signalling	<input type="text" value="OFF"/>	Team service	<input type="text" value="OFF"/>
Tone generation service	<input type="text" value="OFF"/>	Transport service	<input type="text" value="OFF"/>
vCard parser service	<input type="text" value="OFF"/>	Voice engine service	<input type="text" value="OFF"/>
Voice mail	<input type="text" value="OFF"/>	Web server service	<input type="text" value="OFF"/>
USB backup service	<input type="text" value="OFF"/>	Voice recognition	<input type="text" value="OFF"/>
802.1x service	<input type="text" value="OFF"/>	Clock Service	<input type="text" value="DEBUG"/>
<i>SIP messaging traces are enabled after reboot</i>			
<a href="#">Download trace file</a>	<a href="#">Download saved trace file</a>	<a href="#">Download upgrade trace file</a>	<a href="#">Download old trace file</a>
<a href="#">Download syslog file</a>	<a href="#">Download old syslog file</a>	<a href="#">Download saved syslog file</a>	<a href="#">Download Database file</a>
<a href="#">Download upgrade error file</a>	<a href="#">Download HPT remote service log file</a>	<a href="#">Download dial plan file</a>	
<input type="button" value="Submit"/>			<input type="button" value="Reset"/>

## Administration

### Diagnostics

## 3.21.7 Easy Trace Profiles

In order to simplify tracing for a specific problem, the tracing levels can be adjusted using pre-defined settings. The Easy Trace profiles provide settings for a specific area, e. g. call connection. On pressing **Submit**, those pre-defined settings are sent to the phone. If desired, the settings can be modified anytime using the general mask for trace configuration under **Diagnostics** > Fault Trace Configuration (see Section 3.21.6, “Fault Trace Configuration”).

If desired, the tracing for all services can be disabled (see Section 3.21.7.23, “No Tracing for All Services”).

The following sections describe the Easy Trace profiles available for the phone.

### 3.21.7.1 Bluetooth Handsfree

Diagnostics > Easy Trace Profiles > Bluetooth handsfree profile

Bluetooth handsfree profile	
Component registrar	TRACE
Data Access service	TRACE
Media control service	TRACE
OpenStage client management	LOG
Physical interface service	DEBUG
Voice engine service	TRACE
Media processing service	TRACE
Bluetooth service	TRACE
<input type="button" value="Submit"/>	

### 3.21.7.2 Bluetooth Headset

Diagnostics > Easy Trace Profiles > Bluetooth headset profile

Bluetooth headset profile	
Component registrar	TRACE
Data Access service	TRACE
Media control service	TRACE
OpenStage client management	LOG
Voice engine service	TRACE
Media processing service	TRACE
Bluetooth service	TRACE
<input type="button" value="Submit"/>	



### 3.21.7.3 Call Connection

Diagnostics > Easy Trace Profiles > Call connection

Call connection	
Component registrar	WARNING
Health service	LOG
Service registry	LOG
SIP call control	LOG
SIP signalling	LOG
Call View	LOG
Communications	LOG
CSTA service	LOG
SIP messages	LOG
<input type="button" value="Submit"/>	



This Easy Trace profile contains the tracing of SIP messages. Please note that after changing the level for the tracing of SIP messages, the phone must be rebooted.

### 3.21.7.4 Call Log

Diagnostics > Easy Trace Profiles > Call log problems

Call log problems	
Call Log	TRACE
Component registrar	TRACE
Health service	LOG
Application framework	TRACE
Desktop	TRACE
Journal service	TRACE
<input type="button" value="Submit"/>	

## Administration

### Diagnostics

#### 3.21.7.5 LDAP Phonebook

Diagnostics > Easy Trace Profiles > Phonebook (LDAP) problems

Phonebook (LDAP) problems	
Application menu	TRACE
Component registrar	TRACE
Directory service	TRACE
Health service	LOG
Application framework	TRACE
Desktop	TRACE
Journal service	TRACE
Transport service	LOG
<input type="button" value="Submit"/>	

#### 3.21.7.6 DAS Connection

Diagnostics > Easy Trace Profiles > DAS connection

DAS connection	
Certificate management	LOG
Component registrar	TRACE
Health service	LOG
DLS client management	LOG
Service framework	TRACE
<input type="button" value="Submit"/>	

#### 3.21.7.7 DLS Data Errors

Diagnostics > Easy Trace Profiles > DLS data errors

DLS data errors	
Certificate management	LOG
Component registrar	TRACE
Data Access service	TRACE
Health service	LOG
DLS client management	TRACE
OpenStage client management	LOG
Service framework	TRACE
<input type="button" value="Submit"/>	

### 3.21.7.8 802.1x

Diagnostics > Easy Trace Profiles > 802.1x

802.1x problems	
Certificate management	LOG
Component registrar	TRACE
Data Access service	TRACE
802.1x service	DEBUG
<input type="button" value="Submit"/>	

### 3.21.7.9 Help Application

Diagnostics > Easy Trace Profiles > Help application problems

Help application problems	
Application menu	TRACE
Component registrar	TRACE
Health service	LOG
Application framework	TRACE
Help	DEBUG
Web server service	TRACE
<input type="button" value="Submit"/>	

### 3.21.7.10 Sidecar

Diagnostics > Easy Trace Profiles > Sidecar problems

Sidecar problems	
Component registrar	TRACE
Health service	LOG
Sidecar service	TRACE
<input type="button" value="Submit"/>	

## Administration

### Diagnostics

#### 3.21.7.11 Key Input

Diagnostics > Easy Trace Profiles > Key input problems

Key input problems	
Component registrar	TRACE
Health service	LOG
Physical interface service	DEBUG
<input type="button" value="Submit"/>	

#### 3.21.7.12 LAN Connectivity

Diagnostics > Easy Trace Profiles > LAN connectivity problems

LAN connectivity	
Component registrar	WARNING
Health service	LOG
Transport service	LOG
<input type="button" value="Submit"/>	

#### 3.21.7.13 Local Phonebook

Diagnostics > Easy Trace Profiles > Phonebook (local) problems

Phonebook (local) problems	
Application menu	TRACE
Component registrar	TRACE
Health service	LOG
Application framework	TRACE
Desktop	TRACE
Journal service	TRACE
<input type="button" value="Submit"/>	

### 3.21.7.14 Messaging

Diagnostics > Easy Trace Profiles > Messaging application problems

Messaging application issues	
Component registrar	WARNING
Health service	LOG
SIP signalling	LOG
Application framework	LOG
Call View	LOG
Communications	LOG
CSTA service	LOG
Desktop	LOG
<input type="button" value="Submit"/>	

### 3.21.7.15 Mobility

Diagnostics > Easy Trace Profiles > Mobility problems

Mobility problems	
Administration	TRACE
Data Access service	TRACE
DLS client management	LOG
Mobility service	TRACE
<input type="button" value="Submit"/>	

### 3.21.7.16 Phone administration

Diagnostics > Easy Trace Profiles > Phone administration problems

Phone administration problems	
Administration	DEBUG
Health service	WARNING
OpenStage client management	LOG
Application framework	TRACE
Communications	TRACE
CSTA service	TRACE
Desktop	TRACE
<input type="button" value="Submit"/>	

## Administration

### Diagnostics

#### 3.21.7.17 Server based applications

Diagnostics > Easy Trace Profiles > Server based application problems

Server based application problems	
Java	LOG
<input type="button" value="Submit"/>	

#### 3.21.7.18 Speech

Diagnostics > Easy Trace Profiles > Speech problems

Speech problems	
Component registrar	TRACE
Health service	LOG
Voice engine service	TRACE
Media processing service	TRACE
SIP signalling	DEBUG
SIP call control	DEBUG
<input type="button" value="Submit"/>	

#### 3.21.7.19 Tone

Diagnostics > Easy Trace Profiles > Tone problems

Tone problems	
Component registrar	TRACE
Health service	LOG
Tone generation service	TRACE
Media processing service	TRACE
<input type="button" value="Submit"/>	

#### 3.21.7.20 USB Backup/Restore

Diagnostics > Easy Trace Profiles > USB backup/restore

USB backup/restore	
Administration	TRACE
Component registrar	TRACE
Physical interface service	DEBUG
USB backup service	DEBUG
<input type="button" value="Submit"/>	

### 3.21.7.21 Voice Dialling

Diagnostics > Easy Trace Profiles > Voice recognition problems

Voice recognition problems	
Media control service	TRACE
Voice engine service	TRACE
Call View	TRACE
Media processing service	TRACE
Voice recognition	TRACE
Phonebook	TRACE
<input type="button" value="Submit"/>	

### 3.21.7.22 Web Based Management

Diagnostics > Easy Trace Profiles > Web based management

Web based management	
File size (bytes)	65536
Trace timeout (minutes)	2
Automatic clear before start	<input type="checkbox"/>
Trace levels for components	
Data Access service	TRACE
OpenStage client management	LOG
Web server service	TRACE
<a href="#">Download trace file</a>	<a href="#">Download old trace file</a>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Administration

### Diagnostics

#### 3.21.7.23 No Tracing for All Services

Diagnostics > Easy Trace Profiles > Clear all profiles

Clear all profiles	
Administration	OFF
Call Log	OFF
Call View	OFF
Phonebook	OFF
Help	OFF
Application menu	OFF
Certificate management	OFF
Communications	OFF
Component registrar	OFF
CSTA service	OFF
Data Access service	OFF
Digit analysis service	OFF
Digital data service	OFF
Directory service	OFF
DLS client management	OFF
Health service	OFF
Instrumentation service	OFF
Journal service	OFF



### 3.21.8 Bluetooth Advanced Traces (V2)

For OpenStage 60/80 phones with firmware V2, low level Bluetooth traces can be controlled and viewed via web interface, in addition to the tracing facilities available in previous firmware versions (see Section 3.21.6, “Fault Trace Configuration”). Internally, the phone uses the hc-dump utility for creating the traces. It is also possible to run the trace from the shell via SSH (for information about the SSH access, please refer to Section 3.19, “SSH - Secure Shell Access (V2)”).

If **Automatic clear before start** is enabled, the log file will be emptied before the **Start** button is pressed, so that the log file will only contain newly created entries. By default, this parameter is enabled.

The **File size (Max 6290000 bytes)** parameter determines the maximum size of the log file. If this value is exceeded, no more data will be written to the file. The default value is 265536.

If **Extended dump** is enabled, all hexadecimal and ASCII data is displayed for each packet. If disabled, only the packet type is displayed. By default, this parameter is enabled.

If **Verbose decoding** is enabled, the packets are decoded in a more verbose way. By default, this parameter is enabled.

With the **Start/Stop** button, tracing is started or halted. The label depends on whether tracing is active or not.

On clicking the **Download trace file** link, the trace file is displayed.

With **Submit**, the changes on the parameters described above are sent to the phone.

With **Reset**, parameter changes that have been made in the form, but not yet sent to the phone, are cancelled.

#### Administration via WBM

The screenshot shows a web interface titled "Bluetooth Advanced Traces". It contains the following elements:

- A checkbox for "Automatic clear before start" which is checked.
- A text input field for "File size (Max 6290000 bytes)" with the value "256000".
- A checkbox for "Extended dump" which is checked.
- A checkbox for "Verbose decoding" which is checked.
- A status indicator "Tracing is stopped" with a "Start" button next to it.
- A blue hyperlink "Download trace file".
- Buttons for "Submit" and "Reset" at the bottom.

## 3.21.9 QoS Reports

### 3.21.9.1 Conditions and Thresholds for Report Generation



For details about the functionality, please refer to the release notes.

The generation of QoS (Quality of Service) reports which are sent to a QCU server (see Section 3.3.8, "SNMP") is configured here.

#### Data required

- **Report mode:** Sets the conditions for generating a QoS report.  
Value range:
  - "OFF": No reports are generated.
  - "EOS Threshold exceeded": Default value. A report is created if a) a telephone conversation longer than the **Minimum session length** has just ended, and b) a threshold value has been exceeded during the conversation.
  - "EOR Threshold exceeded": A report is created if a) the report interval has just passed, and b) a threshold value has been exceeded during the observation interval.
  - "EOS (End of Session)": A report is created if a telephone conversation longer than the **Minimum session length** has just ended.
  - "EOR (End of Report Interval)": A report is created if the report interval has just passed.
- **Report interval (seconds):** Time interval between the periodical observations.  
Default: 60
- **Observation interval (seconds):** During this time interval, the traffic is observed.  
Value: 10
- **Minimum session length (100 millisecond units):** When the Report mode is set to "EOS Threshold exceeded" or "EOS (End of Session)", a report can be created only if the duration of the conversation exceeds this value.  
Default: 20
- **Maximum jitter (milliseconds):** When the jitter exceeds this value, a report is generated.  
Default: 20
- **Average round trip delay (milliseconds):** When the average round trip time exceeds this value, a report is generated.  
Default: 100

### Non-compressing codecs / Compressing codes:

- **Lost packets (per 1000 packets):** When the number of lost packets exceeds this maximum value during the observation interval, a report is created.  
Default: 10
- **Consecutive lost packets:** When the number of lost packets following one another exceeds this maximum value during the observation interval, a report is created.  
Default: 2
- **Consecutive good packets:** When the number of good packets following one another falls below this minimum value, a report is created.  
Default: 8
- **Resend last report:** If checked, the previous report is sent once again on pressing **Submit**.  
Value range: "Yes", "No"  
Default: "No"

The transmission of report data can be triggered manually by pressing **Send now** in the local menu.

### Administration via WBM

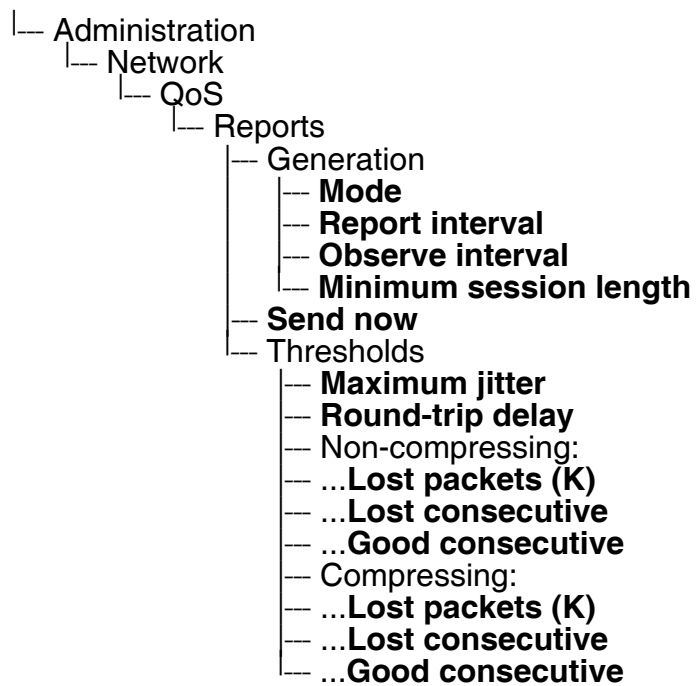
Diagnostics > QoS Reports > Generation

Generation	
Report mode	EOS Threshold exceeded <input type="button" value="v"/>
Report interval (seconds)	<input type="text" value="60"/>
Observation interval (seconds)	<input type="text" value="10"/>
Minimum session length (100 millisecond units)	<input type="text" value="20"/>
<b>Codec independent threshold values</b>	
Maximum jitter (milliseconds)	<input type="text" value="20"/>
Average round trip delay (milliseconds)	<input type="text" value="100"/>
<b>Non-compressing codec threshold values</b>	
Lost packets (per 1000 packets)	<input type="text" value="10"/>
Consecutive lost packets	<input type="text" value="2"/>
Consecutive good packets	<input type="text" value="8"/>
<b>Compressing codec threshold values</b>	
Lost packets (per 1000 packets)	<input type="text" value="10"/>
Consecutive lost packets	<input type="text" value="2"/>
Consecutive good packets	<input type="text" value="8"/>
Resend last report	<input type="checkbox"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Administration

### Diagnostics

## Administration via Local Phone



### 3.21.9.2 View Report

OpenStage phones generate QoS reports using a specific format, QDC (**QoS Data Collection**). The reports created for the last 6 sessions, i. e. conversations, can be viewed on the WBM.

To enable the generation of reports, please ensure that:

- the switch **QoS traps to QCU** (System > SNMP) is activated (see Section 3.3.8, “SNMP”);
- the conditions for the generation of reports are set adequately (see Section 3.21.9.1, “Conditions and Thresholds for Report Generation”).

For details about QoS reports, see the HiPath QoS Data Collection V 1.0 Service Manual.

A QoS report contains the following data:

- **Start of report period - seconds:** NTP time in seconds for the start of the report period.
- **Start of report period - fraction of seconds:** Additional split seconds to be added to the seconds for an exact start time.
- **End of report period - seconds:** NTP time in seconds for the end of the report period.
- **End of report period - fraction of seconds:** Additional split seconds to be added to the seconds for an exact end time.
- **SNMP specific trap type:** The trap type is a 5 bit value calculated from a list of threshold-exceeding bits. Every time a threshold is exceeded, the associated bit is set, otherwise it is cleared.

The trace type bits are defined as follows:

- Bit 0: Jitter threshold was exceeded.
- Bit 1: Delay threshold was exceeded.
- Bit 2: Threshold for lost packets was exceeded.
- Bit 3: Threshold for consecutive lost packets was exceeded.
- Bit 4: Threshold for consecutive good packets was exceeded.
- **IP address (local):** IP address of the local phone.
- **Port number (local):** RTP receiving port of the local phone.
- **IP address (remote):** IP address of the remote phone that took part in the session.
- **Port number (remote):** RTP sending port of the local phone.
- **SSRC (receiving):** RTP Source Synchronization Identifier of the local phone.
- **SSRC (sending):** RTP Source Synchronization Identifier of the remote phone.
- **Codec:** Number of the Payload Type applied in the session; see RFC 3551 (Table 4 and 5).
- **Maximum packet size:** Maximum size (in ms) of packets received during the report interval.
- **Silence suppression:** Number of silence suppression activation objects found in the RTP stream received. A silence suppression activation object is defined as a period of silence when no encoded voice signals were transmitted by the sender.

## Administration

### Diagnosics

- **Count of good packets:** Total amount of good packets.
- **Maximum jitter:** Maximum jitter (in ms) found during the report interval.
- **Maximum inter-arrival jitter:** Maximum of the interarrival jitter values (in ms). The interarrival jitter is the smoothed absolute value of the jitter measurements. It is calculated continuously. For details about the calculation, see RFC 3550.
- **Periods jitter threshold exceeded:** Number of observation intervals in which the threshold for maximum jitter was exceeded.
- **Round trip delay:** Average value of delay calculated for each RTCP packet. The first value is available after about 15 sec.
- **Round trip delay threshold exceeded:** Set to "true" if the average round trip delay threshold value was exceeded in the report interval.
- **Count of lost packets:** Number of packets lost in the course of speech decoding.
- **Count of discarded packets:** Number of the packets discarded without transferring the contents.
- **Periods of lost packets:** Number of observation intervals in which the threshold for lost packets was exceeded.
- **Consecutive packet loss (CPL):** List of sequences consecutive packets that were all lost, grouped according to the amount of packets per sequence. The first number in the list counts single lost packets, the second number counts sequences of two lost packets, and so on. The last number counts sequences of more than 10 lost packets.
- **Periods of consecutive lost packets:** Number of observation intervals in which the threshold for consecutive lost packets was exceeded.
- **Consecutive good packets (CGP):** List of sequences consecutive packets that were all processed, grouped according to the amount of packets per sequence. The first number in the list counts single good packets, the second number counts sequences of two good packets, and so on. The last number counts sequences of more than 10 good packets. All values are reset to 0 after an interval without packet loss.
- **Periods of consecutive good packets:** Number of intervals in which the count of lost packets went below the threshold.
- **Count of jitter buffer overruns:** Number of packets rejected because the jitter buffer was full.
- **Count of jitter buffer under-runs:** Increased by one whenever the decoder requests new information on decoding and finds an empty jitter buffer.
- **Codec change on the fly:** The value is 1, if there has been a codec or SSRC change during the observation period, and 0, if there has been no change.
- **Periods with at least one threshold exceeded:** Number of observation intervals with at least one threshold exceedance. If there is no data, the value is 255. The threshold values included are:
  - maximum jitter;
  - lost packets;

- consecutive lost packets;
- consecutive good packets.
- **HiPath Switch ID:** Unique number identifying the HiPath switch to which the endpoints are assigned.
- **LTU number:** In HiPath 4000 only, the shelf identification is taken from the shelf containing a gateway.
- **Slot number:** The slot number where the phone is connected in the shelf.
- **Endpoint type:** Type of the local phone.
- **Version:** Software version of the local phone.
- **Subscriber number type:** Type of subscriber number assigned to the local phone. The possible types are:
  - 1: local number, extension only;
  - 2: called number, network call
  - 3: E.164 number of the local phone.
- **Subscriber number:** Subscriber number of the local phone.
- **Call ID:** SIP call id.
- **MAC address:** MAC address of the local phone.

**Administration**  
**Diagnostics**

**Data viewing via WBM**

**Diagnostics > QoS reports > View Session Data**

View Session Data	
Select a report to view	QoS Statistics 1
<input type="button" value="Submit"/>	
Start of report period - seconds	3394450938
Start of report period - fraction of seconds	31669
End of report period - seconds	3394451013
End of report period - fraction of seconds	17820
SNMP specific trap type	0
IP address (local)	192.168.1.12
Port number (local)	5004
IP address (remote)	192.168.1.15
Port number (remote)	5010
SSRC (receiving)	324951319
SSRC (sending)	1987331861
Codec	0
Maximum packet size	20
Silence suppression	0
Count of good packets	3638
Maximum jitter	4
Maximum inter-arrival jitter	2
Periods jitter threshold exceeded	0
Round trip delay	2
Round trip delay threshold exceeded	<input type="checkbox"/>
Count of lost packets	0
Count of discarded packets	0
Periods of lost packets	0
Consecutive packet loss (CPL)	255,255,255,255,255,255,255,255,255,255,255
Periods of consecutive lost packets	255
Consecutive good packets (CGP)	255,255,255,255,255,255,255,255,255,255,255
Periods of consecutive good packets	255
Count of jitter buffer overruns	0
Count of jitter buffer under-runs	0
Codec change on the fly	<input type="checkbox"/>
Periods with at least one threshold exceeded	0
HiPath Switch ID	Unknown
LTU number	255
Slot number	255
Endpoint type	
Version	V1 R2.2.63 SIP 070629
Subscriber number type	0
Subscriber number	4711
Call ID	122384c56462fd0a6bfa22b6364005f3@192.168.1.21
MAC address	0001e3247e50



### 3.21.10 Core dump

If **Enable core dump** is checked, a core dump will be initiated in case of a severe error. The core dump will be saved to a file. By default, this function is activated.

When **File size unlimited** is checked, there is no size limit for the core dump file. By default, it is not checked.

The maximum size for core dump files in MBytes can be chosen in the **Limited file size (MBs)** field. The possible values are 1, 5, 10, 25, 50, 75, and 100. The default value is 100.



With firmware V2R1, unlimited file size is preset, and the parameters **File size unlimited** as well as **Limited file size (MBs)** are not available.

If **Delete core dump** is activated, the current core dump file is deleted on **Submit**. By default, this is not activated.

If one or more core dump file exist, hyperlinks for downloading will be created automatically.

#### Administration via WBM (up to V2R0)

Diagnostics > Miscellaneous > Core dump

Enable core dump *	<input checked="" type="checkbox"/>
File size unlimited *	<input type="checkbox"/>
Limited file size (MBs) *	100
Delete core dump	<input type="checkbox"/>

\* Changes to these items do not take effect until the phone is restarted

Submit Reset

#### Administration via WBM (V2R1)

Diagnostics > Miscellaneous > Core dump

Enable core dump *	<input checked="" type="checkbox"/>
Delete core dump	<input type="checkbox"/>

\* Changes to this item do not take effect until the phone is restarted

Submit Reset

## Administration

### Diagnostics

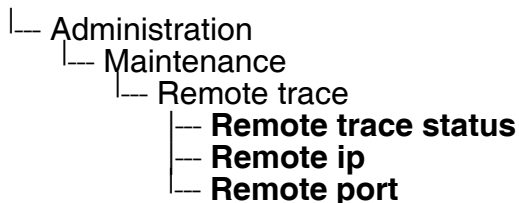
#### 3.21.11 Remote Tracing - Syslog

All trace messages created by the components of the phone software can be sent to a remote server using the syslog protocol. This is helpful especially for long-term observations with a greater number of phones.

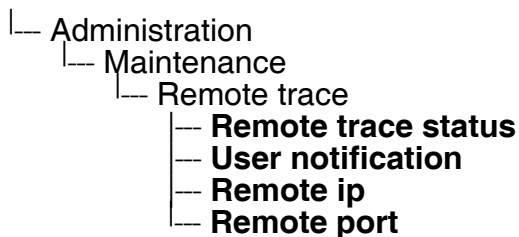
To enable remote tracing, **Remote trace status** must be set to "Enabled". Furthermore, the IP address of the server receiving the syslog messages must be entered in **Remote ip**, and the corresponding server port must be given in **Remote port**.

With version V2, the **User notification** parameter controls whether the user is notified about the remote tracing or not. If user notification is enabled, a blinking symbol (🔧 on OpenStage 60/80; 🔧 on OpenStage 15/20/40) will inform the user when remote tracing is active, that is, when **Remote trace status** is set to "Enabled".

#### Administration via Local Phone



#### Administration via Local Phone (V2)



#### Administration via WBM (V2)

Remote trace	
Remote Trace Status	<input type="checkbox"/>
User Notification	<input type="checkbox"/>
Remote Server IP	<input type="text"/>
Remote Server Port	514
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

### 3.21.12 HPT Interface (For Service Staff)

For special diagnosis and maintenance tasks, the service staff may employ the HPT tool, which is able to control and observe an OpenStage phone remotely. For security reasons, this tool can only be used when a dongle key file is uploaded to the phone (see Section 3.11.10, “HPT Dongle Key”). This key is accessible to the service staff only. It is specific for a particular SIP firmware version, but it will also be valid for previous versions.

There are 2 types of HPT sessions, control session and observation session.

A control session allows for activating phone functions remotely. When a control session is established, the following changes will occur:

- The display shows a message indicating that remote service is active.
- Handset, microphone, speaker, headset, and microphone are disabled.

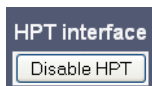
An observation session allows for supervising events on the phone, like, for instance, pressing a key, incoming calls or navigating in the menus. Before an observation session is started, the user is prompted for allowing the observation. During an observation session, the phone operates normally, including loudspeaker, microphone and ringer. Thus, the local user can demonstrate an error towards the service staff that is connected via HPT.

The HPT interface is enabled by downloading the dongle key file to the phone (see Section 3.11.10, “HPT Dongle Key”). It can be disabled via local menu or WBM. Thereby, the dongle key file is deleted. To enable the HPT interface again, the file must be downloaded anew.

The session data is written to a log file on the phone. It can be downloaded from the Diagnostics > Fault trace configuration menu (see Section 3.21.6, “Fault Trace Configuration”).

#### Administration via WBM

Maintenance > HPT interface



#### Administration via Local Phone

```
├ Administration
│   └ Maintenance
│       └ Disable HPT / Enable HTP
```

## Administration

### Bluetooth

## 3.22 Bluetooth

The Bluetooth interface can be enabled or disabled in the admin menu. By default, it is enabled. If Bluetooth is enabled, the user has the possibility to activate or deactivate it. The Bluetooth address is displayed.



Bluetooth is available only on OpenStage 60/80 phones.

### Administration via WBM

System > Features > Configuration

Configuration	
<b>General</b>	
Emergency number	<input type="text" value="113"/>
Voice mail number	<input type="text" value="99"/>
Allow refuse	<input checked="" type="checkbox"/>
Allow transfer on ring	<input checked="" type="checkbox"/>
Initial digit timer (seconds)	<input type="text" value="30"/>
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input checked="" type="checkbox"/>
Not used timeout (minutes)	<input type="text" value="2"/>
Transfer on hangup	<input checked="" type="checkbox"/>
<b>Audio</b>	
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	<input type="text" value="Prompt"/>
<b>Bluetooth</b>	
Device address	<input type="text" value="00:01:E3:2D:76:22"/>
Diagnostic mode	<input type="checkbox"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

### Administration via Local Phone

```
Administration
├── System
│   ├── Features
│   │   ├── Configuration
│   │   │   ├── Bluetooth
│   │   │   │   ├── Local device address
│   │   │   │   └── Enable
```

## 4 Examples and HowTos

### 4.1 Canonical Dialing

#### 4.1.1 Canonical Dialing Settings

The following example shows settings suitable for the conversion of given dial strings to canonical format. The example phone is located in Nottingham, UK.

Parameter	Example value	Explanation
Local country code	44	International country code for the UK.
National prefix digit	0	Used in front of national codes when dialled without international prefix.
Local national code	115	Area code within the UK (here: Nottingham).
Minimum local number length	7	Minimum number of digits in a local PSTN number (e. g. 3335333 = 7 digits).
Local enterprise node	780	Prefix to access Nottingham numbers from within the Siemens network.
PSTN access code	9	Prefix to make an international call in the UK.
Operator codes	0, 7800	Set of numbers to access the local operators.
Emergency numbers	999, 555	Set of numbers to access emergency services.
Initial extension digits	2, 3, 4, 5, 6, 8	1 <sup>st</sup> digits of numbers that are used for extension numbers on the local node.

## Examples and HowTos

### Canonical Dialing

#### 4.1.2 Canonical Dial Lookup

The following example shows settings suitable for recognizing incoming numbers and assigning them to entries in the local phone book, and for generating correct dial strings from phone book entries, depending on whether the number is internal or external.

Parameter	Example value	Explanation
Local code <1>	780	Enterprise node prefix (here: Nottingham).
International code <1>	+44115943	Equivalent prefix to access numbers on this node from the PSTN. Here, the prefix used by the PSTN (DID/DDI: direct inward dialing) is 943, which differs from the enterprise node prefix used within the enterprise network.
Local code <2>	722	Enterprise node prefix (here: Munich).
International code <2>	+4989722	Equivalent prefix to access numbers on this node from the PSTN. Here, the prefix used by the PSTN for direct inward dialing is identical to the enterprise node prefix.

#### 4.1.2.1 Conversion examples

In the following examples, numbers entered into the local phonebook by the user are converted according to the settings given above.

##### **Example 1: Internal number, same node as the local phone**

User entry		2345
External numbers		Local public form
External access code		Not required
International gateway code		Use national code
Number stored in the phone book		+441159432345
Dial string sent when dialing from the phone book	Internal numbers = Local enterprise form	1234
	Internal numbers = Always add node	7802345
	Internal numbers = Use external numbers	9432345

##### **Example 2: Internal number, different node**

User entry		7222345
External numbers		Local public form
External access code		Not required
International gateway code		Use national code
Number stored in the phone book		+49897222345
Dial string sent when dialing from the phone book	Internal numbers = Local enterprise form	2345
	Internal numbers = Always add node	7802345
	Internal numbers = Use external numbers	9432345

## Examples and HowTos

### Canonical Dialing

#### Example 3: External number, same local national code as the local phone

User entry		011511234567
External numbers		Local public form
External access code		Not required
International gateway code		Use national code
Number stored in the phone book		+4411511234567
Dial string sent when dialing from the phone book	External numbers = Local public form	234567
	External numbers = National public form	011511234567
	External numbers = International form	004411511234567



## 4.2 How to Create Logo Files for OpenStage Phones

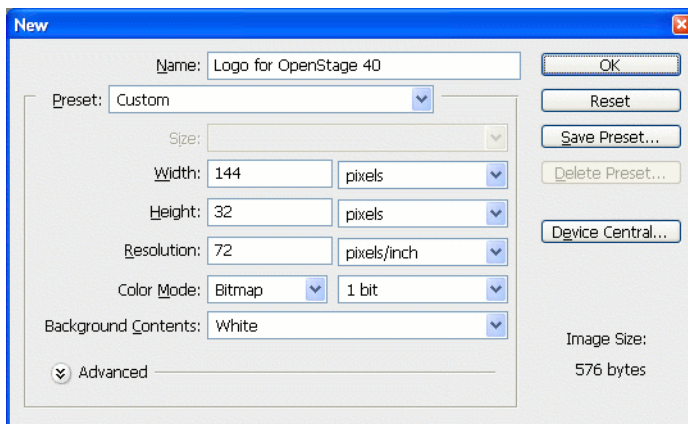
### 4.2.1 For OpenStage 40

#### 1. Create a New Image

Create an image with the following specifications:

- Width: 144 px
- Height: 32 px
- Color Mode: 1 bit (monochrome)

**Adobe Photoshop:**



#### 2. Insert the Logo

Place the logo image on the background, e.g. by copying it from a source file. Due to the size and color specifications, some adaptations may be necessary.

**Adobe Photoshop Example:**



## Examples and HowTos

### How to Create Logo Files for OpenStage Phones

#### 3. Save the Image

Finally, save the image in BMP format. You can now upload the logo file to the phone as described in Section 3.11.7, “Logo”.

#### 4.2.2 For OpenStage 60/80

In the following, the creation of a transparent image suitable for use as a logo in OpenStage 60/80 is described. This description is based on Adobe Photoshop, but any similar graphics software can be used as well.



Because of performance issues, half transparency in the alpha channel of the PNG files is not allowed on OpenStage phones. Therefore only 100% transparency or no transparency is used in the phone's UI elements.

#### 1. Select the Background Color

For production purposes, we set the background color to the background color of the skin currently selected on the phone. Later, the background color will be replaced by transparency, which facilitates placing a logo on a gradient background. The following table lists the hexadecimal values, as used in HTML:

Phone Type	Skin	Color Code
OpenStage 60	Crystal Sea	#BDBDBD
OpenStage 60	Warm Grey	#424242 <sup>1</sup>
OpenStage 80	Crystal Sea	#E6EBEF
OpenStage 80	Warm Grey	#3A3D3A

<sup>1</sup> The background color on WP4 - skin 1 is a gradient; the colour listed here is an average value.

#### Adobe Photoshop:

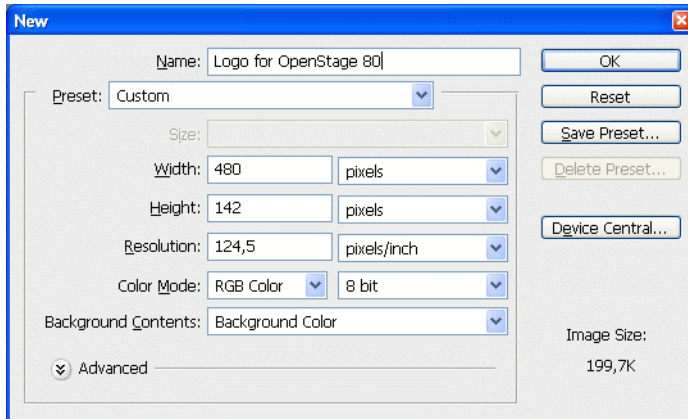
Click on the Background Color icon on the Color palette group, then type the color code without leading "#" into the # field)

## 2. Create a New Image

Create an image with the size according to the phone type:

Phone Type	Size (px)
OpenStage 60	240 x 70
OpenStage 80	480 x 142

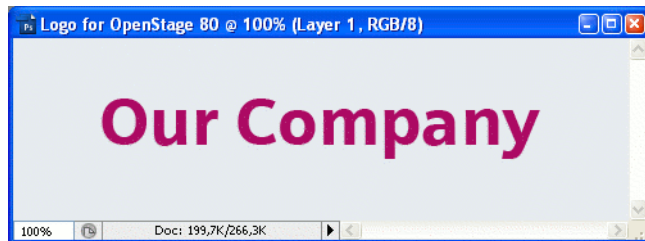
### Adobe Photoshop:



## 3. Insert the Logo

Place the logo image on the background, e.g. by copying it from a source file.

### Adobe Photoshop Example:



## 4. Merge Layers

Merge the two layers to one.

### Adobe Photoshop:

In the Panel, select both the background layer and the new layer containing the inserted logo. Afterwards, go to **Layer** in the Menu bar, and select **Merge Layers**.

## Examples and HowTos

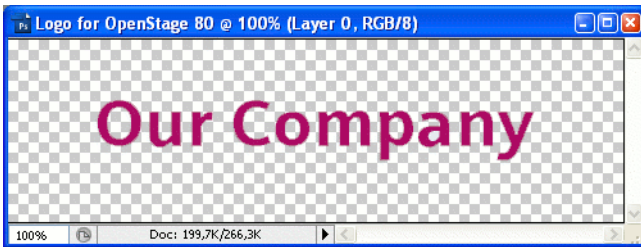
### *How to Create Logo Files for OpenStage Phones*

#### 5. Background Transparency

Delete the background colour so that only the exact former background colour is 100% transparent.

##### **Adobe Photoshop:**

Make sure that the background color is selected by clicking on the Background Color icon. In the Tool palette, click on the Eraser symbol with the right Mouse button and select the **Magic Eraser Tool**. After this, got to the Menu bar and set the **Tolerance** field to "0".



#### 6. Save the Image

Finally, save the image in PNG format. You can now upload the logo file to the phone as described in Section 3.11.7, "Logo".

### 4.3 How to Set Up the Corporate Phonebook (LDAP)

The Corporate Phonebook function is based on an LDAP client that can be connected to the company's LDAP service. A variety of LDAP servers can be used, for instance Microsoft Active Directory, OpenLDAP, or Apache Directory Server.



The Corporate Phonebook is available only on OpenStage 60/80.

#### 4.3.1 Prerequisites:

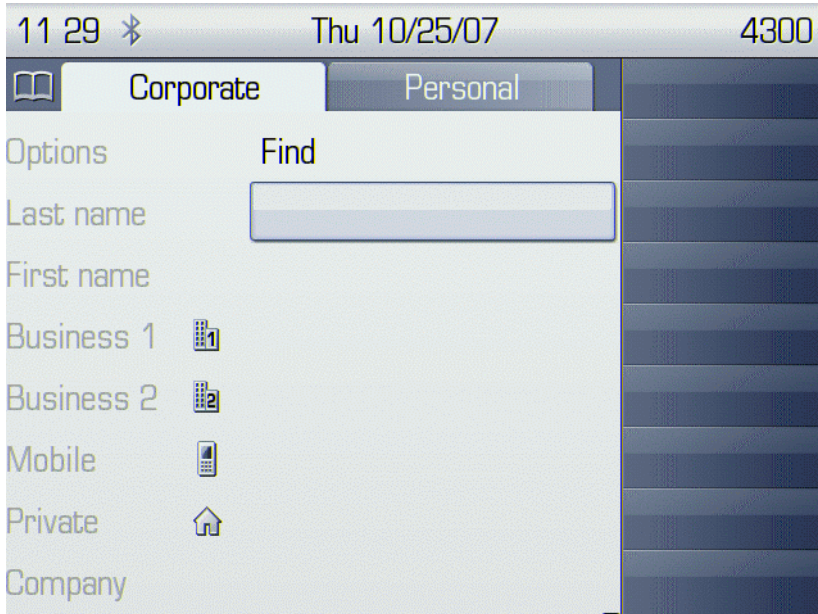
1. An LDAP server is present and accessible to the phone's network. The standard port for LDAP is **389**.
2. Query access to the LDAP server must be provided. Unless anonymous access is used, a user name and password must be provided. It might be feasible to use a single login/password for all OpenStage phones.
3. To enable dialing internal numbers from the corporate phonebook, an LDAP entry must be provided that contains the proper number format required by the PBX.

## Examples and HowTos

### How to Set Up the Corporate Phonebook (LDAP)

#### 4.3.2 Create an LDAP Template


The user interface of the corporate phonebook application provides a form which is used both for search and retrieval.



The screenshot shows a mobile application interface for a corporate phonebook. At the top, there is a status bar with the time '11 29', a Bluetooth icon, the date 'Thu 10/25/07', and the number '4300'. Below the status bar, there are two tabs: 'Corporate' (selected) and 'Personal'. A 'Find' dropdown menu is open, showing search options: 'Options', 'Last name', 'First name', 'Business 1' (with a phone icon and '1'), 'Business 2' (with a phone icon and '2'), 'Mobile' (with a mobile phone icon), 'Private' (with a house icon), and 'Company'. The background of the application is a dark blue grid.

The task of an LDAP template is to map the phone's search and display fields to LDAP attributes that can be delivered by the server. In the LDAP template, the fields are represented by hard-coded names: `ATTRIB01`, `ATTRIB02`, and so on. These field names are assigned to LDAP attributes, as appropriate.

The following examples show the relations between GUI field names, the attribute labels used in the template, and exemplary mappings to LDAP attributes.



In an LDAP template for OpenStage 40, the entries must be sorted according to the sequential number of the template labels, as shown in the example underneath. For OpenStage 60/80 phones, it is also recommended to use pre-sorted entries, which will reduce the use of resources.

**Generic Example (Standard Attributes)**

OpenStage Field	LDAP Template Lables	LDAP Attribute	Example Value
Last name	ATTRIB01	sn	Doe
First name	ATTRIB02	givenName	John
Business 1	ATTRIB03	telephoneNumber	9991234
Business 2	ATTRIB04	facsimileTelephoneNumber	9992345
Mobile	ATTRIB05	mobile	017711223344
Private	ATTRIB06	homePhone	441274333444
Company	ATTRIB07	o	Example Inc.
Address 1	ATTRIB08	departmentNumber	0815
Address 2	ATTRIB09		
Job function	ATTRIB10	title	Product Manager
Email	ATTRIB11	mail	doe@example.com

Given "example.com" as the LDAP subtree to be searched, the LDAP template file would look like this:

```
OpenStage LDAP TEMPLATE (v.1)
SEARCHBASE="dc=example,dc=com"
ATTRIB01="sn"
ATTRIB02="givenname"
ATTRIB03="telephoneNumber"
ATTRIB04="facsimileTelephoneNumber"
ATTRIB05="mobile"
ATTRIB06="homePhone"
ATTRIB07="o"
ATTRIB08="departmentNumber"
ATTRIB09=" "
```

## Examples and HowTos

### How to Set Up the Corporate Phonebook (LDAP)

```
ATTRIB10="title"  
ATTRIB11="mail "  
EOF
```

### Microsoft Active Directory Specific Example

OpenStage Field	LDAP Template Attribute	LDAP Attribute	Example Value
Last name	ATTRIB01	sn	Doe
First name	ATTRIB02	givenName	John
Business 1	ATTRIB03	ipPhone	9991234
Business 2	ATTRIB04	otherTelephone	9992345
Mobile	ATTRIB05	mobile	017711223344
Private	ATTRIB06	homePhone	441274333444
Company	ATTRIB07	company	Example Inc.
Address 1	ATTRIB08	department	Administration
Address 2	ATTRIB09		
Job function	ATTRIB10	title	Product Manager
Email	ATTRIB11	mail	doe@example.com

Given "example.com" as the LDAP subtree to be searched, the LDAP template file would look like this:

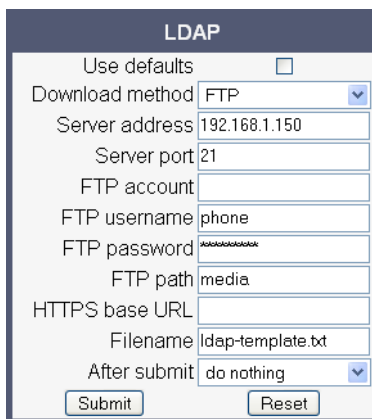
```
OpenStage LDAP TEMPLATE (v.1)  
SEARCHBASE="dc=example,dc=com"  
ATTRIB01="sn"  
ATTRIB02="givenname"  
ATTRIB03="ipPhone"  
ATTRIB04="otherTelephone"  
ATTRIB05="mobile"  
ATTRIB06="homePhone"  
ATTRIB07="company"  
ATTRIB08="department "  
ATTRIB09=" "  
ATTRIB10="title"  
ATTRIB11="mail "  
EOF
```



### 4.3.3 Load the LDAP Template into the Phone

When you have configured the LDAP template, you can upload it to the phone:

1. Save the template under a suitable name, for example, `ldap-template.txt`.
2. Copy the template file to the FTP server designated for deploying LDAP templates.
3. Upload the file using the WBM (see Section 3.11.6, “LDAP Template”), or, alternatively, the Local menu. For an example configuration, see the following WBM screenshot (path: **File transfer > LDAP**):



The screenshot shows a web form titled "LDAP" with the following fields and controls:

- Use defaults
- Download method:
- Server address:
- Server port:
- FTP account:
- FTP username:
- FTP password:
- FTP path:
- HTTPS base URL:
- Filename:
- After submit:
-

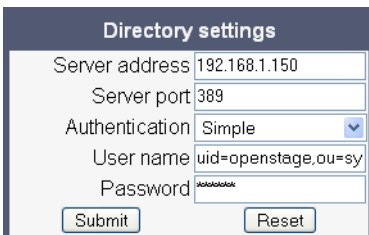
## Examples and HowTos

### How to Set Up the Corporate Phonebook (LDAP)

#### 4.3.4 Configure LDAP Access

To enter the access data using the WBM, take the following steps:

1. Navigate to **Local Functions** > Directory Settings.
2. Enter the following parameters:
  - **Server address** (IP address or hostname of the LDAP server)
  - **Server port** (port used by the LDAP, typically 389)
  - **Authentication** (authentication method for the connection to the LDAP server)
  - **User name** (only required if simple authentication is selected); **Password** (relating to the user name).



The screenshot shows a 'Directory settings' form with the following fields and values:

Field	Value
Server address	192.168.1.150
Server port	389
Authentication	Simple
User name	uid=openstage,ou=sy
Password	XXXXXXXXXX

At the bottom of the form are two buttons: 'Submit' and 'Reset'.

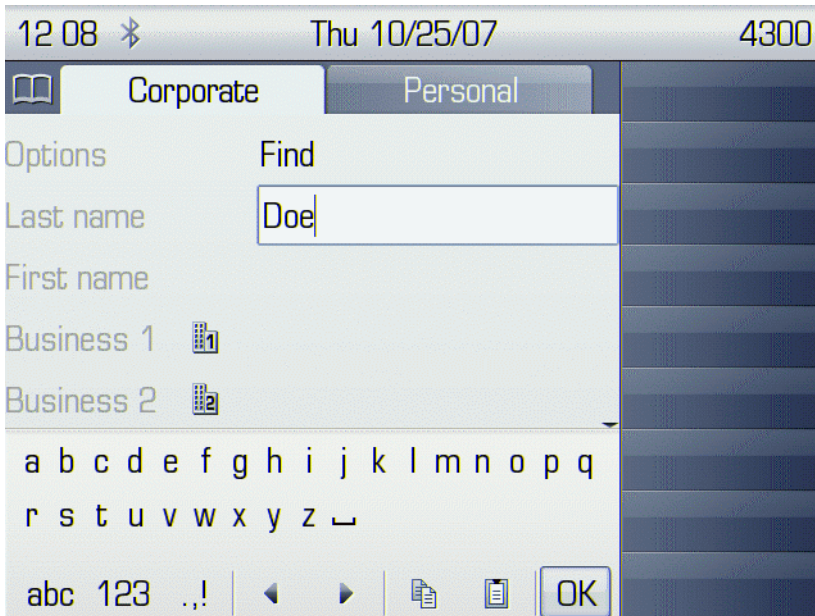
3. Press **Submit**.

#### 4.3.5 Test

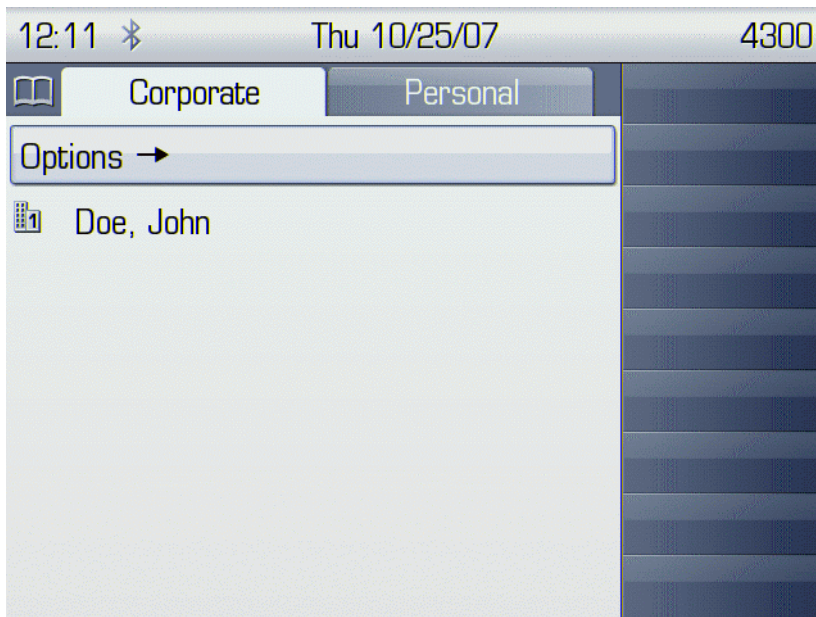
If everything went well, you can run a test query on your OpenStage phone.

1. To navigate to the phone's corporate phonebook, press the **☰** button twice.
2. Press **➔** on the TouchGuide. In the context menu, select Find by pressing **OK**.
3. In the query mask, select the entry to be searched, for instance **Last Name**. Press **OK** to open the onscreen keypad for text input.

4. Enter the text to be searched. For information on using the onscreen keypad, see Section 3.1, "Access via Local Phone", step 5.



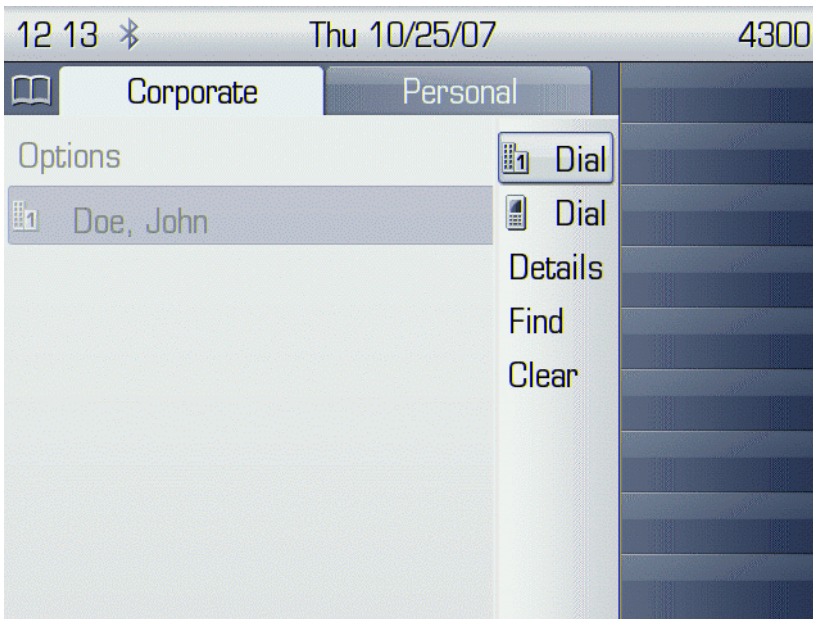
5. Navigate to the Find option and press  $\text{Ⓚ}$ . If the query was successful, at least one entry will be listed in the following manner:



## Examples and HowTos

### *How to Set Up the Corporate Phonebook (LDAP)*

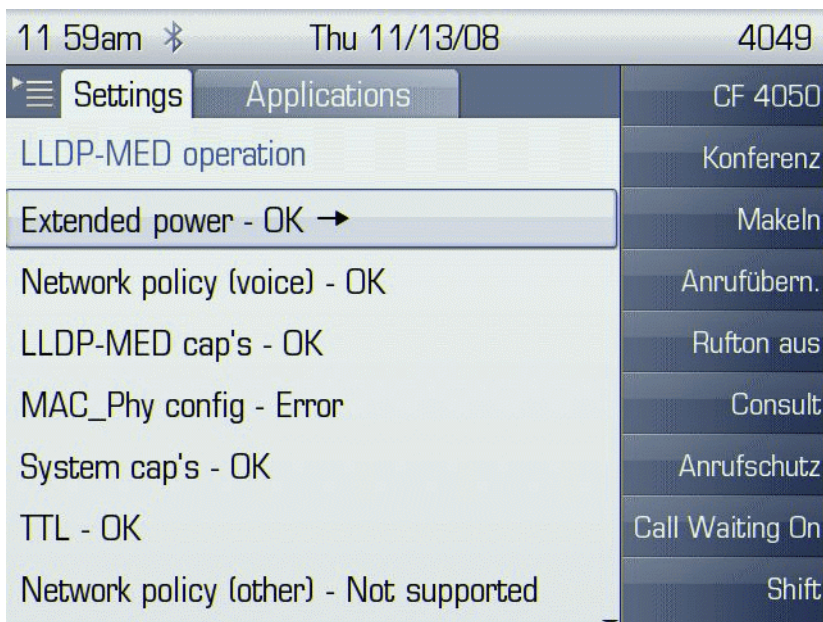
6. Navigate to the desired entry and press → on the TouchGuide to open the context menu. You can select one of the following options:
- Dial the **Business 1** number.
  - Dial the **Mobile** number.
  - Have the entry's details, that is, all attributes displayed.
  - Start a new search.
  - Clear the list of search results.



## 4.4 An LLDP-Med Example

The following example illustrates the mode of operation of LLDP-MED. In order to evoke a reaction from LLDP-MED, the LAN switch has been set to auto-negotiation, whereas the phone's LAN port (see Section 3.2.1, "LAN Port Settings") is set to 100Mbit/s, hence a fixed value. This configuration error is discovered by LLDP-MED. The following screenshots from the phone's local menu will show the error messages.

This screenshot shows the LLDP-MED operation submenu (see Section 3.2.3, "LLDP-MED Operation"). Please note the status of **MAC\_Phy config**.

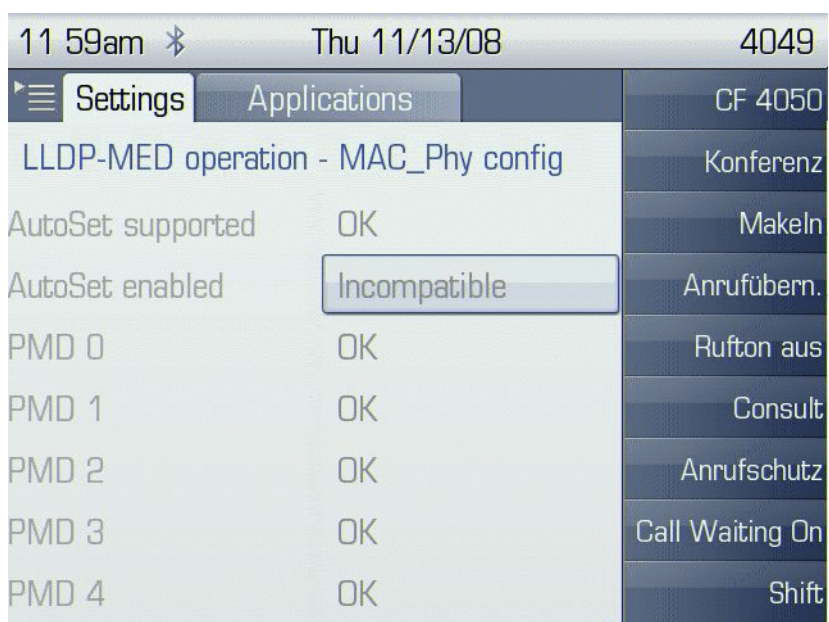


When **MAC\_Phy config** is selected, the details are displayed.



## Examples and HowTos

### An LLDP-Med Example



## 4.5 Dial Plan (V2)

### 4.5.1 Introduction

A dial plan is a set of rules that determine the phone's behaviour on digit entry by the user. Up to 48 rules are possible. With OpenStage phones, a dial plan rule is constructed from 9 parameters. In the following, the setup of a dial plan is explained.

The dial plan entries are preceded by a title line. This is a free format string, e. g. a descriptive name or version number, which can be used by the administrator for version control purposes.

### 4.5.2 Dial Plan Syntax



The phone will not perform any checking on the title; ensuring that different dial plans are given different titles is part of the administration process.

A dial plan rule is built from the parameters described underneath.

- **Digit string:** A pattern of digits or "\*", "#", or "x" characters that is to be matched for starting an action. The maximum length is 24 characters. The "x" character is a wildcard character that represents any of the other digits (it may be upper or lower case).
- **Action :** The action to be taken when the criteria are met. The following options are available:
  - "S" (Send digits): The digits entered are sent to the server when one of the following three conditions is satisfied:
    - a) the maximum digits have been received, or
    - b) the timer expires after the minimum digits have been received, or
    - c) on receipt of the terminator after the minimum digits.
  - "C" (Check for other actions): If the the digit sequence entered by the user matches **Digit string**, **Maximum length**, and **Minimum length**, the timer starts. On timer expiry, the digit string will be sent to the server. If further digits are received before timer expiry, further entries will be checked.  
If the timer is set to 0, the dial string will be sent immediately.  
This option is used when there are more than one rules which start with the same digits.
- **Minimum length:** The dial plan rule will not initiate the sending of digits until at least this number of digits have been entered. However, the digits will be sent after the delay configured in User menu > Configuration > Outgoing calls > Autodial delay (seconds).

## Examples and HowTos


### *Dial Plan (V2)*

- **Maximum length:** Automatic sending will occur when this number of digits have been dialed. If not specified, then the digits will be sent when the timer expires, or a terminating character is entered.
- **Timer:** This indicates the timeout to be used for subsequent digit handling. If not specified, the default timer value is used (User menu > Configuration > Outgoing calls > Autodial delay (seconds)).
- **Terminating character:** A "\*" or "#" character which indicates that the preceding digits should be considered complete, even though the maximum length may not be reached. However, the reach the minimum length must be reached by the string built from the digits entered and the terminating characters.
- **Special indication:**
  - "E" (Emergency): If this character is entered here, the digits matching this rule will be sent even if the phone is locked. The number will be dialed immediately even when immediate dialing is disabled, and the phone is on-hook.
  - "b" (bypass): The phone lock is bypassed. The number will be dialed immediately even when immediate dialing is disabled, if the phone is off-hook.
- **Comment:** A remark on this dial plan entry.
- **Terminator sent:** If set to true, the terminating character is sent to the server along with the dial string proper. If set to false, the dial string is sent without the terminating character.



### 4.5.3 How To Set Up And Deploy A Dial Plan

For creating and deploying a dial plan to an OpenStage phone, a working installation of the DLS (version V2R4 onwards) is required. This HowTo describes the creation of a simple dial plan for OpenStage phones by example. Unless otherwise stated, the actions described underneath are made in the DLS.


1. Log on to the DLS with an account that has suitable rights for deploying a dial plan. For details, please refer to the Deployment Service Administration Manual.
2. Navigate to IP Devices > IP Phone Configuration > Features > "Dialplan" tab.
3. Check **Dialplan**, if not checked already.
4. Enter a suitable **Dialplan ID**.
5. Click on  to create the first dial plan rule.
6. Enter the following data:

Parameter	Value	Description/Remarks
Digit string	3	This rule matches numbers beginning with 3. For instance, these might be internal numbers.
Action	S	When all criteria are met, the number is sent to the server.
Minimum length	4	This rule matches numbers with a length of 4 digits.
Maximum length	4	
Timer	0	The specified <b>Action</b> will take place without delay when all other criteria are met.

Summary: This rule determines that digit strings which begin with 3 and have a length of 4 digits are sent to the server without delay after the last digit has been entered.

## Examples and HowTos

### Dial Plan (V2)

- Click on  to create the second dial plan rule.
- Enter the following data:

Parameter	Value	Description/Remarks
Digit string	0	This rule matches numbers beginning with 0. In the USA, this number calls the operator.
Action	C	When <b>Minimum length</b> , <b>Maximum length</b> , and the length of the digit string entered by the user match, the <b>Timer</b> is started. When it expires, the digits are sent to the server. When another digit is entered before expiry, the next dial plan entry will come into operation.
Minimum length	1	This rule matches numbers with a length of 1 digits.
Maximum length	1	
Timer	1	The phone waits 1 second for further digits. If the user does not enter any further digits, the action specified in <b>Action</b> is initiated.

Summary: When 0 is entered as first digit, the phone will wait 1 second. After this, 0 will be sent to the server, which might result in a call to an operator, for instance. When further digits are entered during the 1 second timespan, the next dial plan rule will take control.

- Click on  to create the third dial plan rule.

10. Enter the following data:

Parameter	Value	Description/Remarks
Digit string	011	This rule matches numbers beginning with 011. In the USA, this digit string is the prefix international calls.
Action	S	When the entered digit string reaches the <b>Minimum length</b> , the <b>Timer</b> is started. On expiry, the digit string is sent.
Minimum length	4	When the length of the digit sequence entered by the user reaches this value, the <b>Timer</b> is started.
Maximum length	13	When the length of the digit sequence entered by the user reaches this value, the digits are sent to the server immediately. The <b>Timer</b> is overridden.
Timer	3	When the length of the digit sequence entered by the user reaches the <b>Minimum length</b> , the phone waits 3 seconds for further digits. If the user does not enter any further digits, the <b>Action</b> is triggered.
Terminating Character	#	When this character is entered, the digits are sent to the server immediately, regardless of the criteria contained in this rule.

Summary: Any numbers that start with 011 and have a length of 13 digits are sent to the server immediately. Shorter numbers with a length from 4 digits onwards are sent after a 3 seconds delay.

11. The example dial plan is completed; it should look like this:

The screenshot shows a web interface for dial plan configuration. At the top, there is a checkbox for 'Dialplan' which is checked, and a dropdown menu for 'Dialplan ID' set to 'lmy\_dial\_plan'. Below this is a table with 10 columns: Digit String, Action, Min Length, Max Length, Timer, Terminating Character, Special Indication, Comment, and Terminator sent. The table contains three rows of data. To the right of the table are buttons for 'Import File...' and 'Export File...'. Below the table are navigation controls including 'Table' and 'Selected entry' radio buttons, and a page indicator '1 / 3'.

Digit String	Action	Min Length	Max Length	Timer	Terminating Character	Special Indication	Comment	Terminator sent
3	-S- Send digits	4	4	0				<input type="checkbox"/>
0	-C- Action for digits	1	1	1				<input type="checkbox"/>
011	-S- Send digits	4	13	3	#			<input type="checkbox"/>

12. You can check the dial plan using the phone's web interface; navigate to Diagnostics > Fault trace configuration > Download dial plan file.

## **Examples and HowTos**

*Dial Plan (V2)*

## 5 Technical Reference

### 5.1 Menus



This section describes the structure of the administration menus of the OpenStage phone. For information on user menus, please refer to the user manual.

#### 5.1.1 Web Interface Menu

##### 5.1.1.1 Menu Structure

Admin Login

**Applications** (OpenStage 60/80)

###### XML applications

Add application

Modify application / Modify/Delete application (V2R1)

Xpressions

Add messages application (V2R1)

XML Phonebook (up to V2R0) / Add phonebook application (V2R1)

Add call log application (V2R1)

Add help application (V2R1)

Bluetooth

###### Network

IP configuration (up to V2R0) / IP configuration (V2R1)

QoS

Port configuration

LLDP-MED operation

###### System

System Identity / System Identity (V2)

SIP interface

Registration

SNMP

###### Features

Configuration (V1R5) / Configuration (V2)

Program keys

Key Module 1

## Technical Reference

### Menus

- Key Module 2
- Fixed Keys (V2R0) / Fixed Keys (V2R1)
- Keypad operation (V1R5) / Keypad operation (V2)
- Services

- Security

### File transfer

- Defaults
- Phone application
- Hold music
- Picture Clip (OpenStage 60/80)
- LDAP (OpenStage 60/80)
- Logo (OpenStage 40/60/80)
- Screensaver (OpenStage 60/80)
- Ringer file
- Dongle key

### Local functions

- Directory settings (OpenStage 60/80)
- Messages Settings (V2)

#### Locality

- Canonical dial settings
- Canonical dial lookup
- Canonical dial

- Energy saving

- Date and time

### Speech

- Codec preferences
- Audio settings

- General information

### Authentication

- Change Admin password
- Change User password

- Ringer Setting (V2)

### Diagnostics

- LLDP-MED TLVs
- Fault trace configuration / Fault trace configuration (V2)

### EasyTrace Profiles

- Bluetooth handsfree profile (OpenStage 60/80)
- Bluetooth headset profile (OpenStage 60/80)
- Call connection
- Call log problems
- DAS connection
- Help application problems (OpenStage 60/80)
- Key input problems
- LAN connectivity problems
- Messaging application problems
- Phone administration problems
- Phonebook (LDAP) problems (OpenStage 60/80)
- Phonebook (local) problems (OpenStage 60/80)
- Server based application problems (OpenStage 60/80)
- Sidecar problems
- Speech problems
- Tone problems
- USB backup/restore
- Voice recognition problems (OpenStage 60/80)
- Web based management / Web based management (V2)
- 802.1x problems
- Clear all profiles

Bluetooth Advanced Traces (V2)

### **QoS Reports**

- Generation
- View Session Data

### **Miscellaneous**

- IP tests
- Memory information / Memory information (V2)
- Core dump / Core dump (V2R1)

### **Maintenance**

- Remote trace (V1R5) / Remote trace (V2)
- Restart phone
- Factory reset
- HPT interface
- Secure Shell (V2)

## Technical Reference

### Menus

#### 5.1.1.2 Web Pages

##### Admin Login

**Admin Login**

Enter **Admin** password:

##### Add application

**Add application**

Display name	<input type="text"/>
Application name	<input type="text"/>
HTTP Server address	<input type="text"/>
HTTP Server port	<input type="text"/>
Protocol	<input type="text" value="http"/>
Program name on server	<input type="text"/>
Use proxy	<input type="text" value="Yes"/>
XML Trace enabled	<input type="text" value="Yes"/>
Debug program on server	<input type="text"/>
Number of tabs	<input type="text" value="0"/>
Tab 1 Display Name	<input type="text"/>
Tab 1 Application Name	<input type="text"/>
Tab 2 Display Name	<input type="text"/>
Tab 2 Application Name	<input type="text"/>
Tab 3 Display Name	<input type="text"/>
Tab 3 Application Name	<input type="text"/>
Restart after change	<input type="checkbox"/>



## Modify application

Modify application	
Select application	Example
<input type="button" value="Modify"/>	<input type="button" value="Delete"/>
Settings	
Display name	Example
Application name	<i>Example</i>
HTTP Server address	192.168.1.150
HTTP Server port	80
Protocol	http
Program name on server	ipp/example.xml
Use proxy	No
XML Trace enabled	No
Debug program on server	
Number of tabs	0
Tab 1 Display Name	
Tab 1 Application Name	
Tab 2 Display Name	
Tab 2 Application Name	
Tab 3 Display Name	
Tab 3 Application Name	
Restart after change	<input type="checkbox"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Technical Reference

### Menus

#### Modify/Delete application (V2R1)

Modify/Delete application	
Select application	testxml
<input type="button" value="Modify"/>	<input type="button" value="Delete"/>
Settings	
Display name	testxml
Application name	testxml
HTTP Server address	192.168.1.151
HTTP Server port	8080
Protocol	http
Program name on server	testxml/servlet
Auto start	<input checked="" type="checkbox"/>
Use proxy	No
XML Trace enabled	No
Debug program on server	
Number of tabs	0
All tabs Start	<input type="checkbox"/>
Tab 1 Display Name	
Tab 1 Application Name	
Tab 2 Display Name	
Tab 2 Application Name	
Tab 3 Display Name	
Tab 3 Application Name	
Restart after change	<input type="checkbox"/>
Mode key	
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

#### Xpressions

Xpressions	
Display name	<i>Xpressions</i>
Application name	<i>Xpressions</i>
HTTP Server address	
HTTP Server port	
Protocol	http
Program name on server	
Use proxy	Yes
XML Trace enabled	Yes
Debug program on server	
Number of tabs	3
Tab 1 Display Name	Voice mail
Tab 1 Application Name	<i>Xpressions</i>
Tab 2 Display Name	Inbox
Tab 2 Application Name	<i>XprInbox</i>
Tab 3 Display Name	Outbox
Tab 3 Application Name	<i>XprOutbox</i>
Restart after change	<input type="checkbox"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Add messages application (V2R1)

Add messages application	
Display name	<input type="text"/>
Application name	<input type="text"/>
HTTP Server address	<input type="text"/>
HTTP Server port	<input type="text"/>
Protocol	http <input type="button" value="v"/>
Program name on server	<input type="text"/>
Auto start	<input type="checkbox"/>
Use proxy	Yes <input type="button" value="v"/>
XML Trace enabled	Yes <input type="button" value="v"/>
Debug program on server	<input type="text"/>
Number of tabs	0 <input type="button" value="v"/>
All tabs Start	<input type="checkbox"/>
Tab 1 Display Name	<input type="text"/>
Tab 1 Application Name	<input type="text"/>
Tab 2 Display Name	<input type="text"/>
Tab 2 Application Name	<input type="text"/>
Tab 3 Display Name	<input type="text"/>
Tab 3 Application Name	<input type="text"/>
Restart after change	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## XML Phonebook (up to V2R0)

XML Phonebook	
Display name	<i>XMLPhonebook</i>
Application name	<i>XMLPhonebook</i>
HTTP Server address	<input type="text"/>
HTTP Server port	<input type="text"/>
Protocol	http <input type="button" value="v"/>
Program name on server	<input type="text"/>
Use proxy	Yes <input type="button" value="v"/>
XML Trace enabled	Yes <input type="button" value="v"/>
Debug program on server	<input type="text"/>
Number of tabs	0 <input type="button" value="v"/>
Tab 1 Display Name	<input type="text"/>
Tab 1 Application Name	<input type="text"/>
Tab 2 Display Name	<input type="text"/>
Tab 2 Application Name	<input type="text"/>
Tab 3 Display Name	<input type="text"/>
Tab 3 Application Name	<input type="text"/>
Restart after change	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Technical Reference

### Menus

#### Add phonebook application (V2R1)

Add phonebook application	
Display name	<input type="text"/>
Application name	<input type="text"/>
HTTP Server address	<input type="text"/>
HTTP Server port	<input type="text"/>
Protocol	http <input type="button" value="v"/>
Program name on server	<input type="text"/>
Auto start	<input type="checkbox"/>
Use proxy	Yes <input type="button" value="v"/>
XML Trace enabled	Yes <input type="button" value="v"/>
Debug program on server	<input type="text"/>
Number of tabs	0 <input type="button" value="v"/>
All tabs Start	<input type="checkbox"/>
Tab 1 Display Name	<input type="text"/>
Tab 1 Application Name	<input type="text"/>
Tab 2 Display Name	<input type="text"/>
Tab 2 Application Name	<input type="text"/>
Tab 3 Display Name	<input type="text"/>
Tab 3 Application Name	<input type="text"/>
Restart after change	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Add call log application (V2R1)

Add call log application	
Display name	<input type="text"/>
Application name	<input type="text"/>
HTTP Server address	<input type="text"/>
HTTP Server port	<input type="text"/>
Protocol	http <input type="button" value="v"/>
Program name on server	<input type="text"/>
Auto start	<input type="checkbox"/>
Use proxy	Yes <input type="button" value="v"/>
XML Trace enabled	Yes <input type="button" value="v"/>
Debug program on server	<input type="text"/>
Number of tabs	0 <input type="button" value="v"/>
All tabs Start	<input type="checkbox"/>
Tab 1 Display Name	<input type="text"/>
Tab 1 Application Name	<input type="text"/>
Tab 2 Display Name	<input type="text"/>
Tab 2 Application Name	<input type="text"/>
Tab 3 Display Name	<input type="text"/>
Tab 3 Application Name	<input type="text"/>
Restart after change	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Add help application (V2R1)

Add help application	
Display name	<input type="text"/>
Application name	<input type="text"/>
HTTP Server address	<input type="text"/>
HTTP Server port	<input type="text"/>
Protocol	http <input type="button" value="v"/>
Program name on server	<input type="text"/>
Auto start	<input type="checkbox"/>
Use proxy	Yes <input type="button" value="v"/>
XML Trace enabled	Yes <input type="button" value="v"/>
Debug program on server	<input type="text"/>
Number of tabs	0 <input type="button" value="v"/>
All tabs Start	<input type="checkbox"/>
Tab 1 Display Name	<input type="text"/>
Tab 1 Application Name	<input type="text"/>
Tab 2 Display Name	<input type="text"/>
Tab 2 Application Name	<input type="text"/>
Tab 3 Display Name	<input type="text"/>
Tab 3 Application Name	<input type="text"/>
Restart after change	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Bluetooth

Bluetooth	
Enable Bluetooth interface :	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Technical Reference

### Menus

#### IP configuration (up to V2R0)

IP configuration	
<a href="#">change mode</a>	
LLDP-MED Enabled	<input type="checkbox"/>
DHCP Enabled	<input type="checkbox"/>
IP address	192.168.1.238
Subnet mask	255.255.255.0
Default route	192.168.1.2
DNS domain	
Primary DNS	192.168.1.105
Secondary DNS	192.168.1.2
Route 1 IP address	
Route 1 gateway	
Route 1 mask	
Route 2 IP address	
Route 2 gateway	
Route 2 mask	
VLAN discovery	Manual
VLAN ID	
HTTP proxy	
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

#### IP configuration (V2R1)

IP configuration	
<a href="#">change mode</a>	
LLDP-MED Enabled	<input type="checkbox"/>
DHCP Enabled	<input type="checkbox"/>
DHCP lease reuse	<input type="checkbox"/>
IP address	192.168.1.244
Subnet mask	255.255.255.0
Default route	192.168.1.2
DNS domain	
Primary DNS	192.168.1.105
Secondary DNS	192.168.1.2
Route 1 IP address	
Route 1 gateway	
Route 1 mask	
Route 2 IP address	
Route 2 gateway	
Route 2 mask	
VLAN discovery	Manual
VLAN ID	
HTTP proxy	
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## QoS

QoS	
Layer 2 :	<input type="checkbox"/>
Layer 2 voice :	5
Layer 2 signalling :	3
Layer 2 default :	0
Layer 3 :	<input type="checkbox"/>
Layer 3 voice :	BE
Layer 3 signalling :	BE
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Port configuration

Port configuration	
SIP server	5060
SIP registrar	5060
SIP gateway	5060
SIP local	5060
Backup proxy	5060
RTP base	5010
Download server (default)	21
LDAP server	389
HTTP proxy	0
LAN port speed	Automatic
PC port speed	Automatic
PC port mode	disabled
PC port autoMDIX	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## LLDP-MED operation

LLDP-MED operaton	
Time to live (seconds)	120
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## System Identity

System Identity	
Terminal number:	4711
Terminal name:	openstage
Display identity:	4711
Enable ID:	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Technical Reference

### Menus

#### System Identity (V2)

System Identity	
Terminal number	<input type="text" value="3337"/>
Terminal name	<input type="text"/>
Display identity	<input type="text"/>
Enable ID	<input type="checkbox"/>
Web name	<input type="text"/>
DNS name construction	<input type="text" value="Only number"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### SIP interface

SIP interface	
Outbound proxy	<input type="checkbox"/>
Default OBP domain	<input type="text"/>
SIP transport	<input type="text" value="UDP"/>
Response timer (ms)	<input type="text" value="32000"/>
NonCall trans. (ms)	<input type="text" value="32000"/>
Reg. backoff (seconds)	<input type="text" value="60"/>
Connectivity check timer (seconds)	<input type="text" value="0"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Registration

Registration	
<b>SIP Addresses</b>	
SIP server address	<input type="text" value="192.168.1.20"/>
SIP registrar address	<input type="text" value="192.168.1.20"/>
SIP gateway address	<input type="text"/>
<b>SIP Session</b>	
Session timer enabled	<input type="checkbox"/>
Session duration (seconds)	<input type="text" value="3600"/>
Registration timer (seconds)	<input type="text" value="3600"/>
Server type	<input type="text" value="HiQ8000"/>
Realm	<input type="text"/>
User ID	<input type="text"/>
Password	<input type="text"/>
<b>SIP Survivability</b>	
Backup registration allowed	<input checked="" type="checkbox"/>
Backup proxy address	<input type="text"/>
Backup registration timer (seconds)	<input type="text" value="3600"/>
Backup transport	<input type="text" value="UDP"/>
Backup OBP flag	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	



## SNMP

SNMP	
<b>Generic traps</b>	
Trap sending enabled	<input type="checkbox"/>
Trap destination	<input type="text"/>
Trap destination port	162
Trap community	*****
Queries allowed	<input type="checkbox"/>
Query password	<input type="text"/>
<b>Diagnostic traps</b>	
Diagnostic sending enabled	<input type="checkbox"/>
Diagnostic destination	<input type="text"/>
Diagnostic destination port	<input type="text"/>
Diagnostic community	<input type="text"/>
Diagnostic to generic destination	<input type="checkbox"/>
<b>QoS report traps</b>	
QoS traps to QCU	<input type="checkbox"/>
QCU address	<input type="text"/>
QCU port	12010
QCU community	*****
QoS to generic destination	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Configuration (V1R5)

Configuration	
<b>General</b>	
Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Allow transfer on ring	<input checked="" type="checkbox"/>
Initial digit timer (seconds)	30
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	2
Transfer on hangup	<input type="checkbox"/>
<b>Audio</b>	
Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	Prompt
BLF alerting	Beep
<b>Bluetooth</b>	
Enable Bluetooth interface	<input checked="" type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Technical Reference

### Menus

## Configuration (V2)

**Configuration**

**General**

Emergency number	<input type="text"/>
Voice mail number	<input type="text"/>
Allow refuse	<input checked="" type="checkbox"/>
Hot/warm phone	<input type="text" value="No action"/>
Hot/warm destination	<input type="text"/>
Allow transfer on ring	<input checked="" type="checkbox"/>
Initial digit timer (seconds)	<input type="text" value="30"/>
Allow uaCSTA	<input checked="" type="checkbox"/>
Server features	<input type="checkbox"/>
Not used timeout (minutes)	<input type="text" value="2"/>
Transfer on hangup	<input type="checkbox"/>
Bridging enabled	<input type="checkbox"/>

**Audio**

Group pickup tone allowed	<input checked="" type="checkbox"/>
Group pickup as ringer	<input checked="" type="checkbox"/>
Group pickup visual alert	<input type="text" value="Prompt"/>
BLF alerting	<input type="text" value="Beep"/>

**Bluetooth**

Enable Bluetooth interface	<input checked="" type="checkbox"/>
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## Program keys

**Program keys**


To assign a new function to a key, select from the drop down list box. To view or modify the parameters associated with the key, use the Edit button.

Normal	Key	Shifted	
<input type="text" value="Line"/>	<input type="button" value="edit"/>	1	<input type="text" value="Clear (no feature assigned)"/>
Label: Primary Line			
<input type="text" value="Selected dialling"/>	<input type="button" value="edit"/>	2	<input type="text" value="Clear (no feature assigned)"/>
Label: Selected dialling			
<input type="text" value="Hold"/>	<input type="button" value="edit"/>	3	<input type="text" value="Clear (no feature assigned)"/>
Label: Hold			
<input type="text" value="Clear (no feature assigned)"/>	<input type="button" value="edit"/>	4	<input type="text" value="Clear (no feature assigned)"/>
<input type="text" value="Clear (no feature assigned)"/>	<input type="button" value="edit"/>	5	<input type="text" value="Clear (no feature assigned)"/>
<input type="text" value="Clear (no feature assigned)"/>	<input type="button" value="edit"/>	6	<input type="text" value="Clear (no feature assigned)"/>
<input type="text" value="Mobility"/>	<input type="button" value="edit"/>	7	<input type="text" value="Clear (no feature assigned)"/>
Label: Mobility			
<input type="text" value="Clear (no feature assigned)"/>	<input type="button" value="edit"/>	8	<input type="text" value="Clear (no feature assigned)"/>
<input type="text" value="Shift"/>	<input type="button" value="edit"/>	9	<input type="text" value="Clear (no feature assigned)"/>
Label: Shift			

## Key Module 1

Key Module 1			
 To assign a new function to a key, select from the drop down list box. To view or modify the parameters associated with the key, use the Edit button.			
Normal		Key	Shifted
Clear (no feature assigned) ▼	edit	1	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	2	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	3	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	4	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	5	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	6	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	7	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	8	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	9	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	10	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	11	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	12	Clear (no feature assigned) ▼ edit

## Key Module 2

Key Module 2			
 To assign a new function to a key, select from the drop down list box. To view or modify the parameters associated with the key, use the Edit button.			
Normal		Key	Shifted
Clear (no feature assigned) ▼	edit	1	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	2	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	3	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	4	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	5	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	6	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	7	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	8	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	9	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	10	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	11	Clear (no feature assigned) ▼ edit
Clear (no feature assigned) ▼	edit	12	Clear (no feature assigned) ▼ edit

## Technical Reference

### Menus

#### Fixed Keys (V2R0)


**Fixed Keys**

 To assign a new function to a key, select from the drop down list box. To view or modify the parameters associated with the key, use the Edit button.

Function	Key
Built-in forwarding	Forwarding

#### Fixed Keys (V2R1)

**Fixed Keys**

 To assign a new function to a key, select from the drop down list box. To view or modify the parameters associated with the key, use the Edit button.

Forwarding key	Built-in forwarding	Edit
	Toggle call forwarding	Submit
Release key	Built-in release	Edit
Voice recognition key	Built-in voice recognition	Edit

#### Keypad operation (V1R5)

**Keypad operation**

Rollover ring: alert beep

LED on registration:

Originating line preference: idle line

Terminating line preference: ringing line

Line action mode: hold

Show focus:

Reservation timer (seconds): 60

Forwarding indicated:

Preselect mode:

Preselect timer:

## Keypad operation (V2)

Keypad operation	
Rollover ring	alert beep
LED on registration	<input checked="" type="checkbox"/>
Originating line preference	idle line
Terminating line preference	ringing line
Line action mode	hold
Show focus	<input checked="" type="checkbox"/>
Reservation timer (seconds)	60
Forwarding indicated	<input type="checkbox"/>
Preselect mode	single button
Preselect timer	
Preview mode	<input type="checkbox"/>
Preview timer	8
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Services

Services	
Message waiting server address	
Conference URI	
Group pickup URI	
Code for callback busy	
Code for callback no reply	
Code for callback cancel all	
BLF pickup code	
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Security

Security	
SIP server certificate validation	<input type="checkbox"/>
Backup SIP server certificate validation	<input type="checkbox"/>
Use secure calls	<input type="checkbox"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Technical Reference

### Menus

#### Defaults

Defaults	
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	••••••
FTP path	
HTTPS base URL	
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Phone application

Phone application	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	••••••
FTP path	
HTTPS base URL	
Filename	
After submit	do nothing
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Hold music

Hold music	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	••••••
FTP path	
HTTPS base URL	
Filename	
After submit	do nothing
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Picture Clip

Picture Clip	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	••••••
FTP path	
HTTPS base URL	
Filename	
After submit	do nothing
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## LDAP

LDAP	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	••••••
FTP path	
HTTPS base URL	
Filename	
After submit	do nothing
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Logo

Logo	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	••••••
FTP path	
HTTPS base URL	
Filename	
After submit	do nothing
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Technical Reference

### Menus

#### Screensaver

Screensaver	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	*****
FTP path	
HTTPS base URL	
Filename	
After submit	do nothing
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Ringer file

Ringer file	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	*****
FTP path	
HTTPS base URL	
Filename	
After submit	do nothing
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Dongle key

Dongle key	
Use defaults	<input type="checkbox"/>
Download method	FTP
FTP Server address	
FTP Server port	21
FTP account	
FTP username	
FTP password	*****
FTP path	
HTTPS base URL	
Filename	
After submit	do nothing
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	



## Directory settings (OpenStage 60/80)

Directory settings	
LDAP Server address	<input type="text"/>
LDAP Server port	<input type="text" value="389"/>
Authentication	<input type="text" value="Anonymous"/>
User name	<input type="text"/>
Password	<input type="password" value="•••••"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Directory settings (V2)

Directory settings	
LDAP Server address	<input type="text"/>
LDAP Server port	<input type="text" value="389"/>
Authentication	<input type="text" value="Anonymous"/>
User name	<input type="text"/>
Password	<input type="text"/>
SearchTriggerTimeout	<input type="text" value="9"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Messages Settings

Messages settings	
New items	<input type="text" value="Show"/>
Alternative label	<input type="text"/>
New urgent items	<input type="text" value="Show"/>
Alternative label	<input type="text"/>
Old items	<input type="text" value="Show"/>
Alternative label	<input type="text"/>
Old urgent items	<input type="text" value="Show"/>
Alternative label	<input type="text"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Technical Reference

### Menus

#### Canonical dial settings

Canonical dial settings	
Local country code	49
National prefix digit	0
Local national code	89
Minimum local number length	4
Local enterprise node	723
PSTN access code	0
International access code	00
Operator codes	
Emergency numbers	
Initial extension digits	1,2,3,4
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Canonical dial lookup

Canonical dial lookup			
Local code 1:	<input type="text"/>	International code 1:	<input type="text"/>
Local code 2:	<input type="text"/>	International code 2:	<input type="text"/>
Local code 3:	<input type="text"/>	International code 3:	<input type="text"/>
Local code 4:	<input type="text"/>	International code 4:	<input type="text"/>
Local code 5:	<input type="text"/>	International code 5:	<input type="text"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>			

#### Canonical dial

Canonical dial	
Internal numbers	<input type="text" value="Local enterprise form"/> <input type="button" value="v"/>
External numbers	<input type="text" value="Local public form"/> <input type="button" value="v"/>
External access code	<input type="text" value="Not required"/> <input type="button" value="v"/>
International gateway code	<input type="text" value="Use national code"/> <input type="button" value="v"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

#### Energy saving

Energy saving	
Backlight timeout (hours)	<input type="text" value="3"/> <input type="button" value="v"/>
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

## Date and time

Date and time	
<b>Time source</b>	
SNTP IP address	<input type="text"/>
Timezone offset (hours)	<input type="text" value="0"/>
<b>Daylight saving</b>	
Daylight saving	<input type="checkbox"/>
Difference (minutes)	<input type="text" value="60"/>
Auto time change	<input type="checkbox"/>
DST zone	Australia 2007 (ACT, South Australia, Tasmania, Victoria) <input type="button" value="v"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Codec preferences

Codec preferences	
Silence suppression	<input type="checkbox"/>
Packet size	Automatic <input type="button" value="v"/>
G.711 ranking	<input type="button" value="v"/> <input type="button" value="x"/>
G.729 ranking	<input type="button" value="u"/> <input type="button" value="v"/> <input type="button" value="x"/>
G.722 ranking	<input type="button" value="u"/> <input checked="" type="button" value="v"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Audio settings

Audio settings	
Mute Settings	Microphone ON - Loudspeaker ON <input type="button" value="v"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## General information

General information	
MAC address:	0001e323f9a1
Software version:	0.7.5.0004-061027
Last restart:	""

## Change Admin password

Change Admin password	
Old password	<input type="text"/>
New password	<input type="text"/>
Confirm password	<input type="text"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Technical Reference

### Menus

## Change User password

**Change User password**

Admin password

New password

Confirm password

## Ringer Setting

**Ringer setting**

This page allows you to set up interworking with other IP phone systems that support distinctive ringing

Name	Ringer sound	Pattern melody	Pattern sequence	Duration (sec)	Audible
alert-internal	Pattern <input type="button" value="v"/>	8 <input type="button" value="v"/>	3 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>
	Pattern <input type="button" value="v"/>	2 <input type="button" value="v"/>	1 <input type="button" value="v"/>	60	Ring <input type="button" value="v"/>

## LLDP-MED TLVs

LLDP-MED TLVs	
Sent	Received
Sent: Mon Oct 27 10:51:14 2008	Received: Mon Oct 27 10:51:14 2008
Chassis ID TLV Data .Subtype = Network address .IANA_TYPE = IPv4 Address .ID = 192.168.6.109	Chassis ID TLV Data .Subtype = MAC address .ID = 00:1E:F7:05:2D:04
Port ID TLV Data .Subtype = MAC address .ID = 00:01:83:2D:66:30	Port ID TLV Data .Subtype = Locally assigned .ID = Fa0/2
TTL TLV data .seconds = 120	TTL TLV data .seconds = 120
System Caps TLV Data .Supported = Bridge, Telephone, .Enabled = Telephone,	System Caps TLV Data .Supported = Other, Repeater, Bridge, Router, .Enabled = Other, Repeater,
MAC_Fhy config TLV data .Auto-set supported = Yes .Auto-set enabled = Yes .PMD = 0x6000 .PMD1 = 10BASE-T half duplex mode .PMD2 = 10BASE-T full duplex mode .PMD3 = 100BASE-TX half duplex mode .PMD4 = 100BASE-TX full duplex mode .MAU = 100BaseTXFD : 0x10	MAC_Fhy config TLV data .Auto-set supported = Yes .Auto-set enabled = Yes .PMD = 0x36 .PMD1 = Symmetric PAUSE for full-duplex .PMD2 = Asy and Sym PAUSE for full-duplex links .PMD3 = 1000BASE-L, -LE, -SE, -CE Full duplex .PMD4 = 1000BASE-T half duplex mode .MAU = 100BaseTXFD : 0x10
LLDP-MED Caps TLV Data .Caps - LLDP-MED = Yes .Caps - Network Policy = Yes .Caps - Location ID = No .Caps - Extended Power Hdi Pw = Yes .Caps - Extended Power Hdi Pw = No	LLDP-MED Caps TLV Data .Caps - LLDP-MED = Yes .Caps - Network Policy = Yes .Caps - Location ID = Yes .Caps - Extended Power Hdi Pw = Yes .Caps - Extended Power Hdi Pw = Yes .Caps - Inventory = Yes .Type = Network Connectivity

**Fault trace configuration**

Fault trace configuration			
File size (bytes)	<input type="text" value="65536"/>	Trace timeout (minutes)	<input type="text"/>
		Automatic clear before start <input type="checkbox"/>	
Trace levels for components			
Administration	<input type="text" value="OFF"/>	Application framework	<input type="text" value="OFF"/>
Application menu	<input type="text" value="OFF"/>	Bluetooth service	<input type="text" value="OFF"/>
Call Log	<input type="text" value="OFF"/>	Call View	<input type="text" value="TRACE"/>
Certificate management	<input type="text" value="OFF"/>	Communications	<input type="text" value="TRACE"/>
Component registrar	<input type="text" value="TRACE"/>	CSTA service	<input type="text" value="TRACE"/>
Data Access service	<input type="text" value="OFF"/>	Desktop	<input type="text" value="OFF"/>
Digit analysis service	<input type="text" value="OFF"/>	Directory service	<input type="text" value="OFF"/>
DLS client management	<input type="text" value="OFF"/>	Health service	<input type="text" value="LOG"/>
Help	<input type="text" value="OFF"/>	Instrumentation service	<input type="text" value="OFF"/>
Java	<input type="text" value="OFF"/>	Journal service	<input type="text" value="OFF"/>
Media control service	<input type="text" value="OFF"/>	Media processing service	<input type="text" value="OFF"/>
Mobility service	<input type="text" value="OFF"/>	OBEX service	<input type="text" value="OFF"/>
OpenStage client management	<input type="text" value="OFF"/>	Phonebook	<input type="text" value="OFF"/>
POT service	<input type="text" value="OFF"/>	Password management service	<input type="text" value="OFF"/>
Physical interface service	<input type="text" value="OFF"/>	Service framework	<input type="text" value="OFF"/>
Service registry	<input type="text" value="TRACE"/>	Sidecar service	<input type="text" value="OFF"/>
SIP call control	<input type="text" value="DEBUG"/>	SIP messages	<input type="text" value="DEBUG"/>
SIP signalling	<input type="text" value="DEBUG"/>	Team service	<input type="text" value="OFF"/>
Tone generation service	<input type="text" value="OFF"/>	Transport service	<input type="text" value="OFF"/>
vCard parser service	<input type="text" value="OFF"/>	Voice engine service	<input type="text" value="OFF"/>
Voice mail	<input type="text" value="OFF"/>	Web server service	<input type="text" value="OFF"/>
USB backup service	<input type="text" value="OFF"/>	Voice recognition	<input type="text" value="OFF"/>
802.1x service	<input type="text" value="OFF"/>		
<i>SIP messaging traces are enabled after reboot</i>			
<a href="#">Download trace file</a>	<a href="#">Download boot file</a>	<a href="#">Download saved trace file</a>	<a href="#">Download saved boot file</a>
<a href="#">Download upgrade trace file</a>	<a href="#">Download upgrade error file</a>	<a href="#">Download exception file</a>	<a href="#">Download old exception file</a>
<a href="#">Download old trace file</a>	<a href="#">Download error file</a>	<a href="#">Download old error file</a>	<a href="#">Download syslog file</a>
<input type="button" value="Submit"/>		<input type="button" value="Reset"/>	

## Fault trace configuration (V2)

Fault trace configuration			
File size (Max 6290000 bytes)	<input type="text" value="65536"/>	Trace timeout (minutes)	<input type="text" value="0"/> Automatic clear before
Trace levels for components			
Administration	<input type="text" value="OFF"/>	Application framework	<input type="text" value="OFF"/>
Application menu	<input type="text" value="OFF"/>	Bluetooth service	<input type="text" value="OFF"/>
Call Log	<input type="text" value="OFF"/>	Call View	<input type="text" value="OFF"/>
Certificate management	<input type="text" value="OFF"/>	Communications	<input type="text" value="OFF"/>
Component registrar	<input type="text" value="OFF"/>	CSTA service	<input type="text" value="OFF"/>
Data Access service	<input type="text" value="OFF"/>	Desktop	<input type="text" value="OFF"/>
Digit analysis service	<input type="text" value="OFF"/>	Directory service	<input type="text" value="OFF"/>
DLS client management	<input type="text" value="OFF"/>	Health service	<input type="text" value="OFF"/>
Help	<input type="text" value="OFF"/>	Instrumentation service	<input type="text" value="OFF"/>
Java	<input type="text" value="OFF"/>	Journal service	<input type="text" value="OFF"/>
Media control service	<input type="text" value="OFF"/>	Media processing service	<input type="text" value="OFF"/>
Mobility service	<input type="text" value="OFF"/>	OBEX service	<input type="text" value="OFF"/>
OpenStage client management	<input type="text" value="OFF"/>	Phonebook	<input type="text" value="OFF"/>
Performance Marks	<input type="text" value="OFF"/>	Password management service	<input type="text" value="OFF"/>
Physical interface service	<input type="text" value="OFF"/>	Service framework	<input type="text" value="OFF"/>
Service registry	<input type="text" value="OFF"/>	Sidecar service	<input type="text" value="OFF"/>
SIP call control	<input type="text" value="OFF"/>	SIP messages	<input type="text" value="OFF"/>
SIP signalling	<input type="text" value="OFF"/>	Team service	<input type="text" value="OFF"/>
Tone generation service	<input type="text" value="OFF"/>	Transport service	<input type="text" value="OFF"/>
vCard parser service	<input type="text" value="OFF"/>	Voice engine service	<input type="text" value="OFF"/>
Voice mail	<input type="text" value="OFF"/>	Web server service	<input type="text" value="OFF"/>
USB backup service	<input type="text" value="OFF"/>	Voice recognition	<input type="text" value="OFF"/>
802.1x service	<input type="text" value="OFF"/>	Clock Service	<input type="text" value="DEBUG"/>
<i>SIP messaging traces are enabled after reboot</i>			
<a href="#">Download trace file</a>	<a href="#">Download saved trace file</a>	<a href="#">Download upgrade trace file</a>	<a href="#">Download old trace file</a>
<a href="#">Download syslog file</a>	<a href="#">Download old syslog file</a>	<a href="#">Download saved syslog file</a>	<a href="#">Download Database file</a>
<a href="#">Download upgrade error file</a>	<a href="#">Download HPT remote service log file</a>	<a href="#">Download dial plan file</a>	
<input type="button" value="Submit"/>			<input type="button" value="Reset"/>

## Bluetooth handsfree profile

Bluetooth handsfree profile	
Component registrar	<input type="text" value="TRACE"/>
Data Access service	<input type="text" value="TRACE"/>
Media control service	<input type="text" value="TRACE"/>
OpenStage client management	<input type="text" value="LOG"/>
Physical interface service	<input type="text" value="DEBUG"/>
Voice engine service	<input type="text" value="TRACE"/>
Media processing service	<input type="text" value="TRACE"/>
Bluetooth service	<input type="text" value="TRACE"/>
<input type="button" value="Submit"/>	

## Technical Reference

### Menus

#### Bluetooth headset profile

Bluetooth headset profile	
Component registrar	TRACE
Data Access service	TRACE
Media control service	TRACE
OpenStage client management	LOG
Voice engine service	TRACE
Media processing service	TRACE
Bluetooth service	TRACE
<input type="button" value="Submit"/>	

#### Call connection

Call connection	
Component registrar	TRACE
Health service	LOG
Service registry	TRACE
SIP signalling	DEBUG
SIP call control	DEBUG
Call View	TRACE
Communications	TRACE
CSTA service	TRACE
SIP messages	DEBUG
<input type="button" value="Submit"/>	

#### Call log problems

Call log problems	
Call Log	TRACE
Component registrar	TRACE
Health service	LOG
Application framework	TRACE
Desktop	TRACE
Journal service	TRACE
<input type="button" value="Submit"/>	

#### DAS connection

DAS connection	
Certificate management	LOG
Component registrar	TRACE
Health service	LOG
DLS client management	LOG
Service framework	TRACE
<input type="button" value="Submit"/>	



## Help application problems

Help application problems	
Application menu	TRACE
Component registrar	TRACE
Health service	LOG
Application framework	TRACE
Help	DEBUG
Web server service	TRACE
<input type="button" value="Submit"/>	

## Key input problems

Key input problems	
Component registrar	TRACE
Health service	LOG
Physical interface service	DEBUG
<input type="button" value="Submit"/>	

## LAN connectivity problems

LAN connectivity problems	
Component registrar	TRACE
Health service	LOG
Transport service	TRACE
<input type="button" value="Submit"/>	

## Messaging application problems

Messaging application problems	
Component registrar	TRACE
Health service	LOG
Application framework	TRACE
Call View	TRACE
Communications	TRACE
CSTA service	TRACE
Desktop	TRACE
SIP signalling	DEBUG
<input type="button" value="Submit"/>	

## Technical Reference

### Menus

#### Mobility problems

Mobility problems	
Administration	TRACE
Data Access service	TRACE
DLS client management	LOG
Mobility service	TRACE
<input type="button" value="Submit"/>	

#### Phone administration problems

Phone administration problems	
Administration	DEBUG
Health service	WARNING
OpenStage client management	LOG
Application framework	TRACE
Communications	TRACE
CSTA service	TRACE
Desktop	TRACE
<input type="button" value="Submit"/>	

#### Phonebook (LDAP) problems

Phonebook (LDAP) problems	
Application menu	TRACE
Component registrar	TRACE
Directory service	TRACE
Health service	LOG
Application framework	TRACE
Desktop	TRACE
Journal service	TRACE
Transport service	LOG
<input type="button" value="Submit"/>	

#### Phonebook (local) problems

Phonebook (local) problems	
Application menu	TRACE
Component registrar	TRACE
Health service	LOG
Application framework	TRACE
Desktop	TRACE
Journal service	TRACE
<input type="button" value="Submit"/>	

## Server based application problems

Server based application problems	
Java	LOG
<input type="button" value="Submit"/>	

## Sidecar problems

Sidecar problems	
Component registrar	TRACE
Health service	LOG
Sidecar service	TRACE
<input type="button" value="Submit"/>	

## Speech problems

Speech problems	
Component registrar	TRACE
Health service	LOG
Voice engine service	TRACE
Media processing service	TRACE
SIP signalling	DEBUG
SIP call control	DEBUG
<input type="button" value="Submit"/>	

## Tone problems

Tone problems	
Component registrar	TRACE
Health service	LOG
Tone generation service	TRACE
Media processing service	TRACE
<input type="button" value="Submit"/>	

## USB backup/restore

USB backup/restore	
Administration	TRACE
Component registrar	TRACE
Physical interface service	DEBUG
USB backup service	DEBUG
<input type="button" value="Submit"/>	

## Technical Reference

### Menus

#### Voice recognition problems

Voice recognition problems	
Media control service	TRACE
Voice engine service	TRACE
Call View	TRACE
Media processing service	TRACE
Voice recognition	TRACE
Phonebook	TRACE
<input type="button" value="Submit"/>	

#### Web based management

Web based management	
File size (bytes)	65536
Trace timeout (minutes)	2
Automatic clear before start	<input type="checkbox"/>
Trace levels for components	
Data Access service	TRACE
OpenStage client management	LOG
Web server service	TRACE
<a href="#">Download trace file</a>	<a href="#">Download old trace file</a>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

#### Web based management (V2)

Web based management	
File size (Max 6290000 bytes)	65536
Trace timeout (minutes)	0
Automatic clear before start	<input type="checkbox"/>
Trace levels for components	
Data Access service	TRACE
OpenStage client management	LOG
Web server service	TRACE
USB backup service	OFF
802.1x service	OFF
Voice recognition	OFF
<a href="#">Download trace file</a>	<a href="#">Download saved trace file</a>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## 802.1x problems

802.1x problems	
Certificate management	LOG
Component registrar	TRACE
Data Access service	TRACE
802.1x service	DEBUG
<input type="button" value="Submit"/>	

## Clear all profiles

Clear all profiles	
Administration	OFF
Call Log	OFF
Call View	OFF
Phonebook	OFF
Help	OFF
Application menu	OFF
Certificate management	OFF
Communications	OFF
Component registrar	OFF
CSTA service	OFF
Data Access service	OFF
Digit analysis service	OFF
Digital data service	OFF
Directory service	OFF
DLS client management	OFF
Health service	OFF
Instrumentation service	OFF
Journal service	OFF

## Bluetooth Advanced Traces (V2)

Bluetooth Advanced Traces	
Automatic clear before start	<input checked="" type="checkbox"/>
File size (Max 6290000 bytes)	<input type="text" value="256000"/>
Extended dump	<input checked="" type="checkbox"/>
Verbose decoding	<input checked="" type="checkbox"/>
Tracing is stopped	<input type="button" value="Start"/>
<a href="#">Download trace file</a>	
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## Technical Reference

### Menus

#### Generation

Generation	
Report mode	<input type="text" value="EOS Threshold exceeded"/>
Report interval (seconds)	<input type="text" value="60"/>
Observation interval (seconds)	<input type="text" value="10"/>
Minimum session length (100 millisecond units)	<input type="text" value="20"/>
Codec independent threshold values	
Maximum jitter (milliseconds)	<input type="text" value="20"/>
Average round trip delay (milliseconds)	<input type="text" value="100"/>
Non-compressing codec threshold values	
Lost packets (per 1000 packets)	<input type="text" value="10"/>
Consecutive lost packets	<input type="text" value="2"/>
Consecutive good packets	<input type="text" value="8"/>
Compressing codec threshold values	
Lost packets (per 1000 packets)	<input type="text" value="10"/>
Consecutive lost packets	<input type="text" value="2"/>
Consecutive good packets	<input type="text" value="8"/>
Resend last report	<input type="checkbox"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## View Session Data

**View Session Data**

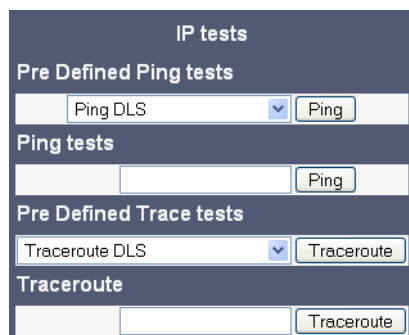
Select a report to view QoS Statistics 1

Start of report period - seconds	3394450938
Start of report period - fraction of seconds	31669
End of report period - seconds	3394451013
End of report period - fraction of seconds	17820
SNMP specific trap type	0
IP address (local)	192.168.1.12
Port number (local)	5004
IP address (remote)	192.168.1.15
Port number (remote)	5010
SSRC (receiving)	324951319
SSRC (sending)	1987331861
Codec	0
Maximum packet size	20
Silence suppression	0
Count of good packets	3638
Maximum jitter	4
Maximum inter-arrival jitter	2
Periods jitter threshold exceeded	0
Round trip delay	2
Round trip delay threshold exceeded	<input type="checkbox"/>
Count of lost packets	0
Count of discarded packets	0
Periods of lost packets	0
Consecutive packet loss (CPL)	255,255,255,255,255,255,255,255,255,255
Periods of consecutive lost packets	255
Consecutive good packets (CGP)	255,255,255,255,255,255,255,255,255,255
Periods of consecutive good packets	255
Count of jitter buffer overruns	0
Count of jitter buffer under-runs	0
Codec change on the fly	<input type="checkbox"/>
Periods with at least one threshold exceeded	0
HiPath Switch ID	Unknown
LTU number	255
Slot number	255
Endpoint type	
Version	V1 R2.2.63 SIP 070629
Subscriber number type	0
Subscriber number	4711
Call ID	122384c56462fd0a6bfa22b6364005f3@192.168.1.21
MAC address	0001e3247e50

## Technical Reference

### Menus

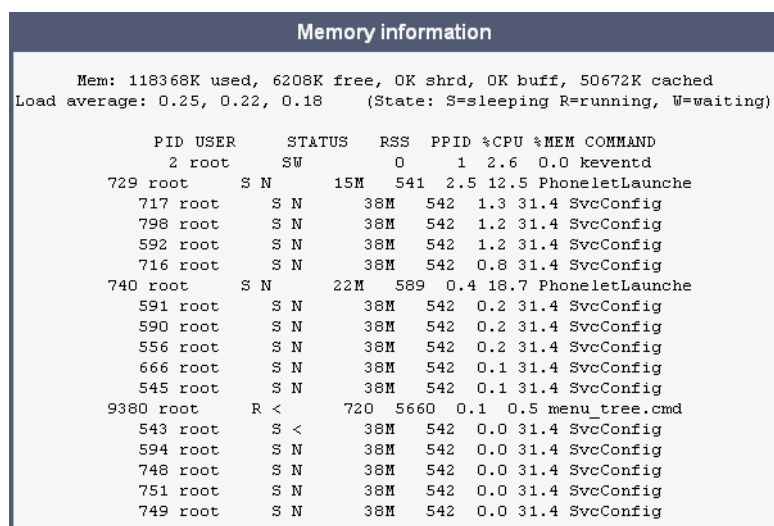
#### IP tests



The screenshot shows a dark-themed menu titled "IP tests". It is divided into four sections:

- Pre Defined Ping tests:** A dropdown menu set to "Ping DLS" and a "Ping" button.
- Ping tests:** An empty input field and a "Ping" button.
- Pre Defined Trace tests:** A dropdown menu set to "Traceroute DLS" and a "Traceroute" button.
- Traceroute:** An empty input field and a "Traceroute" button.

#### Memory information



The screenshot shows a dark-themed menu titled "Memory information". It displays system memory statistics and a list of running processes.

Mem: 118368K used, 6208K free, OK shrd, OK buff, 50672K cached  
Load average: 0.25, 0.22, 0.18 (State: S=sleeping R=running, W=waiting)

PID	USER	STATUS	RSS	PPID	%CPU	%MEM	COMMAND
2	root	SW	0	1	2.6	0.0	keventd
729	root	S N	15M	541	2.5	12.5	PhoneletLaunche
717	root	S N	38M	542	1.3	31.4	SvcConfig
798	root	S N	38M	542	1.2	31.4	SvcConfig
592	root	S N	38M	542	1.2	31.4	SvcConfig
716	root	S N	38M	542	0.8	31.4	SvcConfig
740	root	S N	22M	589	0.4	18.7	PhoneletLaunche
591	root	S N	38M	542	0.2	31.4	SvcConfig
590	root	S N	38M	542	0.2	31.4	SvcConfig
556	root	S N	38M	542	0.2	31.4	SvcConfig
666	root	S N	38M	542	0.1	31.4	SvcConfig
545	root	S N	38M	542	0.1	31.4	SvcConfig
9380	root	R <	720	5660	0.1	0.5	menu_tree.cmd
543	root	S <	38M	542	0.0	31.4	SvcConfig
594	root	S N	38M	542	0.0	31.4	SvcConfig
748	root	S N	38M	542	0.0	31.4	SvcConfig
751	root	S N	38M	542	0.0	31.4	SvcConfig
749	root	S N	38M	542	0.0	31.4	SvcConfig
856	root	S N	38M	542	0.0	31.4	SvcConfig



## Memory information (V2)

Memory information

Memory Monitor Configuration

Disable Reboot

High Threshold(MBs)

Low Threshold(MBs)

Working Hour Start

Working Hour End

[Download memory info file](#)

[Download old memor](#)

Device Memory Information

Mem: 90340K used, 33744K free, OK shrd, OK buff, 46896K cached  
 Load average: 1.06, 0.59, 0.39 (State: S=sleeping R=running, W=waiting)

PID	USER	STATUS	RSS	PPID	%CPU	%MEM	COMMAND
1425	root	R	620	909	74.6	0.4	/Opera_Deploy/appWeb/web/menu_tree.cmd
1428	root	R	432	795	22.3	0.3	top -d 0 -a -n 1 -l 600 -B
821	root	S N	13M	671	1.5	11.0	PhoneletLauncher desktopphonelet.phd V2 RO.1.0 SIP 090313 WP3 Siemens SIP GB e
2	root	SW	0	1	1.5	0.0	keventd
822	root	S <	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
675	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
690	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
692	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
691	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
699	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
700	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
685	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
907	root	S N	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
676	root	S <	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
671	root	S	29M	643	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
814	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
686	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
694	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313
695	root	S	29M	672	0.0	24.0	SvcConfig services.conf -startLogDaemon -logAll V2 RO.1.0 SIP 090313

## Core dump

Core Dump

Enable core dump \*

File size unlimited \*

Limited file size (MBs) \*

Delete core dump

*\* Changes to these items do not take effect until the phone is restarted*

## Technical Reference

### Menus

#### Core dump (V2R1)

**Core Dump**

Enable core dump \*

Delete core dump

*\* Changes to this item do not take effect until the phone is restarted*

#### Remote trace (V1R5)

**Remote trace**

#### Remote trace (V2)

**Remote trace**

Remote Trace Status

User Notification

Remote Server IP

Remote Server Port

#### Restart phone

**Restart Phone**

#### Factory reset

**Factory reset**

Factory reset password:

#### HPT interface

**HPT interface**

## Secure Shell (V2)

Secure Shell	
Enable access	<input type="checkbox"/>
Session password	<input type="text"/>
Access minutes	<input type="text" value="1"/>
Session minutes	<input type="text" value="5"/>
<input type="button" value="Submit"/>	<input type="button" value="Reset"/>

## 5.1.2 Local Phone Menu

Menu	Further information ...
— Administration	
— Applications <sup>1</sup>	
— CPP	
— Java	
— XML	
— Add application	
— Display name	-> Section 3.14.1
— Application name	-> Section 3.14.1
— Server address	-> Section 3.14.1
— Server port	-> Section 3.14.1
— Protocol	-> Section 3.14.1
— Program name	-> Section 3.14.1
— Auto start <sup>2</sup>	-> Section 3.14.1
— Use proxy	-> Section 3.14.1
— XML trace enabled	-> Section 3.14.1
— Debug program name	-> Section 3.14.1
— Number of tabs	-> Section 3.14.1
— All tabs start <sup>2</sup>	-> Section 3.14.1
— Tab 1 display name	-> Section 3.14.1
— Tab 1 application name	-> Section 3.14.1
— Tab 2 display name	-> Section 3.14.1
— Tab 2 application name	-> Section 3.14.1
— Tab 3 display name	-> Section 3.14.1
— Tab 3 application name	-> Section 3.14.1
— Restart after change	-> Section 3.14.1
— Add Xpressions	
— Display name	-> Section 3.14.1
— Application name	-> Section 3.14.1
— Server address	-> Section 3.14.1
— Server port	-> Section 3.14.1
— Protocol	-> Section 3.14.1
— Program name	-> Section 3.14.1
— Auto start <sup>2</sup>	-> Section 3.14.1
— Use proxy	-> Section 3.14.1
— XML trace enabled	-> Section 3.14.1
— Debug program name	-> Section 3.14.1
— Number of tabs	-> Section 3.14.1
— All tabs start <sup>2</sup>	-> Section 3.14.1
— Tab 1 display name	-> Section 3.14.1
— Tab 1 application name	-> Section 3.14.1
— Tab 2 display name	-> Section 3.14.1
— Tab 2 application name	-> Section 3.14.1
— Tab 3 display name	-> Section 3.14.1
— Tab 3 application name	-> Section 3.14.1
— Restart after change	-> Section 3.14.1
— Add phonebook	
— Display name	-> Section 3.14.1

Menu

Further information ...

— Application name	-> Section 3.14.1
— Server address	-> Section 3.14.1
— Server port	-> Section 3.14.1
— Protocol	-> Section 3.14.1
— Program name	-> Section 3.14.1
— Auto start <sup>2</sup>	-> Section 3.14.1
— Use proxy	-> Section 3.14.1
— XML trace enabled	-> Section 3.14.1
— Debug program name	-> Section 3.14.1
— Number of tabs	-> Section 3.14.1
— All tabs start <sup>2</sup>	-> Section 3.14.1
— Tab 1 display name	-> Section 3.14.1
— Tab 1 application name	-> Section 3.14.1
— Tab 2 display name	-> Section 3.14.1
— Tab 2 application name	-> Section 3.14.1
— Tab 3 display name	-> Section 3.14.1
— Tab 3 application name	-> Section 3.14.1
— Restart after change	-> Section 3.14.1
— <input type="checkbox"/> Add application <sup>2</sup>	
— Display name	-> Section 3.14.1
— Application name	-> Section 3.14.1
— Server address	-> Section 3.14.1
— Server port	-> Section 3.14.1
— Protocol	-> Section 3.14.1
— Program name	-> Section 3.14.1
— Auto start <sup>2</sup>	-> Section 3.14.1
— Use proxy	-> Section 3.14.1
— XML trace enabled	-> Section 3.14.1
— Debug program name	-> Section 3.14.1
— Number of tabs	-> Section 3.14.1
— All tabs start <sup>2</sup>	-> Section 3.14.1
— Tab 1 display name	-> Section 3.14.1
— Tab 1 application name	-> Section 3.14.1
— Tab 2 display name	-> Section 3.14.1
— Tab 2 application name	-> Section 3.14.1
— Tab 3 display name	-> Section 3.14.1
— Tab 3 application name	-> Section 3.14.1
— Restart after change	-> Section 3.14.1
— <input checked="" type="checkbox"/> Add application <sup>2</sup>	
— Display name	-> Section 3.14.1
— Application name	-> Section 3.14.1
— Server address	-> Section 3.14.1
— Server port	-> Section 3.14.1
— Protocol	-> Section 3.14.1
— Program name	-> Section 3.14.1
— Auto start <sup>2</sup>	-> Section 3.14.1
— Use proxy	-> Section 3.14.1
— XML trace enabled	-> Section 3.14.1
— Debug program name	-> Section 3.14.1
— Number of tabs	-> Section 3.14.1
— All tabs start <sup>2</sup>	-> Section 3.14.1

## Technical Reference

### Menus

#### Menu

	Further information ...
-- Tab 1 display name	-> Section 3.14.1
-- Tab 1 application name	-> Section 3.14.1
-- Tab 2 display name	-> Section 3.14.1
-- Tab 2 application name	-> Section 3.14.1
-- Tab 3 display name	-> Section 3.14.1
-- Tab 3 application name	-> Section 3.14.1
-- Restart after change	-> Section 3.14.1
-- ? Add application <sup>2</sup>	
-- Display name	-> Section 3.14.1
-- Application name	-> Section 3.14.1
-- Server address	-> Section 3.14.1
-- Server port	-> Section 3.14.1
-- Protocol	-> Section 3.14.1
-- Program name	-> Section 3.14.1
-- Auto start <sup>2</sup>	-> Section 3.14.1
-- Use proxy	-> Section 3.14.1
-- XML trace enabled	-> Section 3.14.1
-- Debug program name	-> Section 3.14.1
-- Number of tabs	-> Section 3.14.1
-- All tabs start <sup>2</sup>	-> Section 3.14.1
-- Tab 1 display name	-> Section 3.14.1
-- Tab 1 application name	-> Section 3.14.1
-- Tab 2 display name	-> Section 3.14.1
-- Tab 2 application name	-> Section 3.14.1
-- Tab 3 display name	-> Section 3.14.1
-- Tab 3 application name	-> Section 3.14.1
-- Restart after change	-> Section 3.14.1
-- Network	
-- IP configuration	
-- Discovery mode	-> Section 3.2.2
-- Use LLDP-Med	-> Section 3.2.2
-- Use DHCP	-> Section 3.2.2
-- DHCP reuse	-> Section 2.3.4
-- IP address	-> Section 3.3.3
-- Subnet mask	-> Section 3.3.3
-- Route (default)	-> Section 3.3.4
-- DNS domain	-> Section 3.3.6.1
-- Primary DNS	-> Section 3.3.6.2
-- Secondary DNS	-> Section 3.3.6.2
-- Route 1 IP	-> Section 3.3.6
-- Route 1 gateway	-> Section 3.3.6
-- Route 1 mask	-> Section 3.3.6
-- Route 2 IP	-> Section 3.3.6
-- Route 2 gateway	-> Section 3.3.6
-- Route 2 mask	-> Section 3.3.6
-- VLAN discovery	-> Section 3.2.2.1
-- VLAN ID	-> Section 3.2.2.3
-- HTTP proxy <sup>1</sup>	-> Section 3.14.1.2
-- QoS	
-- Service	
-- Layer 2	-> Section 3.3.1.1

Menu	Further information ...
-- Layer 2 voice	-> Section 3.3.1.1
-- Layer 2 signalling	-> Section 3.3.1.1
-- Layer 2 default	-> Section 3.3.1.1
-- Layer 3	-> Section 3.3.1.2
-- Layer 3 voice	-> Section 3.3.1.2
-- Layer 3 signalling	-> Section 3.3.1.2
-- Reports	
-- Generation	
-- Mode	-> Section 3.21.9
-- Report interval	-> Section 3.21.9
-- Observe interval	-> Section 3.21.9
-- Minimum session length	-> Section 3.21.9
-- Send now	-> Section 3.21.9.1
-- Thresholds	
-- Maximum jitter	-> Section 3.21.9
-- Round-trip delay	-> Section 3.21.9
-- Non-compressing:	
-- ...Lost packets (K)	-> Section 3.21.9
-- ...Lost consecutive	-> Section 3.21.9
-- ...Good consecutive	-> Section 3.21.9
-- Compressing:	
-- ...Lost packets (K)	-> Section 3.21.9
-- ...Lost consecutive	-> Section 3.21.9
-- ...Good consecutive	-> Section 3.21.9
-- Port configuration	
-- SIP server	-> Section 3.4.5.2
-- SIP registrar	-> Section 3.4.5.2
-- SIP gateway	-> Section 3.4.5.2
-- SIP local	-> Section 3.4.5.2
-- Backup proxy	-> Section 3.4.9.5
-- RTP base	-> Section 3.13.1
-- LDAP server port <sup>1</sup>	-> Section 3.12.1
-- LAN port type	-> Section 3.2.1
-- PC port status	-> Section 3.2.1
-- PC port type	-> Section 3.2.1
-- PC port autoMDIX	-> Section 3.2.1
-- HTTP proxy	-> Section 3.14.1.2
-- LLDP-MED operation	
-- Extended Power	-> Section 3.21.3
-- Network policy (voice)	-> Section 3.21.3
-- LLDEP-MED cap's	-> Section 3.21.3
-- MAC_Phy config	-> Section 3.21.3
-- System cap's	-> Section 3.21.3
-- TTL	-> Section 3.2.3
-- System	
-- Identity	
-- Terminal number	-> Section 3.4.1.1
-- Terminal name	-> Section 3.4.1.1
-- Display identity	-> Section 3.4.1.2
-- Enable ID	-> Section 3.4.1.2
-- Web name <sup>3</sup>	

## Technical Reference

### Menus

#### Menu

	Further information ...
-- DDNS hostname <sup>3</sup>	
-- SIP Interface	
-- Outbound proxy	-> Section 3.4.7.1
-- Default OBP domain	-> Section 3.4.7.1
-- SIP transport	-> Section 3.4.7.2
-- Call trans (ms)	-> Section 3.4.9.2
-- NonCall trans (ms)	-> Section 3.4.9.3
-- Registration backoff	-> Section 3.4.9.4
-- Response timer (ms)	-> Section 3.4.9.2
-- Connectivity timer (ms)	-> Section 3.4.9.1
-- Registration	
-- SIP addresses	
-- SIP server	-> Section 3.4.5.1
-- SIP registrar	-> Section 3.4.5.1
-- SIP gateway	-> Section 3.4.5.1
-- SIP session	
-- Session timer	-> Section 3.4.8
-- Session duration (s)	-> Section 3.4.8
-- Registration timer (s)	-> Section 3.4.6
-- Server type	-> Section 3.4.6
-- Realm	-> Section 3.4.6
-- User ID	-> Section 3.4.6
-- Password	-> Section 3.4.6
-- SIP survivability	
-- Backup registration flag	-> Section 3.4.9.5
-- Backup proxy address	-> Section 3.4.9.5
-- Backup registration timer (s)	-> Section 3.4.9.5
-- Backup transport	-> Section 3.4.9.5
-- OBP flag	-> Section 3.4.9.5
-- SNMP	
-- Queries allowed	-> Section 3.3.8
-- Query password	-> Section 3.3.8
-- Trap sending enabled	-> Section 3.3.8
-- Trap destination	-> Section 3.3.8
-- Trap destination port	-> Section 3.3.8
-- Trap community	-> Section 3.3.8
-- Diagnostic sending enabled	-> Section 3.3.8
-- Diagnostic destination	-> Section 3.3.8
-- Diagnostic destination port	-> Section 3.3.8
-- Diagnostic community	-> Section 3.3.8
-- QoS traps to QCU	-> Section 3.3.8
-- QCU address	-> Section 3.3.8
-- QCU port	-> Section 3.3.8
-- QCU community	-> Section 3.3.8
-- QoS to generic destination	-> Section 3.3.8
-- Features	
-- Configuration	
-- General	
-- Emergency number	-> Section 3.4.2
-- Voicemail number	-> Section 3.4.2
-- Allow refuse	-> Section 3.5.1



Menu

-- Hot/warm phone <sup>3</sup>	-> Section 3.5.2
-- Hot/warm destination <sup>3</sup>	-> Section 3.5.2
-- Initial digit timer	-> Section 3.5.3
-- Allow uaCSTA	-> Section 3.5.8
-- Server features	-> Section 3.5.7
-- Transfer on hangup	-> Section 3.5.4.2
-- Not used timeout	-> Section 3.5.9
-- DSS Pickup timer	
-- Bridging enabled	
-- Dial plan <sup>3</sup>	-> Section 3.9.3
-- FPK prog. timer	-> Section 3.6
-- Audio	
-- BLF alerting	
-- Bluetooth <sup>1</sup>	
-- Local device address	-> Section 3.22
-- Enable	-> Section 3.22
-- Addressing	
-- MWI server URI	-> Section 3.5.5
-- BLF pickup code	
-- File Transfer	
-- Defaults	-> Section 3.11.2
-- Download method	-> Section 3.11.2
-- FTP Server	-> Section 3.11.2
-- FTP Port	-> Section 3.11.2
-- FTP Account	-> Section 3.11.2
-- FTP Username	-> Section 3.11.2
-- FTP Password	-> Section 3.11.2
-- FTP path	-> Section 3.11.2
-- HTTPS base URL	-> Section 3.11.2
-- Phone app	-> Section 3.11.3
-- Use default	-> Section 3.11.3.1
-- Download method	-> Section 3.11.3.1
-- FTP Server	-> Section 3.11.3.1
-- FTP Port	-> Section 3.11.3.1
-- FTP Account	-> Section 3.11.3.1
-- FTP Username	-> Section 3.11.3.1
-- FTP Password	-> Section 3.11.3.1
-- FTP path	-> Section 3.11.3.1
-- HTTPS base URL	-> Section 3.11.3.1
-- Filename	-> Section 3.11.3.1
-- Hold Music	
-- FTP Use default	-> Section 3.11.4.1
-- FTP Download method	-> Section 3.11.4.1
-- FTP Server	-> Section 3.11.4.1
-- FTP Port	-> Section 3.11.4.1
-- FTP Account	-> Section 3.11.4.1
-- FTP Username	-> Section 3.11.4.1
-- FTP Password	-> Section 3.11.4.1
-- FTP path	-> Section 3.11.4.1
-- HTTPS base URL	-> Section 3.11.4.1
-- Filename	-> Section 3.11.4.1

## Technical Reference

### Menus

Menu	Further information ...
--- Ringer	
--- Use default	-> Section 3.11.6.1
--- Download method	-> Section 3.11.6.1
--- FTP Server	-> Section 3.11.6.1
--- FTP Port	-> Section 3.11.6.1
--- FTP Account	-> Section 3.11.6.1
--- FTP Username	-> Section 3.11.6.1
--- FTP Password	-> Section 3.11.6.1
--- FTP path	-> Section 3.11.6.1
--- HTTPS base URL	-> Section 3.11.6.1
--- Filename	-> Section 3.11.6.1
--- Picture clip <sup>1</sup>	
--- Use default	-> Section 3.11.5.1
--- Download method	-> Section 3.11.5.1
--- FTP Server	-> Section 3.11.5.1
--- FTP Port	-> Section 3.11.5.1
--- FTP Account	-> Section 3.11.5.1
--- FTP Username	-> Section 3.11.5.1
--- FTP Password	-> Section 3.11.5.1
--- FTP path	-> Section 3.11.5.1
--- HTTPS base URL	-> Section 3.11.5.1
--- Filename	-> Section 3.11.5.1
--- LDAP <sup>1</sup>	
--- Use default	-> Section 3.11.6.1
--- Download method	-> Section 3.11.6.1
--- FTP Server	-> Section 3.11.6.1
--- FTP Port	-> Section 3.11.6.1
--- FTP Account	-> Section 3.11.6.1
--- FTP Username	-> Section 3.11.6.1
--- FTP Password	-> Section 3.11.6.1
--- FTP path	-> Section 3.11.6.1
--- HTTPS base URL	-> Section 3.11.6.1
--- Filename	-> Section 3.11.6.1
--- Logo <sup>4</sup>	
--- Use default	-> Section 3.11.7.1
--- Download method	-> Section 3.11.7.1
--- FTP Server	-> Section 3.11.7.1
--- FTP Port	-> Section 3.11.7.1
--- FTP Account	-> Section 3.11.7.1
--- FTP Username	-> Section 3.11.7.1
--- FTP Password	-> Section 3.11.7.1
--- FTP path	-> Section 3.11.7.1
--- HTTPS base URL	-> Section 3.11.7.1
--- Filename	-> Section 3.11.7.1
--- Screensaver <sup>1</sup>	
--- Use default	-> Section 3.11.8.1
--- Download method	-> Section 3.11.8.1
--- FTP Server	-> Section 3.11.8.1
--- FTP Port	-> Section 3.11.8.1
--- FTP Account	-> Section 3.11.8.1
--- FTP Username	-> Section 3.11.8.1

Menu		Further information ...
	<ul style="list-style-type: none"> <li>— FTP Password</li> <li>— FTP path</li> <li>— HTTPS base URL</li> <li>— Filename</li> </ul>	<ul style="list-style-type: none"> <li>-&gt; Section 3.11.8.1</li> <li>-&gt; Section 3.11.8.1</li> <li>-&gt; Section 3.11.8.1</li> <li>-&gt; Section 3.11.8.1</li> </ul>
	<ul style="list-style-type: none"> <li>— Java midlets<sup>1</sup> <ul style="list-style-type: none"> <li>— Use default</li> <li>— Download method</li> <li>— FTP Server</li> <li>— FTP Port</li> <li>— FTP Account</li> <li>— FTP Username</li> <li>— FTP Password</li> <li>— FTP path</li> <li>— HTTPS base URL</li> <li>— Filename</li> </ul> </li> </ul>	
	<ul style="list-style-type: none"> <li>— Local Functions <ul style="list-style-type: none"> <li>— Directory Settings / LDAP<sup>1</sup> <ul style="list-style-type: none"> <li>— Server address</li> <li>— Server port</li> <li>— Timeout (sec) for Search Trigger</li> <li>— Authenticate</li> <li>— User name</li> <li>— Password</li> </ul> </li> </ul> </li> <li>— Locality <ul style="list-style-type: none"> <li>— Canonical settings <ul style="list-style-type: none"> <li>— Local country code</li> <li>— National prefix digit</li> <li>— Local national code</li> <li>— Minimum local number length</li> <li>— Local enterprise node</li> <li>— PSTN access code</li> <li>— International access code</li> <li>— Operator code</li> <li>— Emergency number</li> <li>— Initial digits</li> </ul> </li> <li>— Canonical lookup <ul style="list-style-type: none"> <li>— Local code 1</li> <li>— International code 1</li> <li>— Local code 2</li> <li>— International code 2</li> <li>— Local code 3</li> <li>— International code 3</li> <li>— Local code 4</li> <li>— International code 4</li> <li>— Local code 5</li> <li>— International code 5</li> </ul> </li> <li>— Canonical dial <ul style="list-style-type: none"> <li>— Internal numbers</li> <li>— External numbers</li> <li>— External access code</li> <li>— International access code</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>-&gt; Section 3.12.1</li> <li>-&gt; Section 3.12.1</li> <li>-&gt; Section 3.12.1</li> <li>-&gt; Section 3.12.1</li> <li>-&gt; Section 3.12.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> <li>-&gt; Section 3.9.1</li> </ul>

## Technical Reference

### Menus

Menu	Further information ...
-- Energy saving <sup>4</sup>	
-- Backlight timeout	-> Section 3.4.3
-- Messages settings	
-- New items	-> Section 3.5.6
-- Alternative Label	-> Section 3.5.6
-- New urgent items	-> Section 3.5.6
-- Alternative label	-> Section 3.5.6
-- Old items	-> Section 3.5.6
-- Alternative label	-> Section 3.5.6
-- Old urgent items	-> Section 3.5.6
-- Alternative label	-> Section 3.5.6
-- Date and Time	
-- Time source	-> Section 3.4.4.1
-- SNTP IP address	-> Section 3.4.4.1
-- Timezone offset	-> Section 3.4.4.1
-- Daylight saving	-> Section 3.4.4.1
-- Daylight saving	-> Section 3.4.4.1
-- Difference (mins)	-> Section 3.4.4.1
-- Auto DST	-> Section 3.4.4.1
-- DST zone	-> Section 3.4.4.1
-- Speech	
-- Codec Preferences	
-- Silence suppression	-> Section 3.13.2
-- Packet size	-> Section 3.13.2
-- G.711	-> Section 3.13.2
-- G.729	-> Section 3.13.2
-- G.722	-> Section 3.13.2
-- Audio Settings	
-- Disable microphone	-> Section 3.13.3
-- Disable loudspeech	-> Section 3.13.3
-- General Information	
-- MAC address	-> Section 3.21.1
-- Software version	-> Section 3.21.1
-- Last restart	-> Section 3.21.1
-- Licence information	-> Section 3.20
-- Password	
-- Admin	-> Section 3.15
-- Confirm admin	-> Section 3.15
-- User	-> Section 3.15
-- Confirm user	-> Section 3.15
-- Ringer setting	
-- <1 .... 15>	
-- Name	-> Section 3.10
-- Ringer sound	-> Section 3.10
-- Pattern melody	-> Section 3.10
-- Pattern sequence	-> Section 3.10
-- Duration	-> Section 3.10
-- Audible	-> Section 3.10
-- Maintenance	
-- Factory reset	-> Section 3.18
-- Disable HPT	-> Section 3.21.12

**Menu**

- Remote trace
  - Remote trace status
  - User notification
  - Remote ip
  - Remote port
- Memory monitor
  - Disable reboot
  - High treshold
  - Low treshold
  - Working Hour Start
  - Working Hour End

- 1 OpenStage 60/80 only.
- 2 V2R1 onwards only.
- 3 V2 only.
- 4 OpenStage 40/60/80 only.

**Further information ...**

- > Section 3.21.11
- > Section 3.21.11
- > Section 3.21.11
- > Section 3.21.11
  
- > Section 3.21.5
- > Section 3.21.5
- > Section 3.21.5
- > Section 3.21.5
- > Section 3.21.5

## Technical Reference

### Troubleshooting: Error Codes

## 5.2 Troubleshooting: Error Codes

For a set of error cases, specific error codes are defined. These error codes are shown in brackets on the display, following a general error note. Example: „No Telephony possible (LP1)“.

<b>Problem</b>	<b>Description</b>	<b>Error code</b>
Network Problem	No network connection	LI1
Not Initialised	Waiting for data	I1
Unable to use LAN	802.1x error	LX1
Unable to use LAN	Physical connection missing	LP1
Unable to Register	Server timeout	RT2
Unable to Register	Server failed	RF2
Unable to Register	Authentication failed	RA2
Unable to Register	No number configured	RN2
Unable to Register	No server configured	RS2
Unable to Register	No registrar configured	RG2
Unable to Register	No DNS domain configured	RD2
Unable to Register	Rejected by server	RR2
Unable to Register	No phone IP address set	RI2
Survivability	Backup route active	B8
Survivability	Backup not configured	RS8
Survivability	Backup timeout	RT8
Survivability	Backup authentication failed	RA8

# Glossary

## A

### Address of Record (AoR)

A ->SIP ->URI that represents the "public address" of a SIP user resp. a phone or line. The format is similar to an E-mail address: "username@hostname". (for a definition, see RFC 3261)

### ADPCM

**Adaptive Differential Pulse Code Modulation**. A compressed encoding method for audio signals which are to be transmitted by a low bandwidth. As opposed to regular ->PCM, a sample is coded as the difference between its predicted value and its real value. As this difference is usually smaller than the real, absolute value itself, a lesser number of bits can be used to encode it.

## C

### CSTA

**Computer Supported Telecommunications Applications**. An abstraction layer for telecommunications applications allowing for the interaction of ->CTI computer applications with telephony devices and networks.

### CTI

**Computer Telephony Integration**. This term denotes the interaction of computer applications with telephony devices and networks.

## D

### DFT

**Digital Feature Telephone**. A phone with no line keys.

### DHCP

**Dynamic Host Configuration Protocol**. Allows for the automatic configuration of network endpoints, like IP Phones and IP Clients.

### DiffServ

**Differentiated Services**. Specifies a layer 3 mechanism for classifying and managing network traffic and providing quality of service (->QoS) guarantees on ->IP networks. DiffServ can be used to provide low-latency, guaranteed service for e. g. voice or video communication.

## Glossary

### DNS

**Domain Name System.** Performs the translation of network domain names and computer hostnames to ->IP addresses.

### DTMF

**Dual Tone Multi Frequency.** A means of signaling between a phone and e. g. a voicemail facility. The signals can be transmitted either in-band, i. e. within the speech band, or out-band, i. e. in a separate signaling channel.

## E

### EAP

**Extensible Authentication Protocol.** An authentication framework that is frequently used in WLAN networks. It is defined in RFC 3748.

## F

### FTP

**File Transfer Protocol.** Used for transferring files in networks, e. g., to update telephone software.

## G

### G.711

ITU-T standard for audio encoding, used in ISDN and ->VoIP. It requires a 64 kBit/s bandwidth.

### G.722

ITU-T standard for audio encoding using split band ->ADPCM. The audio bandwidth is 7 kHz at a sampling rate of 16 kHz. There are several transfer rates ranging from 32 to 64 kBit/s, which correspond to different compression degrees. The voice quality is very good.

### G.729

ITU-T standard for audio encoding with low bandwidth requirements, mostly used in VoIP. The standard bitrate is 8 kBit/s. Music or tones such as ->DTMF or fax tones cannot be transported reliably with this codec.

### Gateway

Mediation components between two different network types, e. g., ->IP network and ISDN network.

### GUI

**Graphical User Interface.**



### H

#### HTTP

**H**ypertext **T**ransfer **P**rotocol. A standard protocol for data transfer in ->IP networks.

### I

#### IP

**I**nternet **P**rotocol. A data-oriented network layer protocol used for transferring data across a packet-switched internetwork. Within this network layer, reliability is not guaranteed.

#### IP address

The unique address of a terminal device in the network. It consists of four number blocks of 0 to 255 each, separated by a point.

### J

#### Jitter

Latency fluctuations in the data transmission resulting in distorted sound.

### L

#### LAN

**L**ocal **A**rea **N**etwork. A computer network covering a local area, like an office, or group of buildings.

#### Layer 2

2nd layer (Data Link Layer) of the 7-layer OSI model for describing data transmission interfaces.

#### Layer 3

3rd layer (Network Layer) of the 7-layer OSI model for describing the data transmission interfaces.

#### LCD

**L**iquid **C**rystal **D**isplay. Display of numbers, text or graphics with the help of liquid crystal technology.

#### LDAP

**L**ightweight **D**irectory **A**ccess **P**rotocol. Simplified protocol for accessing standardized directory systems, e.g., a company telephone directory.

#### LED

**L**ight **E**mitting **D**iode. Cold light illumination in different colours at low power consumption.

## Glossary

### LLDP

**Link Layer Discovery Protocol** (IEEE Standard 802.1AB). Provides a solution for the discovery of elements on a data network and how they are connected to each other.

## M

### MAC Address

**Media Access Control** address. Unique 48-bit identifier attached to network adapters.

### MDI-X

**Media Dependent Interface crossover (X)**. The send and receive pins are inverted. This MDI allows the connection of two endpoints without using a crossover cable. When Auto MDI-X is available, the MDI can switch between regular MDI and MDI-X automatically, depending on the connected device.

### MIB

**Management Information Base**. A type of database used to manage the devices in a communications network.

### MWI

**Message Waiting Indicator**. A signal, typically a LED, to notify the user that new mailbox messages have arrived.

## P

### PBX

**Private Branch Exchange**. Private telephone system that connects the internal devices to each other and to the ISDN network.

### PCM

**Pulse Code Modulation**. A digital representation of an analog signal, e. g. audio data, which consists of quantized samples taken in regular time intervals.

### PING

**Packet Internet Gro(u)per**. A program to test whether a connection can be made to a defined IP target. Data is sent to the target and returned from there during the test.

### PoE

**Power over Ethernet**. The IEEE 802.3af standard specifies how to supply power to compliant devices over Ethernet cabling (10/100Base-T).

### Port

Ports are used in ->IP networks to permit several communication connections simultaneously. Different services often have different port numbers.

**PSTN**

**Public Switched Telephone Network.** The network of the world's public circuit-switched telephone networks.

**Q****QoS**

**Quality of Service.** The term refers to control mechanisms that can provide different priority to different users or data flows, or guarantee a certain level of performance to a data flow in accordance with requests from the application program. The OpenStage phone allows for the setting of QoS parameters on layer 2 and layer 3 (DiffServ).

**QDC**

**QoS Data Collection.** A HiPath IP service that is used to collect data from HiPath products in order to analyze their voice and network quality.

**QCU**

**Quality of Service Data Collection Unit.** A service tool that collects QoS report data from IP endpoints.

**QoS**

**Quality of Service.** Provides different priority to different users or data flows, or guarantee a certain level of performance to a data flow.

**R****RAM**

**Random Access Memory.** Memory with read / write access.

**ROM**

**Read Only Memory.** Memory with read only access.

**RTCP**

**Realtime Transport Control Protocol.** Controls the ->RTP stream and provides information about the status of the transmission, like QoS parameters.

**RTP**

**Realtime Transport Protocol.** This application layer protocol has been designed for audio and video communication. Typically, the underlying protocol is ->UDP.

**S****SDP**

**Session Description Protocol.** Describes and initiates multimedia sessions, like web conferences. The informations provided by SDP can be processed by ->SIP.

## Glossary

### SIP

**Session Initiation Protocol.** Signaling protocol for initialising and controlling sessions, used e. g. for ->VoIP calls.

### SNMP

**Simple Network Management Protocol.** Used for monitoring, controlling, and administration of network and network devices.

### SNTP

**Simple Network Time Protocol.** Used to synchronize the time of a terminal device with a timeserver.

### Subnet Mask

To discern the network part from the host part of an ->IP address, a device performs an AND operation on the IP address and the network mask. The network classes A, B, and C each have a subnet mask that demasks the relevant bits: 255.0.0.0 for Class A, 255.255.0.0 for Class B and 255.255.255.0 for Class C. In a Class C network, for instance, 254 IP addresses are available.

### Switch

Network device that connects multiple network segments and terminal devices. The forwarding of data packets is based on ->MAC Addresses: data targeted to a specific device is directed to the switch port that device is attached to.

## T

### TCP

**Transfer Control Protocol.** The protocol belongs to the transport layer and establishes a connection between two entities on the application layer. It guarantees reliable and in-order delivery of data from sender to receiver, as opposed to ->UDP.

### TLS

**Transport Layer Security.** Ensures privacy between communicating applications. Typically, the server is authenticated, but mutual authentication is also possible.

## U

### UDP

**User Datagram Protocol.** A minimal message-oriented transport layer protocol used especially in streaming media applications such as ->VoIP. Reliability and order of packet delivery are not guaranteed, as opposed to ->TCP, but ->UDP is faster and more efficient.

### URI

**Uniform Resource Identifier.** A compact string of characters used to identify or name a resource.

### URL

**Uniform Resource Locator.** A special type of ->URI which provides means of acting upon or obtaining a representation of the resource by describing its primary access mechanism or network location.

## V

### VLAN

**Virtual Local Area Network.** A method of creating several independent logical networks within a physical network. For example, an existing network can be separated into a data and a voice VLAN.

### VoIP

**Voice over IP.** A term for the protocols and technologies enabling the routing of voice conversations over the internet or through any other ->IP-based network

## W

### WAP

**Wireless Application Protocol.** A collection of protocols and technologies aiming at enabling access to internet applications for wireless devices. WAP can also be used by the OpenStage phone.

### WBM

**Web Based Management.** A web interface which enables configuration of the device using a standard web browser.

### WML

**Wireless Markup Language.** An XML-based markup language which supports text, graphics, hyperlinks and forms on a ->WAP-browser.

### WSP

**Wireless Session Protocol.** The protocol is a part of the ->WAP specification. Its task is to establish a session between the terminal device and the WAP gateway.

**Glossary**

# Index

## A

Address of Record (AoR) 6-1  
 Administration Menu (Local Menu) 3-1, 3-2  
 Audio Keys 1-4, 1-5, 1-6, 1-7

## B

Bluetooth 3-186

## C

Call Transfer 3-57  
 Canonical Dial Lookup 3-96  
 Canonical Dialing 3-92  
 CSTA 3-64, 6-1  
 CTI 6-1

## D

Date and Time (SNTP) 2-10, 3-35  
 Daylight Saving 3-35  
 Default Route 3-20  
 DFT (Digital Feature Telephone) 6-1  
 DHCP 3-16, 6-1  
 Diffserv 3-14  
 DLS (Deployment Service) 3-25, 6-2  
 DNS 3-22, 6-2  
 DNS Domain Name 3-22  
 DST Zone (Daylight Saving Time Zone) 3-35

## E

Emergency Number 3-33, 3-92  
 External Access Code 3-93  
 External Numbers 3-93

## F

FTP Settings 3-102  
 Function Keys 1-4, 1-6, 1-7

## G

Graphics Display 1-4, 1-5

## H

Handset 1-4, 1-5, 1-6, 1-7

## I

Initial Digits 3-93  
 Internal Numbers 3-93  
 International Code (Local Country Code) 3-92  
 International Gateway Code 3-94  
 International Prefix (International Access Code) 3-92  
 IP  
   Address 2-9  
   IP 6-3  
   Specific Routing 3-21

## K

Keypad 1-4, 1-5, 1-6

## L

LAN 6-3  
 LAN Port 3-5  
 LDAP 6-3  
 LDAP Template (Download) 3-113  
 Local Area Code (Local National Code) 3-92  
 Local Country Code (International Code) 3-92  
 Local Enterprise Number 3-92  
 Local National Code (Local Area Code) 3-92  
 Logo (Create) 4-5  
 Logo (Download) 3-116

## M

MAC Address 6-4  
 MDI-X 3-5, 6-4  
 MIB 6-4  
 Music on Hold (Download) 3-107  
 MWI 3-59  
 MWI (Message Waiting Indicator) 6-4

## N

National Prefix (Trunk Prefix) 3-92

## Index

### O

Operator Code 3-92  
Outbound Proxy 3-43

### P

Password, change 3-145  
Password, enter 3-1  
PBX 6-4  
Phone Software (Download) 3-104  
Picture Clips (Download) 3-110  
PoE (Power over Ethernet) 2-5, 6-4  
PSTN 6-5  
PSTN Access Code 3-92

### Q

QCU 3-28  
QoS 3-13

### R

RTP 6-5

### S

Screensaver (Download) 3-119  
SIP  
    Registration 3-40  
    Server Addresses 3-38  
    Server Ports 3-39  
    Session Timer 3-45  
    Transport Protocol 3-44  
SNMP 3-27, 6-6  
Subnet Mask 2-9

### T

TCP 6-6  
Terminal Number 2-9, 3-31  
Timeout (Not used) 3-65  
Timezone Offset 2-10, 3-35  
TLS 6-6  
TouchGuide 1-4, 1-6, 1-7  
TouchSlider 1-4  
Trunk Prefix (National Prefix) 3-92

### U

uaCSTA 3-64  
UDP 6-6

### V

VLAN 2-11, 3-7  
Voice Mail Number 3-33

### W

WBM (Web Based Management) 1-8, 2-7, 6-7





