

OpenScape DeskPhone CP HFA

Service Information - Trace Guide

Unify SaS UCC PH DE DEV 2

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History of Change

Version	Date	Author	Changes:
1.0	24.01.2018	Nico Krutzger	Initial release
1.2	18.06.2018	Nico Krutzger	Update for V1 R2 (Chapter 4.2)
1.3	12.09.2019	Nico Krutzger	Update for V1 R3 (Chapters 3 and 4)

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1. Reason for this updated How-to

This How-to is to provide service personnel and self-maintaining customers alike a Guide to quality error reporting. It will describe a best practice for providing useful traces for initial error reporting to either GO Service Desk and also further to GVS.

It is updated to include descriptions for how to capture Ethernet based traces and also for activation, saving and deactivation Internal Phone trace. It will show, based on a few examples, how to select what traces match the error description of the user.

With that How-to in hands the requester could define the traces which are relevant for his/her topic.

1.1 What it is NOT

1. A guide that can be used to provide complete traces for every problem in a way that no requests from Development or GVS for further traces are done.
2. A complete guide for understanding the trace output. So do not expect to become an expert for understanding phone traces.
3. A replacement for a detailed error description during error reporting.

2. Ethernet Traces

The very first trace that is helpful for a problem with HFA phones is an Ethernet Trace.

We do recommend using the Free Tool “Wireshark” for capturing Ethernet traces and we recommend doing that directly on the Phone with a Network tap.

Other possibilities are Mirror Port on the network switch.

Using the Mirror Feature of the Phone internal network switch should only be done for topics that are directly reproducible as it will require the PC of the user that is connected to this port to run the Wireshark application.

If it is possible or required to run a long term Ethernet capture we do recommend configuring the Wireshark application to use multiple files with each of a maximum size of 50 Megabytes.

Those traces are saved with a Timestamp so if users report that a topic happened at a specific time the specific file + at least one of the files before and after the error time reported from customer.

3. Phone Traces

3.1 Important information about Phones traces

Phone Traces are stored in the Phones RAM and only saved in the Phones flash if a reboot occurs that is initiated from an internal phone service. This is also done from a phone that crashed.

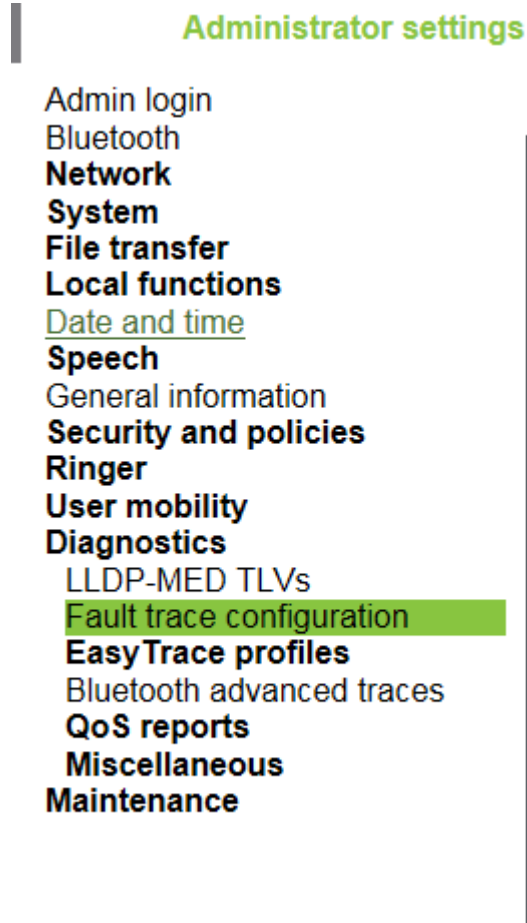
So in case a problem is reported do not perform a power cycle reboot of the phone by pulling the power cable or LAN cable in case of Power over Ethernet.

This will cause the traces to be lost!

In case the phone does stop responding, including no longer reachable via WBM, but is not rebooting on its own, it should not take more than 10min for the phone to do so, please use the Remote Trace feature described in chapter [3.4](#)

3.2 Activating Phone Traces

Login to the Web based Management of the phone as administrator and select the option shown below:



The Fault trace configuration page is divided into three parts, general configuration, trace components and Trace files.

General Trace configuration

The general configuration of the traces let's you configure the File size of the Trace file, a timeout for the traces and it will let you delete all previous data in the trace file.

Fault trace configuration		
File size (Max 6290000 bytes)	<input type="text" value="6290000"/>	Automatic clear before start <input type="checkbox"/>
	Trace timeout (minutes)	<input type="text" value="0"/>

The file size can range between 1 MB (1048576 bytes) and 6 MB (6290000 bytes). It is recommended to use a file size of 3 MB (3145728 bytes). Increasing the file size above that is not recommended for OpenScape Desk Phone CP200 due to memory consumption.

The trace timeout will clear all active traces after the configured timeout. A timeout value of 0 disables the timeout. Please do only configure a trace timeout if you are sure that the error is captured within that timeframe.

On activation of traces the "Automatic clear before start" check box should be selected as it will remove old logging data after the Submit button is clicked.

If for example the user reports that after 2 days of usage the phone shows an error and it is persisting since then it might be useful to activate the traces and let the user perform the actions that show the error and save the traces after that.

However for best traces it is required that the traces are activated before the error has happed as otherwise it will only show the consequences of the fault but not what has caused it.

The root cause analyses is not always possible with traces activated after the error happened.

However for initial error reporting to GVS, which is the focus this document is covering, it is enough to start investigation.

Trace components

802.1x service	OFF	▼
Application framework	OFF	▼
Bluetooth service	OFF	▼
Certificate management	OFF	▼
Communications	OFF	▼
ConversationAPI	OFF	▼
Data access service	OFF	▼
Directory service	OFF	▼
Exchange service	OFF	▼
GPALAudio Core	OFF	▼
Health service	OFF	▼
Instrumentation service	OFF	▼
Media control service	OFF	▼
OBEX service	OFF	▼
Password management service	OFF	▼
Physical interface service	OFF	▼
Service framework	OFF	▼
Sidecar service	OFF	▼
Transport service	OFF	▼
Voice engine service	OFF	▼
WSI service	OFF	▼
Administration	OFF	▼
Application menu	OFF	▼
Call view	OFF	▼
Clock service	OFF	▼
Component registrar	OFF	▼
CSTA service	OFF	▼
Digit analysis service	OFF	▼
DLS client management	OFF	▼
H.323 messages	OFF	▼
GPALAudio Framework	OFF	▼
HFA service agent	OFF	▼
Journal service	OFF	▼
Mobility service	OFF	▼
OpenStage client management	OFF	▼
Performance marks	OFF	▼
Security log service	OFF	▼
Service registry	OFF	▼
Tone generation service	OFF	▼
vCard parser service	OFF	▼
Web server service	OFF	▼

The following trace components can be activated to various levels for the phone trace. Some traces might be not shown for various phone types.

802.1x service

This is for port security. 802.1X prevents unauthorized network access until appropriate credentials are supplied to access the network.

Administration

This deals with the changing and setting of configuration items that resides in User and Admin menus, managing mobility notification popups and callforwarding activities.

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.

Also widget problems in GUI such as incorrect display items

Application Menu

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

Bluetooth Service

This handles the Bluetooth interactions between external Bluetooth devices and the phone.

Call view

This handles the representation of telephony calls on the phone screen.

Certificate management

This handles the certificates for WBM and SPE and 802.1x.

Clock Service

This service traces all clock related messages. Including SNTP and time taken from OpenScape server.

Communications

This is for tracing all signaling between phone and system, keep alive, key presses and call related.

Component registrar

This handles data relating to the type of the phone either OpenScape DeskPhone CP High (400/600) or OpenScape DeskPhone CP Low (200)

ConversationsAPI

The important part of the Conversation List, it combines the Call history information of a Call Log and the contact information of a phonebook.

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

This service allows other services to access the data held within the phone database.

Digit Analysis service

This analyses and modifies digit streams which are sent and received by the phone e.g. canonical conversion.

Directory service

This performs a look up service for data in the phonebook, LDAP or System Phonebook, trying to match incoming and outgoing numbers with entries in the phonebook, LDAP or System Phonebook.

DLS Client management

These traces display the messages between OpenStage Phone and DLS server and operations in DLS service.

Exchange service

This traces the communication between phone and a configured Exchange server.

H.323 messages

Used only on OpenScape 4000 systems as OpenScape Business platforms do not use H323 with HFA, this traces the H.323 messages which are exchanged between the phone, gateway and other phones for DMC calls

GPALAudio Core

Core Audio component traces with low level information.

GPALAudio Framework

Advanced Audio component traces with low level information.

Health service

This monitors other parts of the phone for diagnostic purposes and provides a logging interface for the other services in the phone.

HFA Service Agent

This trace will enable the Stimulus FPK Programming and HFA Stimulus, Messages Menu Phonelet and HFA Phonelet Utilities that are directly managed by PBX

Instrumentation service

This is used by the Husim phone tester to exchange data with the phone for remote control, testing and monitoring purposes.

Journal service

The Journal service is responsible for saving and retrieving call history information which is used by the ConversationAPI.

Media control service

This service provides the control of media streams (voice, tones, ringing etc.) within the phone.

Mobility service

This handles the mobility feature whereby users can log onto different phones and have them configured to their own profile.

OBEX service

This is involved with Bluetooth accesses to the phone.

Openstage Client Management

This trace allows you to control the data flow of the system in case a configuration item on Local Menu, WEBM or DLS is deleted/updated/added. It resides in the middle of all services and provides interface to all other services for data management.

Password management service

This is used to verify passwords used in the phone.

Performance Marks

This traces prints when the handset is used, FPKs are pressed and other physical buttons are pressed.

Physical interface service

This handles any interactions with the phone via the keypad, mode keys, fixed feature buttons, click wheel and slider. Also LED Indicators are managed by this service.

Security Log Service

This handles the entries are sent to security log.

Service framework

This is the environment within which other phone services operate. It is involved in the starting and stopping of services.

Service registry

This keeps a record of all services which are currently running inside the phone

Sidecar service

This handles interactions between the phone and any attached sidecars. In case of problems with Key handling on Sidecar please activate.

Tone generation

This service handles the generation of the tones and ringers on the phone, High quality ringers or wav/MP3/MIDI files are not handled by this service.

Transport service

The transport service provides the IP (LAN) interface between the phone and the network.

vCard parser service

This trace is for sending/receiving vCards via the Bluetooth interface.

Voice engine service

This provides a switching mechanism for voice streams within the phone. It is also involved in QDC, High quality ringers/ wav/MP3/MIDI and voice instrumentation.

Web server service

This traces the webserver used for the Web based management of the device.

WSI service

So far used on OpenScape Business only. This is for handling the communication regarding the system phonebook and all UC settings.

Trace Files

Download trace file	Download saved trace file	Download H.323 trace file	Download upgrade trace file
Download old trace file	Download syslog file	Download old syslog file	Download saved syslog file
Download database file	Download upgrade error file	Download HPT remote service log file	Download exception file
Download old exception file	Download security log file		

These are the links to the various trace files on the phone. The information that every files includes is described below:

Trace File

The Trace file does contain the latest trace information from the phone application it is either started at the last reboot or if the configured file size was exceeded previously. See also “Old Trace File”.

Saved Trace File

The Saved Trace File does contain the last 1MB of information that where present in the “Trace file” before the last reboot that the phone had performed and that wasn’t a Power cycle or software upgrade. On a software upgrade this file is deleted for memory space required for a software upgrade.

H.323 Trace File

The H.323 Trace file does contain the output of the H.323 stack that is used on HFA phones, if H.323 traces are activated. As H.323 is not used on SME platforms this will be empty on these platforms.

Upgrade Trace File

The Upgrade trace file does contain information about the latest Software upgrade process.

Old Trace File

The Old Trace file does only contain information if the Trace file had exceeded the configured file size. In this case the previous Trace File is saved in phone RAM as Old Trace file and a new Trace file is created. If a Old Trace file already existed it will be deleted before the Trace file is renamed. Information from the Old Trace file are never saved to flash even if the Trace file hasn’t exceeded 1 MB before the last reboot.

Syslog File

The Syslog File includes output from the underlying Linux and network stack.

Old Syslog File

The same as for Old Trace file, but it does contain the Syslog Trace information.

Saved Syslog File

The same as for Saved Trace file, but it does contain the Syslog Trace information.

Database File

It does containing the phone configuration in a SQL database.

Upgrade Error File

Information about errors during last upgrade can be found here. The information that several processes are not killed during upgrade is normal and not an actual error.

HPT Remote Service Log File

Logging about usage of the HPT Remote Service tool can be found here.

Exception File

The Exception file does contain a history of restarts that the phone had performed, including basic information about the reason of the crash. If the phone did crash a Basic stack trace output is show for this restart.

Old Exception File

Not yet used.

Security Log File

Information about Security information like wrong password attempts, expired passwords.

Trace Levels

Various Trace levels are available for each Component.

For the purposes of this document the only two relevant trace levels (unless otherwise noted in the Trace examples) are:

OFF

This will turn the trace component off

DEBUG

This will activate the trace with all available logging.

The other trace levels are should be only set on request, see Trace Examples or if they are set by an Easy Trace profile.

After a problem has been traced and data was collected using the DDC Tool, please do set all Traces to OFF. This can be done also by the Easy Trace Profile "Clear all Profiles"

3.3 Core Dump

The core dump is important for us to see what is going wrong. Normally the phone automatically generates a core dump if the phone crash's.

Core Dumps are linked on this page:

The screenshot shows the administrator interface. On the left, a sidebar lists menu items: Administratorseiten (Admin), Admin Login, Network, System, File transfer, Defaults, Phone application, LDAP, Logo, Dongle key, Local functions, Date and time, Speech, General information, Security and Policies, Ringer, User mobility, Diagnostics, LLDP-MED TLVs, Fault trace configuration, Easy Trace Profiles, QoS reports, Miscellaneous (with 'Core Dump' highlighted), and Maintenance. The main content area is titled 'Core Dump' and contains the following settings:

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

Buttons: Submit, Reset

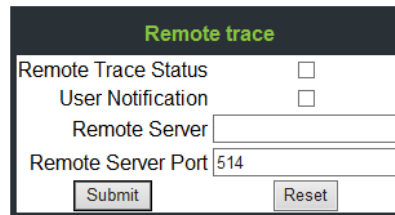
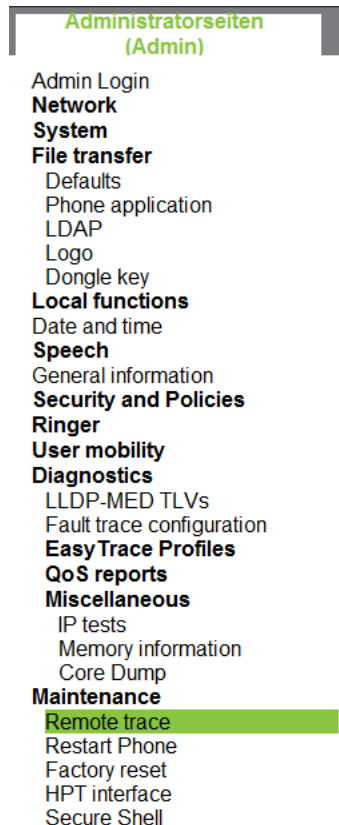
On this page there are two parameters that could be set:

Enable core dump: This will enable that the memory dumps are written on a crash. **The parameter is enabled by default and should not be disabled!**

Delete core dump: This will delete all current core dumps that are available on the phone.

3.4 Remote Trace Functionality

With the Remote trace the phone will send the Trace output that is normally written into the trace file to the configured Syslog Server but it is still written into the Phone memory as well.



Remote Trace Status

If this is set the Remote Trace is activated. If not set it is deactivated.

User notification

If the user notification is set the user gets informed about the ongoing tracing by an Icon in the phone display (only shown on CP400/600(E)).

Remote Server

This is the IP of the Server where the Syslog is running.

Remote Server Port

This is the UDP Port at which the Remote Syslog Server is configured to listen. Default Syslog Port is the default value. This may be different based on customer environment.

Please note that the Remote Trace messages are NOT encrypted!

Recommended Syslog Server is Syslog-NG but other may work as well. A configuration file for the Trace Output on this server is available at Unify Expert Wiki:

http://wiki.unify.com/wiki/OpenStage_HFA_FAQ#Config_File_Syslog_NG

IMPORTANT: It was observed that the 3CDaemon Syslog Server is not saving all Syslog Information the phone will send out. **DO NOT USE THE 3CDaemon Syslog Server.**

3.5 Saving of Phone Traces and Core Dumps

It is not required to download every single trace file one by one by hand.

There is a Service Tool available on the Software Supply server or Partner Portal that will download all traces with a single step. This tool is called “Diagnostic Data Collector” or short: DDC-Tool

With this tool you only need the IP + Administrator password of the device to download all trace data and configuration information with a single click into a single zip file.

Please note with OpenScape Desk Phone CP HFA only V5 of the DDC Tool is supported, don't use the V4 of DDC as it will miss important parts of Traces.

Please do always use the DDC-Tool to avoid missing required trace files and avoid questions about basic configuration settings. Even if using the Remote Trace functionality.

As previously noted even the use of the DDC-Tool will not free you from providing a quality error description!

3.6 Check the Trace data

If using the DDC-Tool to collect traces they are stored in a single .zip File. Before sending those data to GVS please do also check them for following points:

1. The error time is present in the Traces by checking the Timestamp in the trace files including old* or saved*.
2. The requested traces are activated by checking the _device_configuration.html

4. Trace Configuration Example scenarios

4.1 Wrong Number Information in Display Call related

For problems like there is not the expected number shown on the display. Or any unexpected display information while in a call, for incoming or outgoing calls.

Suggested Trace Points:

- Communications on DEBUG
- Call View on DEBUG
- Application Framework on DEBUG

4.2 Wrong Name Information in Display or Conversation List

For problems like there is not the expected name shown on the display. Or any unexpected display information while in a call, for incoming or outgoing calls.

Suggested Trace Points:

- Communications on DEBUG
- Call View on DEBUG
- ConversationAPI on TRACE
- Directory service on DEBUG
- Digit analysis service on DEBUG
- Exchange service on DEBUG

In case of OpenScape Business please add:

- WSI service on DEBUG

4.3 Wrong or no Avatar in Display or Conversation List (CP600)

For problems like there is no Avatar shown on the display during incoming, Outgoing or Connected Call.

Suggested Trace Points:

- Communications on DEBUG
- Call View on DEBUG
- ConversationAPI on TRACE
- Data access service on TRACE
- Directory service on DEBUG
- Digit analysis service on DEBUG
- Journal Service on DEBUG
- OpenStage client management on LOG

In case of OpenScape Business please add:

- WSI service on DEBUG

4.4 Unexpected Ringer, Ringer is delayed or not played at all

At first please check what Ringer Mode is configured: "HiPath" or "Local ringer"

If "Local ringer" is set and the phone playing always the same ringer: Please check that the system does indeed deliver the correct Call types, for example a 4k user has set the SDAT parameter CallType.

Also check if the configuration of the "Local ringers" is correct.

If all this is checked and correct

Suggested Trace Points if High Quality Ringers are used:

- Communications on DEBUG
- GPALAudio Core on DEBUG
- GPALAudio Framework on DEBUG
- Media Control Service on DEBUG
- Voice Engine Service on DEBUG

Suggested Trace Points if Non High Quality Ringers (Pattern) are used:

- Communications on DEBUG
- GPALAudio Core on DEBUG
- GPALAudio Framework on DEBUG
- Media Control Service on DEBUG
- Tone Generation Service on DEBUG

4.5 Audio Problems

For those topics it is absolutely required to provide error time and also call partner information and answers to the following questions:

What is the nature of the audio problem (for example delay when answering a call, one-way or no-way speech, and so on)?

Does the problem happen only for external calls or also internal calls?

Is TLS used? Does the problem happen without TLS as well?

What side of the call does have the problem?

What Audio Codec is in use?

Suggested Trace Points (OpenScape 4000)

- Communications on DEBUG
- GPALAudio Core on DEBUG
- GPALAudio Framework on DEBUG
- H.323 Messages on DEBUG
- Media Control Service on DEBUG
- Tone Generation Service on DEBUG
- Voice Engine Service on DEBUG
- Wireshark Trace, if TLS is used and no Softgate is used please activate Secure Trace on the Gateway.

Suggested Trace Points (OpenScape Business)

- Communications on DEBUG
- GPALAudio Core on DEBUG
- GPALAudio Framework on DEBUG
- Media Control Service on DEBUG
- Tone Generation Service on DEBUG
- Voice Engine Service on DEBUG
- Wireshark Trace, if TLS is used please activate Secure Trace on the System/gateway.

4.6 Problems with DLS communication

This can also be used for Problems during Plug and Play or in case the OpenScape Business DLI is used as it uses the same interface.

Suggested Trace Points

- DLS Client Management on DEBUG

4.7 Problems with UC or system phonebook on OpenScape Business

Please make sure that the user does have authentication in the system configured in case no User specific UC credentials are defined on the phone!

Suggested Trace Points

Communications on DEBUG
WSI service on DEBUG

4.8 Problems with Performance

To actually analyze a performance related issue it is highly recommended to provide a video of the problem scenario and use the following trace settings.

Suggested Trace Points

Call view on DEBUG
Communications on DEBUG
ConversationAPI on TRACE
CSTA service on TRACE
Directory service on DEBUG
H.323 messages on LOG (on OS4k systems)
Journal service on LOG
Media control service on LOG
Performance marks on DEBUG
WSI service on DEBUG (on OSBiz systems)

4.9 Problems with Bluetooth (CP 600)

To analyze Bluetooth related problems like no Audio on a Bluetooth Headset/Mobile device or Problem with sending/receiving vCard based Contact data from a mobile device.

Suggested Trace Points

1. Activate the **Easy Trace Profile** for Bluetooth problems.
2. Activate the **Bluetooth Advanced Traces** (Admin - Diagnostics - Bluetooth advanced traces)
Please note that the BSA HCI Snoopfile for those advanced traces will only be written after it was activated and the device has been restarted after activation!