Openstage / DeskPhone IP

Service Information- Trace Guide

PH HQ GVS 1

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1. Reason for this HowTo

Sometimes development is not able to pinpoint a problem with network traces only. It could happen that the message flow is correct but the phone behavior is not as it should be.

For those cases the phones are able to trace internal processes that show the development what is going wrong.

The steps for activating / reading out / deactivating those traces are mostly the same. With this HowTo in hands the requester must only define which traces he needs

2. Pre-Conditions

Ensure that the phone is configured with a working SNTP server to have the correct time available in the traces.

- If no SNTP server is available, ensure that the correct time is configured manually.

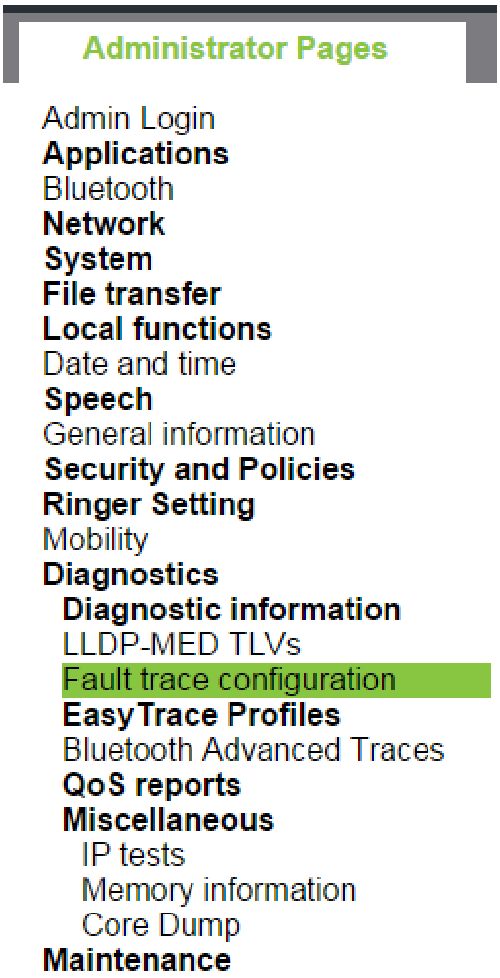
If it is asked to deliver the internal phone traces in combination with some other traces (e.g. Wireshark) it is necessary that the trace-pc has configured the same SNTP server as the phone.

- If no SNTP server is available, ensure that you've configured the same time on all tracing devices.

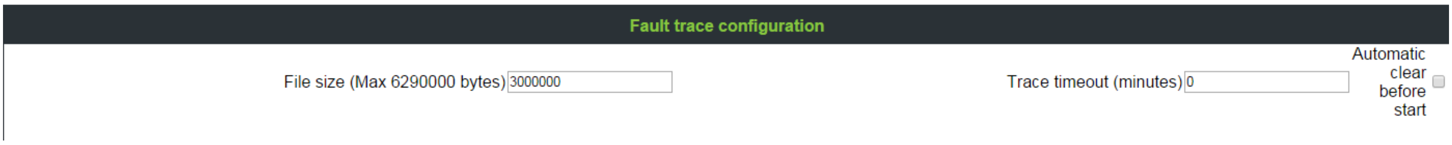
3. Phone traces

3.1 activate internal phone traces

- Log-in to the WBM as administrator



- Select the **Fault trace configuration** menu


Fault trace configuration

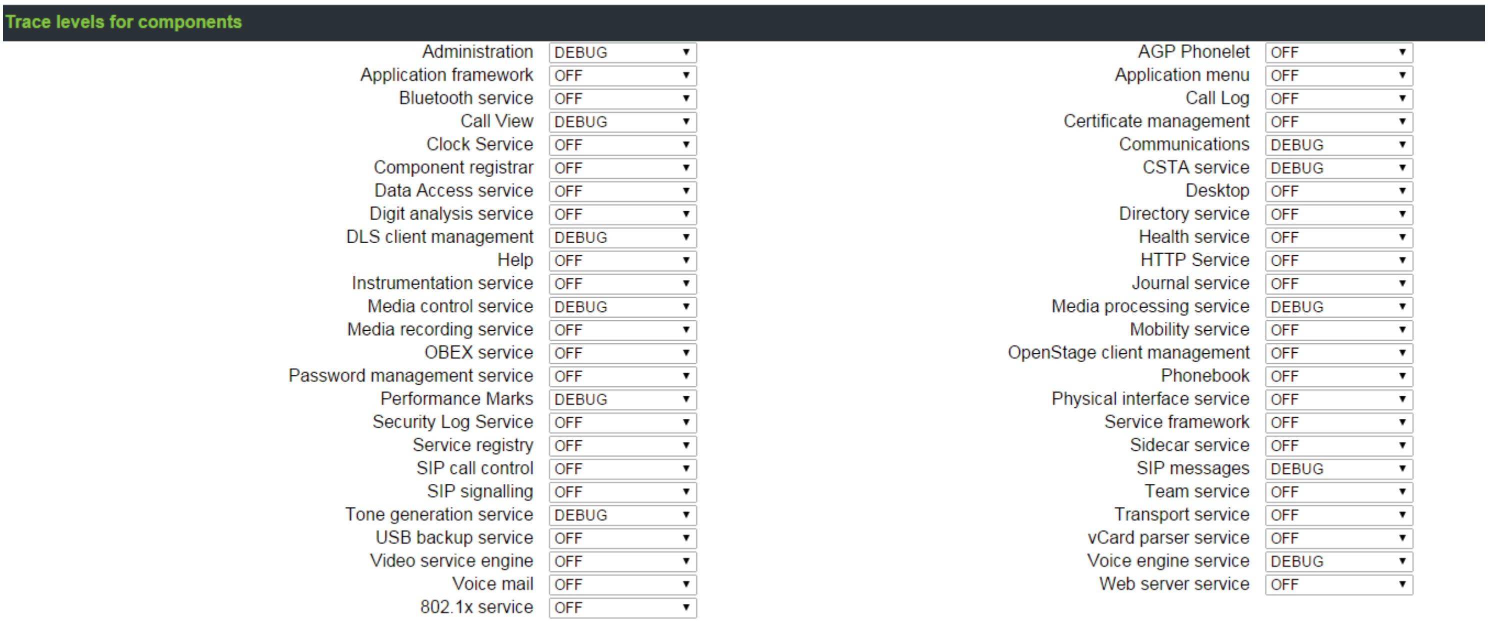
File size (Max 6290000 bytes) 3000000

Trace timeout (minutes) 0

Automatic clear before start □

- Set the trace **timeout to 0** (disable trace timeout)
- Now you need to set the **file size** to
  - OS 15/20 : 500.000 bytes
  - OS 40 / IP35 : 3000.000 bytes
  - OS 60/80 / IP55 : 3000.000 bytes

- **activate** the checkbox for “Automatic clear before start”



Trace levels for components

Administration	DEBUG	AGP Phonelet	OFF
Application framework	OFF	Application menu	OFF
Bluetooth service	OFF	Call Log	OFF
Call View	DEBUG	Certificate management	OFF
Clock Service	OFF	Communications	DEBUG
Component registrar	OFF	CSTA service	DEBUG
Data Access service	OFF	Desktop	OFF
Digit analysis service	OFF	Directory service	OFF
DLS client management	DEBUG	Health service	OFF
Help	OFF	HTTP Service	OFF
Instrumentation service	OFF	Journal service	OFF
Media control service	DEBUG	Media processing service	DEBUG
Media recording service	OFF	Mobility service	OFF
OBEX service	OFF	OpenStage client management	OFF
Password management service	OFF	Phonebook	OFF
Performance Marks	DEBUG	Physical interface service	OFF
Security Log Service	OFF	Service framework	OFF
Service registry	OFF	Sidecar service	OFF
SIP call control	OFF	SIP messages	DEBUG
SIP signalling	OFF	Team service	OFF
Tone generation service	DEBUG	Transport service	OFF
USB backup service	OFF	vCard parser service	OFF
Video service engine	OFF	Voice engine service	DEBUG
Voice mail	OFF	Web server service	OFF
802.1x service	OFF		

3.2 trace component description

Administration

This 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

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

Call log

This deals with the Call log application which displays the call history of the phone.

Call view

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

Certificate management

This service handles the verification and exchange of certificates for security and verification purposes.

Communications
This is involved in the passing of call related information and signaling to and from the CSTA service.

Component registrar
This handles data relating to the type of phone e.g HFA/SIP Workpoint Hi/Workpoint Lo.

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.

Desktop
The desktop service is 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
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, trying to match incoming and outgoing numbers with entries in the phonebook.

DLS Client management
Interactions with the Deployment and licencing server are handled by this service.

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

Help
The help function is handled by this service.

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

Java
Any Java applications run on the phone will be run in the Java sandbox controlled by the Java service.

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

Media control service
This 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 and the tone generation and voice engine services. It is also involved in switching of :audio devices such as the handset and loudspeaker.

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 provides a means by which other services within the phone can interact with the database.

Phonebook
This is responsible for the phonebook application within the phone.

POT service
This service is supposed to take over control of basic telephony if the callview application fails.

Password management service
This is used to verify passwords used in the phone.

Physical interface service
This 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 **
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.

SIP call control

This is contains the call model for the phone and is associated with telephony and call handling.

SIP Messages
This traces the SIP messages which are exchanged by the phone. **Activating the SIP messages trace requires a reboot of the device if SW version is <V3R0**

SIP signalling
This is involved in the creation and parsing of SIP messages and communicates directly with the SIP stack.

Team Service
This is primarily concerned with Keyset operation.

Tone generation
This service handles the generation of the tones and ringers on the phone
.

Transport service
The transport service provides the IP (LAN) interface between the phone and the outside world.

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

Voice engine
This provides a switching mechanism for voice streams within the phone. It is also involved in QDC, Music on Hold and voice instrumentation.

Voice mail
This trace monitors the integrated Voice mail application of the phone.

Web Server service
This provides the web access to the phone.

USB Backup service
This is for the backup/restore feature via USB devices.

Voice recognition
The Voice recognition service is for the voice dialing feature

Video service engine
This is for the video part of the phone

802.1x service
This is for port security (802.1x)

AGP Phonelet (since V3R0)

HTTP Service (since V3R1, only on HI phones)

The trace shows the Certificate handing in case of HTTPS. Moreover it shows when the download of some specific URI started and finished. Currently the service is used only in AGP Phonelet scenarios.

Security Log Service
Service to monitor the security log file (upload trigger, percentage etc.)

**** Please note:**

For normal diagnostic operations these traces should never be enabled (If logging is enabled for these components, the phone becomes very slow):

- **Service Framework**
- **Service Registry**
- **OpenStage client management**

3.3 DDC (Diagnostic Data Collector)

Diagnostic Data Collector (DDC) is a service Tool for Openstage and Optipoint. The main function is to provide a client application to an administrator to make it as easy as possible to download trace and diagnostic information from an Openstage or optiPoint device.

We strongly recommend using this Tool to download traces from the device !!!

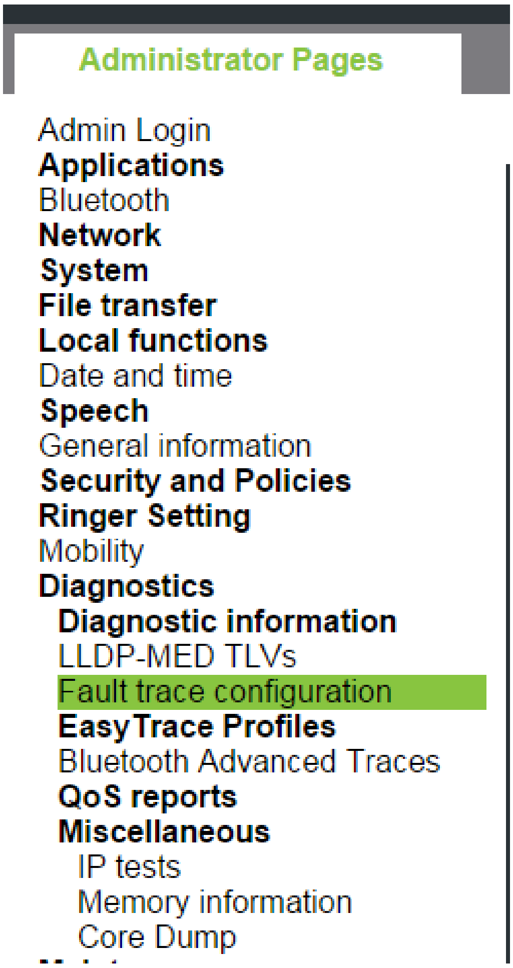
It automatically downloads all available traces/core files from the device and provides a lot of extra information's for GVS and Development. This will avoid additional requests and save a lot of time.

Please check if you have the latest Version installed!!

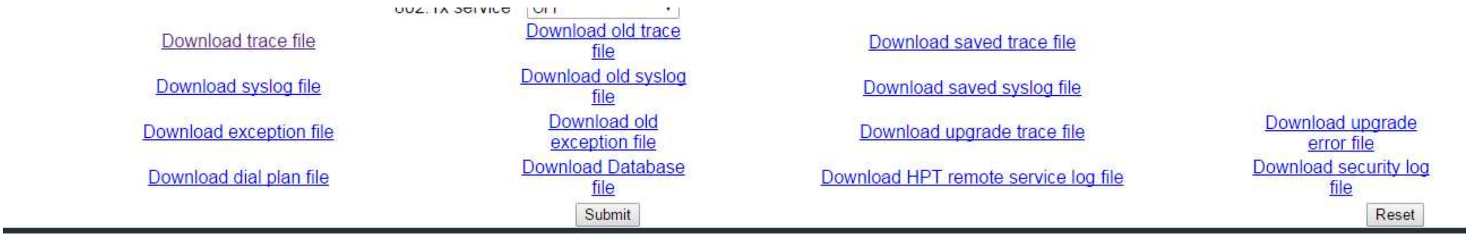
You can found this Tool on the SWS.

3.4 read out the internal phone traces

- Log-in to the WBM as administrator



- Select the **Fault trace configuration** menu


802.1x service
Download trace file
Download old trace file
Download saved trace file
Download syslog file
Download old syslog file
Download saved syslog file
Download exception file
Download old exception file
Download upgrade trace file
Download upgrade error file
Download dial plan file
Download Database file
Download HPT remote service log file
Download security log file
Submit
Reset

- now it is possible to download **14** different trace files
  - **trace file**
    The trace data according to the settings specified for the services.

- **old trace file**
  The trace file is stored permanent memory. When the file has reached its size limit, it will be saved as old trace file, and the current trace file is emptied for future messages.
- **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
- **upgrade trace file**
  The trace log created during a software upgrade.
- **upgrade error file**
  The error messages created during a software upgrade.
- **exception file** *(Since V2R1)*
  If an exceptions occurs in a process running on the phone, a message is written to this file (this file is important to check the memory management)
- **old exception file** *(Since V2R1)*
  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.
- **syslog file**
  Contains system messages (eg. Dhcp requests,boot,network changes,ntpclient,kernel,LLDP)
- **old syslog file**
  The syslog file is stored permanent memory. When the file has reached its size limit, it will be saved as old syslog file, and the current syslog file is emptied for future messages.
- **saved syslog 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
- **Database file** *(Since V2R1)*
  Phone Database
- **HPT remote service log**
  HTP message created during login/usage
- **Dial plan** *(Since V2R0)*
  Dial plan configuration
- **Security Log File** (since V3R0)
  Include Log security logs

The following trace files should be downloaded in every failure case (if available):

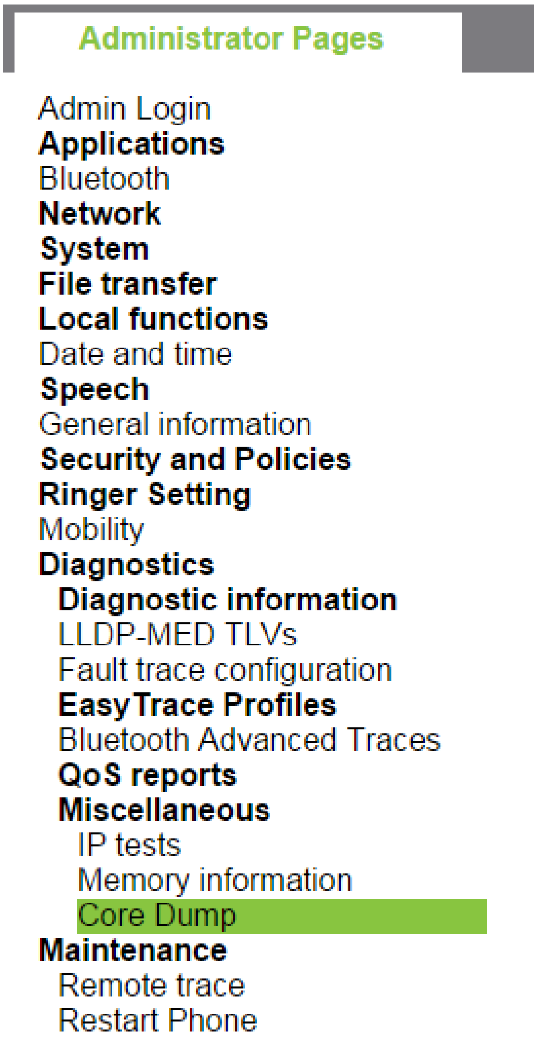
- **Trace file**
- **Old Trace file**
- **Saved Trace file**
- **Exception file**
- **Syslog file**
- **Old syslog file**
- **Saved syslog file**
- **Database file**

3.5 core dump

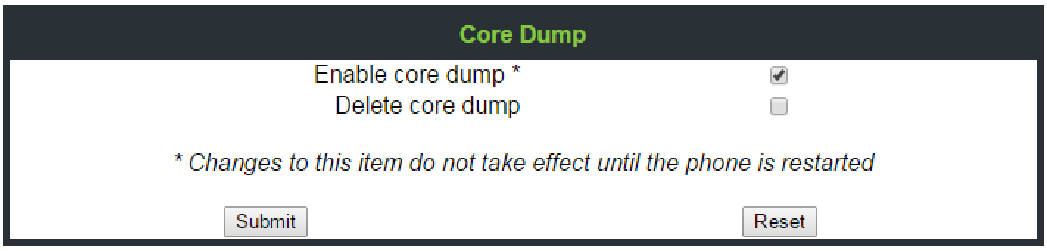
The core dump is important for us to see what is going wrong.
Normally the phone automatically generates a core dump if the phone crash's.
The core dump is enabled by default and should normally not be disabled. We lose the possibility to analyze phone crashes if the Core dump is disabled!!

Note: since *V2R1* the core dump file size is always unlimited and not configurable.
Note: A core dump will be stored in the permanent memory of the Device!

- Log-in to the WBM as administrator



- Select the **Core Dump** menu



Core Dump

Enable core dump * ☑

Delete core dump □

* Changes to this item do not take effect until the phone is restarted

- **activate** the checkbox for “Enable core dump”
- **important**: you need to set the **Limited file size** (MBs) to:
  - OS 60/80 : 50MB
  - OS 40 : 10 MB
  - OS 20 : 1 MB

3.6 Remote tracing

You can configure the phone to send real time traces to a remote trace server (syslog server). Remote logging is the best way to collect traces for high sporadically problems over a long timeframe.

You can activate this feature locally or via DLS

Locally: Admin -> Maintenance -> Remote trace
DLS: IP Devices -> IP Phone Configuration ->Diagnosis -> Remote Trace Settings

Note: If remote tracing is used, the trace messages sent to the remote syslog server are not encrypted.

3.7 Remote tracing Server

The currently best syslog server for Openstage Tracing called **syslog-ng**. This is a OpenSource Project (http://www.balabit.com/network-security/syslog-ng/opensource-logging-system)
It’s developed for Linux systems but via Cygwin it´s also possible to use it under windows. (http://www.cygwin.com/)
We are using this syslog server in our own environment and it´s working great.

Installation Manuel: http://www.syslog.org/logged/running-syslog-ng-on-windows/

1) First, visit the Cygwin website to download the setup.exe application. Save, then run setup.exe.
2) Choose “Install From Internet”
3) Select the directory to install into and the user to install for (leave this as “all users”).
4) Enter the directory for local packages. Accepting the default location is fine.

5) Choose your Internet connection type (direct or proxy)
6) Select a site to download from. Any one should be fine.
7) At the "install packages" window, type is "syslog" in the search box. You will see "Admin" below. Expand the admin section, and you will see syslog-ng. Click the word "skip" until you see 3.0.1 (or whatever the latest supported version is).
8) Also choose the following packages:
Admin/cygrunsrv
Editors/VIM
Gnome/glib
9) Finish the installation.

Now, launch the Cygwin shell from the start menu. Be sure to right click and "run as administrator".

First, run the command "/bin/syslog-ng-config" to create the config file.
Answer "yes" to the question on installing syslog-ng as a service.
We can now edit and customize the syslog-ng config file, located in /etc/syslog-ng.conf.

Replace the config file with these one

syslog-ng.conf

The file can be found at:
http://wiki.unify.com/wiki/OpenStage_SIP_FAQ#Config_File_Syslog_NG_SIP

This syslog server has the following advantages

- **One separate file** for each day and each phone which include the date
  - very good overview for the administrator
- Working fine under **heavy traffic**
  - we test it with 15 phones, each phone send 1 gigabyte(stress test) per day and the syslog server working fine..No message loss. (eg. the 3cDeamon syslog has round about 5-10 % message loss in some situations)
- **resource-efficient**
  - we install it on a normal „workstation" and the pc load was less than 5 %

- Traces are captured in the **internal phone trace format** !
  - GVS can use tools to analyze the traces. This will significantly speed up the investigation time
- **It´s free**

3.8 example for trace settings

- best default trace configuration
  - ***SIP Messages***
  - ***SIP signaling***
  - ***Communications***
  - ***SIP call control***
  - ***Call View***
  - ***CSTA Service***

- call proceeding singleline (call drops, failed transfer, group pickup, missing incoming call popup, CSTA application)
  - ***SIP Messages***
  - ***SIP signaling***
  - ***SIP call control***
  - ***Communications***
  - ***CSTA service***
  - ***Call view***

- call proceeding multiline (call drops, failed transfer, group pickup, missing incoming call popup, CSTA application)
  - ***SIP Messages***
  - ***SIP signaling***
  - ***SIP call control***
  - ***Communications***
  - ***CSTA service***
  - ***Call view***
  - ***Team Service***

- Mobility (problems during login/logoff)
  - ***SIP Messages***
  - ***SIP signaling***
  - ***SIP call control***
  - ***Mobility service***
  - ***Administration***
  - ***DLS Client management***

- DLS related issues (configuration change not possible, job expire)
  - ***DLS Client management***
  - ***Administration***

- Audio related issues (missing ringtone, internal tone)
  - ***Digit Analysis service***
  - ***Media control service***
  - ***Media Processing service.***
  - ***SIP signaling***
  - ***SIP Messages***
  - ***Tone generation***
  - ***Call view***

  - ***Wireshark (for speech path related issues)***

- Phonebook (name/number match)
  - ***SIP Messages***
  - ***SIP signaling***
  - ***SIP call control***
  - ***CSTA service***
  - ***Digit Analysis service***
  - ***Directory service***
  - ***Phonebook***

- Call log (wrong/missing call log entry´s)
  - ***SIP Messages***
  - ***SIP signaling***
  - ***SIP call control***
  - ***CSTA service***
  - ***Call log***
  - ***Communications***
  - ***Journal service***

- 802.1x issues
  - **Wireshark**
  - **802.1x service**
  - **Transport service**

Handout

General:

- Explain the failure as detailed as possible
- Trace Lvl is always **DEBUG**
- **Don´t use the Easy Trace profiles!**
- Download the traces via DDC Tool **(strongly recommitted)**
- Softrestart can be performed via 1/4/7
- All temporary traces will be lost in case of power on/off
- Install syslog-ng as **remote syslog server**

Trace:

- Following traces should be always activated
    - ***SIP Messages***
    - ***SIP signaling***
    - ***SIP call control***
    - ***Call View***
    - ***Communications***
    - ***CSTA service***
- Following traces should never activated by default
    - **Service Framework**
    - **Service Registry**
    - **OpenStage client management**
- Trace file size

OS 15/20	: 500.000 bytes
OS 40/IP 35	: 3000.000 bytes
OS 60/80/IP55	: 3000.000 bytes

- The following trace files should be downloaded in every failure case (if available):
    - **Trace file**
    - **Old Trace file**
    - **Saved Trace file**
    - **Exception file**
    - **Syslog file**
    - **Old syslog file**
    - **Saved syslog file**
    - **Database file**
- Further information’s : http://wiki.unify.com/wiki/OpenStage_SIP_FAQ