
# Unify OpenScape Contact Center Agile/Enterprise V11

## Troubleshooting Guide

Service Documentation

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Mitel

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# History of Changes

| Issue | Date | Summary |
|---|---|---|
| 1 | 05/2022 | First issue of the guide |
| 2 | 08/2024 | Added:<br>3.9 Processes crash/Memory leak |

**Document Scope**

**Diagnostic Data**
In order, to trouble shoot a problem in an OpenScape Contact Center system, it is necessary to collect and investigate the available diagnostic data. This document describes which diagnostic data is available of the various components of an OpenScape Contact Center system, as well as which relevant diagnostic data for OpenScape Contact Center is available of the involved 3rd party components. Further, the document describes where in the OpenScape Contact Center system the diagnostic data can be found.

**Trouble Shooting**
Once it is known in which (suspected) component(s) of the OpenScape Contact Center system the problem is located and once it is known which diagnostic data is available for such component along with its location, the corresponding diagnostic data can be collected for investigation. To facilitate the decision about which diagnostic data is to be collected, this document lists problematic scenarios in an OpenScape Contact Center system along with the associated diagnostic data to be collected.

**How-To-Solve**
Finally, this document describes How-To instructions, in order to solve some specific problematic scenarios.

**Abbreviations**

In this document the following common abbreviations will be used.

| | |
|---|---|
| OSCC | OpenScape Contact Center |
| OSCMS | OpenScape Contact Media Service |
| OSV | OpenScape Voice |
| OS4000 | OpenScape 4000 |
| OSBiz | OpenScape Business |

# 1 Troubleshooting Scenarios

This section lists common scenarios and shows for each scenario which diagnostics need to be collected for investigation by GVS/DEV in the problematic case.

## 1.1 OSCC Media

Depending on the medium of the problematic scenario the necessary diagnostics are different. The various media are **Voice, Callback, Email, Web Collaboration** and **Open Media.**

### 1.1.1 Voice

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Server<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Call Director<br>• OSCC Servers » Telephony<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web |
| 2.5.2 | OSCC Client Manager<br>• OSCC Error Log |
| 2.5.4 | OSCC Client Manager<br>• OSCC User Activity Report |
| 2.5.7 | OSCC Client<br>• OSCC Agent Portal Web Front-End |
| 2.6.1 | OSCMS Server<br>• OSCMS Applications » Announcement Ports Call Director<br>• OSCMS Applications » Basic IVR Call Director |
| 2.6.3 | OSCMS Server<br>• OSCMS Media Server |
| 3.4 optional | Communication Platform<br>• OSV, or<br>• OS4000, or<br>• OSBiz |

## 1.1.2 Callback

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Server<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Callback<br>• OSCC Servers » Telephony<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web |
| 2.5.2 | OSCC Client Manager<br>• OSCC Error Log |
| 2.5.4 | OSCC Client Manager<br>• OSCC User Activity Report |
| 2.5.7 | OSCC Client<br>• OSCC Agent Portal Web Front-End |
| 3.4<br>optional | Communication Platform<br>• OSV, or<br>• OS4000, or<br>• OSBiz |

## 1.1.3 Email

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Server<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Email<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing |
| 2.1.7 | OSCC Main Server<br>• Informix Tools » Database Table Unload » Table “emmessages” |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web |

| | |
|---|---|
| 2.5.2 | OSCC Client Manager<br>• OSCC Error Log |
| 2.5.4 | OSCC Client Manager<br>• OSCC User Activity Report |
| 2.5.7 | OSCC Client<br>• OSCC Agent Portal Web Front-End |
| 3.5 | Corporate Email Server |
| optional | Network Traffic between OSCC Email Server and Corporate Email Server |

## 1.1.4 Web Collaboration

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Server<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing<br>• OSCC Servers » Web Interaction |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web |
| 2.5.2 | OSCC Client Manager<br>• OSCC Error Log |
| 2.5.4 | OSCC Client Manager<br>• OSCC User Activity Report |
| 2.5.7 | OSCC Client<br>• OSCC Agent Portal Web Front-End |
| 3.6 | Corporate Web Server |
| optional | Network Traffic between OSCC Web Interaction Server and Corporate Web Server |

### 1.1.5 Open Media Facebook, Twitter & WhatsApp

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Sever<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Open Media<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web<br>• OSCC Applications » Open Media REST API |
| 2.3 | OSCC Open Media Connector Server<br>• Facebook, or<br>• Twitter, or<br>• WhatsApp |
| 2.5.2 | OSCC Client Manager<br>• OSCC Error Log |
| 2.5.4 | OSCC Client Manager<br>• OSCC User Activity Report |
| 2.5.7 | OSCC Client<br>• OSCC Agent Portal Web Front-End |

## 1.2 OSCC REST API Applications

### 1.2.1 Open Media REST API

The customer has integrated **Facebook, Twitter, WhatsApp**, or an own **Medium** application for exchanging text-based messages between the caller and the Agent Portal Web user. The application is installed on the **OSCC open media connector server** and communicates through the **OSCC application server** and **the OSCC open media REST API** with the **OSCC open media server** on the OSCC main server.

| Documentation OpenScape Contact Center Enterprise |
|---|
| Open Media Framework – Programming Guide |

For the diagnostics, see section **Open Media *Facebook, Twitter & WhatsApp*.**

## 1.2.2 Web Interaction REST API

The customer has integrated an application based on the **webinteractionsdkexample,** or an own Web application for exchanging chat messages between the caller and the Agent Portal Web user. The application is installed on the corporate web server and communicates through the OSCC application server and the OSCC web interaction REST API with the OSCC web interaction server.

| **Documentation OpenScape Contact Center Enterprise** |
|---|
| Web Interaction REST API – Programming Guide |

For the diagnostics, see section **OSCC Media > Web Collaboration**. In addition, collect the following diagnostics, as the OSCC application server is involved as well.

| **Section** | **Diagnostic** |
|---|---|
| 1.2.1 | OSCC Application Server<br>• OSCC Applications » Web Interaction REST API |
| **Documentation *OpenScape Contact Center Enterprise*** | |
| Web Interaction REST API – Programming Guide | |

For the diagnostics, see section OSCC Media > Web Collaboration. In addition, collect the following diagnostics, as the OSCC application server is involved as well.

| **Section** | **Diagnostic** |
|---|---|
| 1.2.1 | OSCC Application Server<br>• OSCC Applications » Web Interaction REST API |

## 1.2.3 OSCC Client REST API

The customer has integrated a Client application for users handling contacts in OSCC. The users use this client instead of the standard OSCC Agent Portal Web application. This custom application has been developed by a 3rd party developer. The application can send commands to OSCC and can receive events from OSCC. The application is installed in the customer environment, where applicable, and communicates through the OSCC application server and the OSCC Client REST API with the various OSCC servers on the OSCC main server.

| **Documentation OpenScape Contact Center Enterprise** |
|---|
| REST SDK Framework – Programming Guide |

For the diagnostics, depending on the involved **media** of the problematic scenario, see section **OSCC Media**, and in addition the following diagnostics.

| **Section** | **Diagnostic** |
|---|---|

| | |
|---|---|
| 1.2.1 | OSCC Application Server<br>• OSCC Applications » OSCC Client REST API |

**NOTE**: An OSCC Client REST API test tool is available and can be obtained from GVS OSCC. The test tool has implemented various functionalities, with which commands sent by the test tool and events returned by the OSCC system can be tested in the customer environment.

This feature is not available for OpenScape 4000.

# 1.3 OSCMS Applications

## 1.3.1 WebRTC Integrated Phone & WebRTC Video/Screen Share

With **WebRTC Integrated Phone** the user can handle voice contacts through the Agent Portal Web application without the need of a physical phone.

With **WebRTC Video/Screen Share** the user can handle voice contacts through the Agent Portal Web application, while sharing the camera or the screen with another **internal** Agent Portal Web user or with an **external** caller, which latter uses the **Click-to-Contact** functionality. The Click-to Contact component is then embedded in the customer's web application on the corporate web server.

| **Documentation OpenScape Contact Center Enterprise** |
|---|
| WebRTC – Description Guide |
| OpenScape Contact Media Service – Installation Guide |

| **Section** | **Diagnostic** |
|---|---|
| 2.1.3 | OSCC Main Server<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Call Director<br>• OSCC Servers » Telephony<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web |
| 2.5.2 | OSCC Client Manager<br>• OSCC Error Log |
| 2.5.4 | OSCC Client Manager<br>• OSCC User Activity Report |

| | |
|---|---|
| 2.5.7 | OSCC Client<br>• OSCC Agent Portal Web Front-End |
| 2.6.1 | OSCMS Server<br>• OSCMS Applications » Announcement Ports Call Director<br>• OSCMS Applications » Basic IVR Call Director<br>• OSCMS Applications » WebRTC Integrated Phone<br>• OSCMS Applications » WebRTC Video/Screen Share |
| 2.6.3 | OSCMS Server<br>• OSCMS Media Server |
| 3.3.2 | Linux Server<br>• Linux Network Traffic |
| - | Topology of involved resources |

In case the **Click-to-Contact** functionality is part of the scenario, then additional diagnostics are necessary.

| | |
|---|---|
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Web Interaction |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Web Interaction REST API |
| 3.6 | Corporate Web Server |
| optional | Network Traffic between OSCC Application Server and Corporate Web Server |

## 1.3.2 REST SDK

The REST SDK on the OSCMS Server is used by Call Recorder, Outbound Dialer and Customer Satisfaction. See, the following sections.

## 1.3.3 Call Recorder

The voice conversations of the Agent Portal Web user can be recorded if his extension is configured for this purpose. All voice conversations of the user are recorded automatically. In the Agent Portal Web application, the user can manually stop and start recordings on demand. In the Web Supervisor application, the user can search for recordings and download or listen to them.

| **Documentation *OpenScape Contact Center Enterprise*** |
|---|
| OpenScape Contact Media Service – Installation Guide |

| **Section** | **Diagnostic** |
|---|---|
| 2.1.3 | OSCC Main Server<br>• OSCC Design Database |

| | |
|---|---|
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Telephony |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web<br>• OSCC Applications » Web Supervisor |
| 2.5.7 | OSCC Client<br>• OSCC Agent Portal Web Front-End |
| 2.6.1 | OSCMS Server<br>• OSCMS Applications » Call Recorder<br>• OSCMS Applications » REST SDK |
| 3.4<br>optional | Communication Platform<br>• OSV, or<br>• OS4000 |

## 1.3.4 Outbound Dialer

Automatic outbound calls can be generated on configured extensions and upon successful connection with the called party (customer), the customer will be connected with either the **Agent Portal Web** user to start the conversation or will be connected with the **OSCMS Voice Portal** for further call handling.

| **Documentation *OpenScape Contact Center Enterprise*** |
|---|
| OpenScape Contact Media Service – Installation Guide |

| **Section** | **Diagnostic** |
|---|---|
| 2.1.3 | OSCC Main Server<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Telephony<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web |
| 2.5.2 | OSCC Client *Manager*<br>• OSCC Error Log |
| 2.5.4 | OSCC Client *Manager*<br>• OSCC User Activity Report |

| | |
|---|---|
| 2.5.7 | OSCC Client<br>• OSCC Agent Portal Web *Front-End* |
| 2.6.1 | OSCMS Server<br>• OSCMS Applications » Outbound Dialer<br>• OSCMS Applications » REST SDK |
| 2.6.2 | OSCMS Server<br>• OSCMS Voice Portal *Nuance (if part of the scenario)* |
| 2.6.3 | OSCMS Server<br>• OSCMS Media Server |

## 1.3.5 Customer Satisfaction CSAT

After the voice conversation between the caller and the Agent Portal Web user has finished, the caller can be transferred to a **Customer Satisfaction** survey in which the caller is prompted to answer one or more questions in an automatic process.

| **Documentation *OpenScape Contact Center Enterprise*** |
|---|
| OpenScape Customer Satisfaction Survey – User Guide |

Depending on the operation mode of the customer satisfaction survey, more or less components are involved in the scenario, which defines the diagnostics to be collected in the problematic case. Customer satisfaction survey can be operated:

- Without OSCC Call Director, OSCMS Voice Portal and Third Party IVR integration.
- With OSCC Call Director integration.
- With OSCMS Voice Portal or 3rd Party IVR integration.

| **Section** | **Diagnostic *depending on operation mode*** |
|---|---|
| 2.1.3 | OSCC Main Sever<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Call Director<br>• OSCC Servers » Telephony<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web |
| 2.6.1 | OSCMS Server<br>• OSCMS Applications » Announcement Ports *Call Director*<br>• OSCMS Applications » Basic IVR *Call Director*<br>• OSCMS Applications » Customer Satisfaction<br>• OSCMS Applications » REST SDK |
| 2.6.2 | OSCMS Server |

| | |
|---|---|
| | • OSCMS Voice Portal *Nuance* |
| 2.6.3 | OSCMS Server<br>• OSCMS Media Server |

## 1.4 Virtual Agent Chat Bot & Speech Bot

The **Virtual Agent** can handle contacts of a caller on **text** or **voice** basis without the involvement of a human contact center user. In the former case the virtual agent is called **Chat Bot** and in the latter case the virtual agent is called **Speech Bot**. For the chat bot the OSCC application server is involved. For the speech bot the OSCC application server as well as the OSCMS server is involved.

The text contact is handled by the **Chat Bot** while automatically exchanging text messages with the caller with Google **Dialogflow**, which is a Natural Language Understanding (NLU) platform. The chat bot can be combined with the **OSCC Open Media Connector** for **Facebook, Twitter, or WhatsApp.**

The voice contact is handled by the **Speech Bot** while automatically exchanging voice messages with the caller with a Speech Recognizer (ASR) and a Text Vocalizer (TTS). This requires the involvement of OSCMS Voice Portal.

| **Documentation *OpenScape Contact Center Enterprise*** |
|---|
| Virtual Agent REST API Framework – Programming Guide |
| Virtual Agent Connector – Deployment Guide |
| Web Manager – Administration Guide |
| OpenScape Contact Media Service – Installation Guide *Speech Bot only* |

**Chat Bot**

| **Section** | **Diagnostic** |
|---|---|
| 2.1.3 | OSCC Main Sever<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Virtual Agent |
| 2.3 | OSCC Open Media Connector Server<br>• Facebook, or<br>• Twitter, or<br>• WhatsApp |

| | |
|---|---|
| 2.4 | OSCC Virtual Agent Connector Server<br>• Virtual Agent |

**Speech Bot**

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Sever<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Call Director<br>• OSCC Servers » Telephony<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Virtual Agent |
| 2.4 | OSCC Virtual Agent Connector Server<br>• Virtual Agent |
| 2.6.1 | OSCMS Server<br>• OSCMS Applications » Virtual Agent Speech Bot |
| 2.6.2 | OSCMS Server<br>• OSCMS Voice Portal Nuance |
| 2.6.3 | OSCMS Server<br>• OSCSCM Media Server |

# 1.5 OSCC Reporting

Reporting is the presentation of **statistical data**, which is stored in the OSCC database, to a view in the OSCC Manager application, or to a **file** in a certain format. The **OSCC statistics server** manages the statistical data in the database. The **OSCC real time** server brings the statistical data from the OSCC server to the OSCC Manager application to display in a view. The **OSCC reporting server** generates out of the statistical data, the report for presentation in a view or a file. The content of the view or file depends on which statistical data was requested to be reported.

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Sever<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Telephony\|Callback\|Email\|Web Interaction\|Open Media<br>• OSCC Servers » Presence<br>• OSCC Servers » Real Time |

| | |
|---|---|
| | • OSCC Servers » Reporting<br>• OSCC Servers » Statistics |
| 2.1.6 | OSCC Main Server<br>• Informix Logs |
| 2.1.7 | OSCC Main Server<br>• Informix Tools » Database Check<br>• Informix Tools » Database Spaces and Chunks<br>• Informix Tools » Database Schema<br>• Informix Tools » Database Table Unload |
| 2.4.2 | OSCC Client Manager<br>• OSCC Error Log |
| 2.4.5 | OSCC Client<br>• OSCC Manager |

## 1.6 Chat-between-Agents

Two Agent Portal Web users can exchange **chat messages** between each other.

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Sever<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Administration |
| 2.1.5 | OSCC Main Server<br>• OSCC Openfire |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web |
| 2.5.2 | OSCC Client Manager<br>• OSCC Error Log |
| 2.5.4 | OSCC Client Manager<br>• OSCC User Activity Report |
| 2.5.7 | OSCC Client<br>• OSCC Agent Portal Web Front-End |

## 1.7 Directory LDAP

The Agent Portal Web user can extract **manually** information from a **Directory** about the party to be called. The Agent Portal Web user can get **automatically** displayed information from a directory about the caller, which was routed to him.

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Sever<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Telephony<br>• OSCC Servers » Presence<br>• OSCC Servers » Routing |
| 2.2.1 | OSCC Application Server<br>• OSCC Applications » Agent Portal Web |
| 2.4.7 | OSCC Client<br>• OSCC Agent Portal Web Front-End |
| optional | Network Traffic between OSCC Application Server and Corporate LDAP Server |

## 1.8 Replication

In a **High Availability** system, there are two OSCC main servers (Node 1 and Node 2) and an optional OSCC central reporting server (CRS). Data is automatically **replicated** between the servers on the level of **Informix**.

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Sever<br>• OSCC Design Database |
| 2.1.6 | OSCC Main Sever<br>• Informix Logs |
| 2.1.7 | OSCC Main Server<br>• Informix Tools » Replication States |
| 2.1.8 | OSCC Main Server<br>• Replication Tool |
| 3.1.6 | Windows Server<br>• Windows Cluster Log |

| | |
|---|---|
| 3.1.7 | Windows Server<br>• Windows Cluster Event Log |
| 3.1.8 | Windows Server<br>• Windows Cluster Validation Report |

Additionally, the following diagnostic data can be helpful.

### Replication States

In the Windows command prompt cmd under the informix user on both OSCC main servers and on the OSCC central reporting server, execute the cdr list server command. It displays a list of the replication servers along with the replication states, that are visible to the server on which the command is run.

| Command |
|---|
| cdr list server > C:\Temp\cdr-<node1\|node2\|crs>.txt |

```
SERVER          ID   STATE    STATUS      QUEUE       CONNECTION CHANGED
g_itqacd1        2   Active   Dropped     257442331   Aug 08 16:02:57
g_itqacd2        3   Active   Local       0
g_itqacdreporting 1  Active   Connected   1425        Jul 23 19:30:06
```

The status should be connected, and buffered data in the queue should be low. The queue will grow if data cannot be replicated to the other side. In order to start replication on a dropped connection, the command cdr start can be attempted. If the queue is very big, it can be advisable to start replication along with emptying the queue, which is done with the command cdr cleanstart. In that case the data, not yet being replicated, is lost from the buffer and must be replicated manually later on.

| Command |
|---|
| cdr start |
| cdr cleanstart |

If replication still will not work, consider removing the replication completely and configure the replication from scratch, according the OSCC installation guide.

### Ping & Nslookup

In the Windows command prompt cmd on both OSCC main servers and on the OSCC central reporting server, execute the ping and nslookup commands. The servers must be reachable, the results must be consistent, and no issues must occur. In case of inconsistent results, contact your network administrator.

| Command |
|---|
| ping -4 <node1_MachineName><br>ping -4 <node2_MachineName> |

```
ping -4 <crs_MachineName>

ping -4 <node1_IP_Address>
ping -4 <node2_IP_Address>
ping -4 <crs_IP_Address>

ping -4 <node1_FQDN>
ping -4 <node2_FQDN>
ping -4 <crs_FQDN>
```

| Command |
| --- |
| nslookup <node1_MachineName><br>nslookup <node2_MachineName><br>nslookup <crs_MachineName><br><br>nslookup <node1_IP_Address><br>nslookup <node2_IP_Address><br>nslookup <crs_IP_Address><br><br>nslookup <node1_FQDN><br>nslookup <node2_FQDN><br>nslookup <crs_FQDN> |

**Anti-Virus**

Check, that an **anti-virus** application does not access and block (temporarily) any OSCC folder.

**NetSetup and ShareData folders**

Check, that each of the servers can access the **NetSetup** and **ShareData** folders of each of the other servers.

**Database spaces and database chunks**

Check, that no **database space** is (almost) full. Eventually a new database chunk must be added manually. For details, see section 4.3.

**IPv6**

Check, that **IPv6** is disabled for Informix by the Windows environment variable **IFX_DISABLE_IPV6**, which must have value 1. If nothing is returned by the **set** command, then configure that variable in Windows accordingly.

| Command |
| --- |
| set \| findstr IFX |

### Multiple Network Cards

If the server has multiple network cards, then in the **SQLHOSTS** key of the Windows **Registry** there must be **no** asterisk (*) in front of the server names.

| Registry Key |
| --- |
| HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Informix\SQLHOSTS |

Note on the contrary, that in the Windows **SQLHosts file**, there must be **an asterisk** in front of the server names if the server has multiple network cards. This character is then automatically set when the replication is configured with the **trcdbins** tool.

### Informix log

The Informix log can grow excessively. In case the file is very big, consider cleaning the log after its backup. See section 2.1.6.

# 1.9 External IVR

The external IVR machine can be integrated in OSCC by either using the **OSCC IVR API** or by using the **OSCC VoiceXML API**.

**OSCC IVR API**

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Sever<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Telephony<br>• OSCC Servers » Routing |
| 3.4<br>optional | Communication Platform<br>• OSV, or<br>• OS4000, or<br>• OSBiz |
| 3.7.1 | External IVR Machine<br>• External IVR and OSCC IVR API |

**OSCC VoiceXML API**

This is a web-based solution with the involvement of a **corporate web server** to gather information by **VoiceXML subdialogs**. The IVR interacts with the OSCC server through the corporate web server. The OSCC web interaction server acts as entry point for the requests.

| Section | Diagnostic |
|---|---|
| 2.1.3 | OSCC Main Server<br>• OSCC Design Database |
| 2.1.4 | OSCC Main Server<br>• OSCC Servers » Telephony<br>• OSCC Servers » Routing<br>• OSCC Servers » Web Interaction |
| 3.4<br>optional | Communication Platform<br>• OSV, or<br>• OS4000 |
| 3.6 | Corporate Web Server |
| 3.7.2 | External IVR Machine<br>• External IVR and OSCC Voice XML API |

# 2 OSCC Diagnostic Data

## 2.1 OSCC Main Server

### 2.1.1 OSCC Server Startup

The OSCC server is started-up by the initialization of the **OSCC watchdog server** and the **OSCC administration server**. The diagnostics of the initializations of these components are written before the usual diagnostics of these servers are written, see section **OSCC Servers**.

| Server | Diagnostic |
|---|---|
| Watchdog | twdsrvr.00x |
| Administration | tsmsrvr.00x |

| Location |
|---|
| C:\Program Files (x86)\OpenScape\Contact Center |

### 2.1.2 OSCC Installation

During the OSCC server installation with a Microsoft Installer **msi** file, the OSCC software, the Informix software and the Informix database are being installed resp. created.

| Diagnostic |
|---|
| OpenScape Contact Center <release version> Server - HppcInstall.log |
| OpenScape Contact Center <release version> Server - HppcInstall2.log |

| Location |
|---|
| C:\Program Files (x86)\OpenScape\Contact Center\Tmp |

Once the OSCC software and the Informix software have been installed, subsequently the Informix database will be created by the OSCC tool **tindbins** with all necessary OSCC tables and columns. The previous logs will refer to the diagnostic file of this component.

| Diagnostic |
|---|
| tindbins.00x |

| Location |
|---|

| |
|---|
| C:\Program Files (x86)\OpenScape\Contact Center\ShareData\DIAGS |

**OSCC Patch Installation**

An existing OSCC system can be upgraded by installing a **patch** with a Microsoft Installer **msp** file. The diagnostics for a patch installation are written in the log files mentioned above. Alternatively, another installation log can be obtained, which contains more details than the mentioned installation log files. The patch is then installed via the Windows command prompt **cmd** under the **Administrator** user.

| **Command** |
|---|
| runas /user:Administrator cmd |
| msiexec /qb /p "<patch-name>.msp" /L*v C:\Temp\OSCCPatch.log |

**OSCC Database Export/Import**

Part of the OSCC server installation or upgrade process is optionally a manual export and subsequent import of the OSCC database by the corresponding utilities **osccexport.cmd** and **osccimport.cmd**.

The **export utility** will generate a **log** file and an **ini** file for the subsequent import, as well as the database export **unl** files for the subsequent import.

| **Command** |
|---|
| osccexport.cmd C:\Temp\export-import |

| **Location** |
|---|
| C:\Temp\export-import\OSCCImport.log |
| C:\Temp\export-import\tindbins.ini |

## 2.1.3 OSCC Design Database

The OSCC design database can be either manually saved from the OSCC production database by the Manager application, see section **OSCC Client machine**, or, if configured, will be automatically stored around **data maintenance time.**

| **Location** |
|---|
| C:\Program Files (x86)\OpenScape\Contact Center\ShareData\AdministrationData |

## 2.1.4 OSCC Servers

On the OSCC main server various servers are running, depending on the licensed and activated feature set. Consequently, not all mentioned servers must write diagnostic data.

| Section | Diagnostic |
|---|---|
| Administration | AdministrationServer_<machinename>.00x |
| Callback | CallbackServer_<machinename>.00x |
| Call Director | CallDirectoServerr_<machinename>.00x |
| Config Sync | ConfigSyncServer_<machinename>.00x |
| Data Management | DataManagementServer_<machinename>.00x |
| Email | EmailServer_<machinename>.00x |
| Open Media | OpenMediaServer_<machinename>.00x |
| Presence | PresenceServer_<machinename>.00x |
| Real Time | RealTimeServer_<machinename>.00x |
| Reporting | ReportingServer_<machinename>.00x |
| Routing | RoutingServer_<machinename>.00x |
| Statistics | StatisticsServer_<machinename>.00x |
| Telephony | TelephonyServer_<machinename>.00x |
| Watchdog | WatchdogServer_<machinename>.00x |
| Web Interaction | WebinteractionServer_<machinename>.00x |

| Location |
|---|
| C:\Program Files (x86)\OpenScape\Contact Center\ShareData\DIAGS |

### Diagnostic Level

The diagnostic level for each of the servers is set in the **OSCC System Monitor** application. For those servers, which are thought to be involved in the problematic scenario, set the diagnostic level to **Debug** and keep the diagnostic level for the other servers on **Default**. On heavy load systems consider the diagnostic level to set at least to **Information**, instead of **Debug**. GVS or DEV may request certain diagnostic levels, which can be set via **Custom**. In reproducible scenarios consider, to reset the diagnostic level back to **Default**, after the scenario has been captured.

If size and transmission time of the diagnostics are not relevant, collect all the diagnostics of the whole directory (independent of time stamp and suspected problematic server). Otherwise, sort the diagnostics by column **Date Modified** and delete all older diagnostics not covering the scenario.
In case the diagnostics needs to be captured for a longer time frame, or will be overwritten too fast, consider, to use a file copy tool.

## 2.1.5 OSCC Openfire

In the Openfire Admin Console, the trace level **Debug** can be enabled in **Server Manager > Logs > Tab Debug**. The other trace levels **Error, Warn** and **Info** are written by default.

| **Diagnostic** |
| --- |
| error.log |
| warn.log |
| info.log |
| debug.log |

| **Location** |
| --- |
| C:\Program Files (x86)\OpenScape\Contact Center\OpenFire\logs |

## 2.1.6 Informix Logs

| **Diagnostic** |
| --- |
| ol_<servername>.log |
| olsrvice.log |

| **Location** |
| --- |
| C:\Program Files (x86)\Informix |

**Note:** The Informix log can grow excessively. In case the file is very big, consider clearing the log after its backup or re-storage. E.g., the last 10000 lines can be re-stored into a new file with the **Powershell** command **Get-Content**.

| **Powershell Command** |
| --- |
| Get-Content -tail 10000 ol_<servername>.log > C:\Temp\informix-<date>.log |

If during the 15-minutes roll-ups, data of the temporary database tables cannot be written to the permanent database tables, then this temporary data is exported by the OSSC system to files. This can happen permanently, e.g., due to a corrupt index of the Informix table, or occasionally, e.g., due to a temporary lock of the Informix table. See section 4.2.

| **Export Files** |
| --- |

| |
|---|
| <tablename>1_<date_time>.exp |
| <tablename>2_<date_time>.exp |

| Location |
|---|
| C:\Program Files (x86)\OpenScape\Contact Center |

## 2.1.7 Informix Tools

There are some useful diagnostic Informix commands and utilities listed below, to be executed in the Windows command prompt **cmd** under the **informix** user. The output can be written to a file in Windows Notepad **txt** format.

| Command |
|---|
| runas /user:informix cmd |

**Database Check**

The **oncheck** utility checks specified disk structures for inconsistencies, repairs inconsistent index structures, and displays information about disk structures. This utility is to be executed outside business hours, as it can automatically make corrections on the database.

| Command |
|---|
| oncheck -cDIx hppcdb > C:\Temp\oncheck.txt |

**Database Spaces and Chunks**

The output of the **onstat** command shows in the upper part the **database spaces** and in the lower part the **database chunks**. Each database space has one or more database chunks. Each database chunk number is associated with a database space number. For each database chunk its location and free space is listed.

| Command |
|---|
| onstat -d > C:\Temp\onstat.txt |

**Database Schema**

The **database schema** contains the SQL statements, which define the structure and properties of the database **hppcdb** with all its tables and columns.

| Command |
|---|
| dbschema -d hppcdb > C:\Temp\dbschema.txt |

**Database Backup**

The **ontape** utility creates a full backup of the OSCC database.

| Documentation *OpenScape Contact Center Enterprise* |
| --- |
| System Management Guide |

| Command |
| --- |
| ontape -s -L0 |

**Database Table Unload**

Use the **unload** statement in the Informix tool **DBAccess** to write the rows retrieved by any **select** statement to a file, e.g., to unload a single table of the **hppcdb** database.

| Command |
| --- |
| unload to 'C:\Temp\<table>.txt' select * from <table>; |

**Replication States**

In a **High Availability** environment with or without CRS, the **cdr list server** command displays a list of the replication servers along with the replication states, that are visible to the server on which the command is run, which is Node 1, Node 2 and eventually CRS.

| Command |
| --- |
| cdr list server > C:\Temp\cdr-<n1\|n2\|crs>.txt |

The **cdr list replicate** command displays information about all the replicates on the server on which the command is run. The output can be filtered for the **Inactive** state, to see whether there is any problematic replicate. The **Inactive** state specifies that no database changes are captured, transmitted, or processed for the corresponding replicate.

| Command |
| --- |
| cdr list replicate \| find “Inactive” |
| cdr list replicate > C:\Temp\cdr-<n1\|n2\|crs>.txt |

## 2.1.8 Replication Tool

In a **High Availability** environment with or without CRS, the replication is established with the OSCC tool **trcdbins**, which is executed on Node 1, Node 2 and eventually CRS.

| Documentation *OpenScape Contact Center Enterprise* |
| --- |
| Installation Guide |

| Tool | Diagnostic |
|---|---|
| trcdbins.exe | trcdbins.00x |

| Location |
|---|
| C:\Program Files (x86)\OpenScape\Contact Center\ShareData\DIAGS |

## 2.2 OSCC Application Server

### 2.2.1 OSCC Applications

On the OSCC application server various applications (services) are running, depending on the licensed and activated feature set. Consequently, not all mentioned applications must write diagnostics. The OSCC applications are configured in the **OSCC Application Server Configuration Center**. Those configurations are written into **xml** files.

| Application | Diagnostic | Configuration |
|---|---|---|
| Configuration Center | configcenter*.log | - |
| Agent Portal Web | webagent*.log | webagent.xml |
| Agent Portal Lite | agentportallite.log | agentportallite.xml |
| Web Manager | webmanager*.log | webmanager.xml |
| Mobile Supervisor | osccwebservice*.log | osccwebservice.xml |
| Web Supervisor | osccwebservice*.log | osccwebservice.xml |
| Virtual Agent<br>Chat Bot & Speech Bot | virtualagentservice*.log | virtualagent.xml |
| Open Media REST API | openmediaws*.log | openmediaws.xml |
| Web Interaction REST API | webinteractionsdk*.log | webinteractionsdk.xml |
| OSCC Client REST API | restsdk*.log | restsdkws.xml |

| Location |
|---|
| C:\Program Files (x86)\OpenScape\Contact Center\ApplicationServer\ ApacheWebServer\logs |
| C:\Program Files (x86)\OpenScape\Contact Center\ApplicationServer\ ApacheWebServer\conf |

**Diagnostic Level**

The diagnostic level for each of the applications is set in the **OSCC Application Server Configuration Center**. For those applications, which are thought to be involved in the problematic scenario, set the diagnostic level to **DEBUG,** and keep the diagnostic level for the other applications on **WARN**. On heavy load systems consider, the diagnostic level to set at least to **INFO**, instead of **DEBUG**. GVS or DEV may request certain diagnostic levels. In reproducible scenarios consider, to reset the diagnostic level back to **WARN**, after the scenario has been captured.

If size and transmission time of the diagnostics are not relevant, collect all the diagnostics of the whole directory (independent of time stamp and suspected problematic application). Otherwise, sort the diagnostics by column **Date Modified** and delete all older diagnostics not covering the scenario.

In case the diagnostics needs to be captured for a longer time frame, or will be overwritten too fast, consider, to use a file copy tool. At least for the **Agent Portal Web** application the number of diagnostic files and their size can be configured in the OSCC Application Server Configuration Center.

**NOTE:** For the **Agent Portal Web** application there is not only a server-side trace on the OSCC application server (Back-End), but also a client-side trace on the OSCC client machine (Front-End). See section **OSCC Client machine.**

## 2.2.2 Apache Tomcat Webserver

On the **Apache Tomcat** webserver, besides the OSCC applications, some system applications are running, and their diagnostic data is written into **log** files.

| Function | Diagnostic |
|---|---|
| Webserver startup & shutdown<br>Deployment of applications<br>Failure of subsystems | catalina<date>.log |
| Application activity<br>HTTP requests between application and server | localhost<date>.log<br>localhost_access_log<date>.txt |
| Apache Tomcat Manager applications<br>manager.war, host-manager.war | manager<date>.log<br>host-manager<date>.log |
| - | tomcat8-stdout<date>.log<br>tomcat8-stderr<date>.log |
| - | commons-daemon<date>.log |

| Location |
|---|
| C:\Program Files (x86)\OpenScape\Contact Center\ApplicationServer\ ApacheWebServer\logs |

## 2.3 OSCC Open Media Connector Server

The OSCC open media connectors for **Facebook**, **Twitter** and **WhatsApp** are installed on a separate OSCC open media connector server in the DMZ, beyond the local firewall.

All OSCC open media connectors use an **OpenSearch *Elasticsearch*** database, which is applied on the OSCC open media connector server during installation of the connector.

| Database | Diagnostic |
|---|---|
| OpenSearch *Elasticsearch* | elasticsearch.log |

| Location |
|---|
| C:\Program Files\OpenScape\Contact Center\Elasticsearch\logs |

### 2.3.1 Facebook

| Connector | Diagnostic |
|---|---|
| Facebook | filelog-info*.log<br>filelog-error*.log |

| Location |
|---|
| C:\Program Files\OpenScape\Contact Center\OpenMedia\social-media-hub-api\log |

**Diagnostic Level**

The diagnostic level is set to ERROR and INFO by default and cannot be changed.

### 2.3.2 Twitter

| Connector | Diagnostic |
|---|---|
| Twitter | twitter_connector-<date>-*.log |

| Location |
| --- |
| C:\Program Files\OpenScape\Contact Center\OpenMedia\twitter-connector |

**Diagnostic Level**

The diagnostic level is set to ERROR, WARN, INFO and DEBUG by default and cannot be changed.

## 2.3.3 WhatsApp

| Connector | Diagnostic |
| --- | --- |
| WhatsApp | WhatsAppConnector.log.* |

| Location |
| --- |
| C:\Program Files\OpenScape\Contact Center\OpenMedia\whatsapp-connector\logs |

**Diagnostic Level**

The diagnostic level can be changed on the **WhatsApp Connector Configuration** page on the tab **Common Settings**. The possible log levels are ERROR, WARN, INFO and DEBUG.

| Documentation *OpenScape Contact Center Enterprise* |
| --- |
| Open Media Connectors Deployment Guide |

## 2.4 OSCC Virtual Agent Connector Server

The OSCC virtual agent connector for **Chat Bot** and **Speech Bot** is installed on a separate OSCC virtual agent connector server in the DMZ, beyond the local firewall.

| Connector | Diagnostic |
|---|---|
| Virtual Agent | VirtualAgentConnector-<date>-*.log |

| Location |
|---|
| C:\Program Files\OpenScape\Contact Center\Virtual Agent Connector\logs |

**Diagnostic Level**

The diagnostic level can be changed on the **Virtual Agent Connector Configuration** page on the tab **System**. The possible log levels are FATAL, ERROR, WARN, INFO, DEBUG and TRACE.

| Documentation *OpenScape Contact Center Enterprise* |
|---|
| Virtual Agent Connector Deployment Guide |

## 2.5 OSCC Client

### 2.5.1 OSCC Design Database

The **OSCC design database** can be manually saved in Microsoft Access **mdb** format by the Manager application from the OSCC production database. The OSCC design database can be opened in the Manager application and in Microsoft Access as well. The default password is **newton.**

| Menu |
|---|
| File > Save Database As… |

### 2.5.2 OSCC Error Log

The **OSCC error log** contains all error messages of the **OSCC servers** mentioned in section OSCC Servers. The log can be obtained by the Manager application in the business unit **SYSTEM.** Save the error log in Microsoft Excel **xls** format. Alternatively, the error log can be obtained by an unload of the database table **errorrecord** from the database **hppcdb** with the Informix tool **DBAccess.** In this latter case, time stamps are in UTC.

| Menu |
|---|
| View > Logs > Error Log Report |

## 2.5.3 OSCC Change Log

The **OSCC change log** contains all configuration changes done by users with the Manager application. The log can be obtained by the Manager application in the business unit **SYSTEM.** Save the change log in Microsoft Excel **xls** format. Alternatively, the error log can be obtained by an unload of the database table **changelog** from the database **hppcdb** with the Informix tool **DBAccess.** In this latter case, time stamps are in UTC.

| Menu |
| --- |
| View > Logs > Change Log Report |

## 2.5.4 OSCC User Activity & Source Activity Report

In order, to better understand the sequence of actions of a user or source related to a problematic scenario, the **User Activity Report** resp. the **Source Activity Report** is useful. The activity reports can be obtained by the Manager application in the corresponding business unit. Save the activity report in Microsoft Excel **xls** format.

| Menu |
| --- |
| View > Activity Reports > User… |
| View > Activity Reports > Source… |

## 2.5.5 OSCC Manager

The diagnostics of the **OSCC Manager** application must be turned on via menu **Tools > Options > User Settings > Advanced > General > Diagnostics** and set to full level via the button **Details…**

| Application | Diagnostic |
| --- | --- |
| Manager | Manager_<machinename>.00x |

| Location |
| --- |
| C:\Users\<user>\AppData\Local\Unify\OpenScape Contact Center\Manager\Working |

Alternatively, a more extensive Manager diagnostic trace can be obtained by starting the Manager application from the Windows command prompt cmd.

| Application | Diagnostic |
| --- | --- |
| Manager | OSCC8MR.log |

| Command |
| --- |
| tmcmain -d -st3111 -se2020 -L4 |

| Location |
| --- |
| C:\Users\<user>\AppData\Local\Unify\OpenScape Contact Center\Manager\Working |

**NOTE:** The directory **AppData** is eventually hidden in Windows Explorer and can be made visible through the Windows Explorer menu **View > Hidden Items**.

## OSCC System Monitor

The diagnostics of the **OSCC System Monitor** application must be turned on via menu **Tools > Options > Diagnostics** and set to full level via the list box Custom and the button **Configure…**

| Application | Diagnostic |
| --- | --- |
| System Monitor | SystemMonitor_<machinename>.00x |

| Location |
| --- |
| C:\Users\<user>\AppData\Local\Unify\OpenScape Contact Center |

## OSCC Agent Portal Web Front-End

The **Agent Portal Web** diagnostic files on the **client-side** or **front-end** can be obtained from the machine, where the Agent Portal Web application runs in the browser. It is about diagnostics of the application itself and diagnostics of the browser.

### Application Diagnostics

Traces from Agent Portal Web itself can be obtained by pressing simultaneously **<CTRL>** and **<SHIFT>** and clicking in the top bar of the Agent Portal Web application, next to the setting of the **Device Preference**. The button **Diagnosis** will appear in the top bar. When clicking on that button a window will open and it will be possible to make some settings.

- Maximum size of the log.
- Maximum amount of log history files.
- Checkboxes to enable file logging and to enable console output.
- Diagnosis levels Verbose, Debug, Info, Warnings and Error.

Select all diagnostic levels and save the trace settings by clicking **Apply Changes**. The trace settings will be kept for subsequent Agent Portal Web sessions as well. For saving the traces after a

problematic scenario has been captured, click on **Save current state log**. The traces will be generated and downloaded into the browser and into the Windows **Download** folder.

| Application | Diagnostic |
|---|---|
| Agent Portal Web *Front-End* | AgentPortal_Client-<date>_<time>.log |

**NOTE:** During an Agent Portal Web session, the diagnostics of the application are kept in memory of the client machine and are not available at some location in the Windows file system. Only at the point of time of the download, the diagnostics are available. As well, the diagnostics of a current Agent Portal Web session are cleared from the memory once the Agent Portal Web application is closed.

In reproducible scenarios consider, to reset the diagnostic level back to **Warnings**, after the scenario has been captured.

**Browser Diagnostics**

Press **<F12>** to open, e.g., in Chrome, the **Developer Tools** to save **Console** and **Network** messages, which were logged while a scenario was executed. Before a scenario will be captured, clear the existing console and network messages by clicking on the **Clear** button in the upper left of the Developer Tools pane. Also make sure, that the console messages have a time stamp. For this, press **<F1>** or go to **Settings** in the upper right of the Developer Tools pane and then go to **Preferences > Console > Show timestamps**. Finally make sure, that the console messages of all levels are captured. For this, go to the upper right of the Developer Tools pane and then select under **All levels** the levels **Verbose, Info, Warnings** and **Errors**.

In the Developer Tools pane, select the tab **Console** to show all messages, which arrived on the browser's console. **Right-click** on the message pane and select **Save as…** Save the console messages in Windows Notepad **log** format.

In the Developer Tools pane, select the tab **Network** to show all network messages. **Right-click** on the message pane and select **Save all as HAR with content…** Save the network messages in the special **har** format.

# 2.6 OSCMS Server

## 2.6.1 OSCMS Applications

On the OSCMS server multiple applications (services) are running, depending on the licensed and activated feature set. Consequently, not all mentioned applications must write diagnostics. The OSCMS applications are configured in the **Contact Media Service Configuration** web application and eventually in additional web apps.

| Application | Diagnostic |
|---|---|
| Announcement Ports *Call Director*<br>Basic IVR *Call Director*<br>WebRTC Integrated Phone<br>WebRTC Video/Screen Share<br>Virtual Agent *Speech Bot*<br>Call Recorder | cms.log.*<br>mediaserver.log.* |

| | |
|---|---|
| REST SDK | |
| Outbound Dialer | dialer_service-<date>.log |
| Customer Satisfaction | csat_service-<date>.log |

The file **prolog.txt** contains in the section **Database and Version** all configurations of the Contact Media Service.

| Configuration | Diagnostic |
|---|---|
| Contact Media Service | prolog.txt |

| Location |
|---|
| /opt/cms/log |

The number of diagnostic files per application can be configured in the **Contact Media Service Configuration** web application in the **System** pane and **Diagnostics** tab and can be set to a maximum number of 100.

Instead of collecting the diagnostics manually from the diagnostics location in Linux, the complete **log** directory can be compressed and downloaded into the browser on the local machine and into the Windows **Download** folder via the link **Download diagnostics**. This set of diagnostics can be uncompressed by an appropriate program.

| Set of Diagnostics |
|---|
| <date>_<time>_cms_log.tar.gz |

If size and transmission time of the diagnostics are not relevant, collect the complete set of diagnostics from the whole directory, i.e., provide the file mentioned above with the compressed set of diagnostics.

### Diagnostic Level

The diagnostic level is set in the Contact Media Service Configuration web application in the **System** pane and **Diagnostics** tab. It should be preferably set to **DEBUG** and will then apply to the **cms** logs. The diagnostic level of Outbound Dialer and Customer Satisfaction is by default **DEBUG**.

On heavy load systems consider, the diagnostic level to set at least to **INFO**, instead of **DEBUG**. GVS or DEV may request certain diagnostic levels. In reproducible scenarios consider, to reset the diagnostic level back to **WARNING**, after the scenario has been captured.

## 2.6.2 OSCMS Voice Portal *Nuance*

Another application of the OSCMS server is **Voice Portal *Nuance***, which is installed in a **docker**. Its diagnostics are found in a location which is only accessible after having accessed the **docker.** Run the tool on the Linux command prompt under the **root** account.

| Application | Diagnostic |
|---|---|
| Nuance License Manager | lm.log |
| Nuance Speech Server | nss1.log |
| Nuance Speech Recognizer ASR | nrs1.log |
| Nuance Text Vocalizer TTS | nvs-server1.log |

| Command |
|---|
| docker exec -it nuance /bin/bash |

| Location |
|---|
| /var/local/Nuance/system/diagnosticLogs |

The following docker command can be used to copy the diagnostics from the docker to the OSCMS host file system. If the target **/opt/cms/log** is chosen, then the diagnostics can be compressed and downloaded into the browser on the local machine, along with the OSCMS diagnostics. See section 2.6.1.

| Command |
|---|
| docker cp nuance:/var/local/Nuance/system/diagnosticLogs /opt/cms/log |

Part of the OSCMS Server is the **Application Builder** application. The **Call Flow** of an OSCMS Voice Portal application is contained in the export of a workspace from the Application Builder. In the export dialog, the archive file can be selected to export to, as well as which specific items to be exported. Details about the usage of the application are described in the documentation.

| Documentation *OpenScape UC Application* |
|---|
| Fusion Application Builder – User Guide |

| Application | Diagnostic |
|---|---|

| | |
|---|---|
| Application Builder | Call Flow |

| Menu |
|---|
| File > Export > Symvia Workspace Items… |

Instead of collecting the diagnostics manually from the diagnostics location in Linux, the diagnostics can be manually moved in Linux to the directory **/opt/cms/log** of the OSCMS applications diagnostic files. Then, these logs and those of the OSCMS applications can be downloaded in one step with the **Contact Media Service Configuration** web application, see section **OSCMS Applications**.

## 2.6.3 OSCMS Media Server

A central operational component of the OSCMS server is the **OSCMS media server.**

| Operational Component | Diagnostic |
|---|---|
| Media Server | mediaserver.log.*<br>mediaserver_warn.log.* |

**Diagnostic Level**

The diagnostic level for the OSCMS media server needs to be set in the Java-based logging utility **log4j**. In most cases the log level needs to be **FINE** or **FINEST**. This level must be set manually in the log4j configuration file, in the **logger** tag for the involved functional components of OSCMS media server, as shown below. If the corresponding logger tag is not present, then it must be added manually.

There are a lot of logger tags for various functional components of the OSCMS media server. Depending on the component affected, it is up to the media server team to instruct, which logger tag is to be set to which diagnostic level. At least for **Telephony** scenarios the relevant loggers are mentioned below, which usually need the diagnostic level **FINE**.

**Telephony – Voice**

```
<logger name=”com.cycos.connectivity.sip”>
  <level value=”FINE” class=”com.cycos.media.logging.log4j.ExtendedLevel” />
</logger>
<logger name=”com.cycos.connectivity.sip.messages”>
  <level value=”FINE” class=”com.cycos.media.logging.log4j.ExtendedLevel” />
</logger>
```

In case of WebRTC involvement, set the diagnostic level for module **media.streaming** as well (additionally).

```
<logger name=”com.cycos.media.streaming”>
  <level value=”FINE” class=”com.cycos.media.logging.log4j.ExtendedLevel” />
</logger>
```

The log4j configuration file can be edited by the Linux text editor **vi** or **vim**. To take the change effect for OSCMS media server, the OSCMS service must be restarted.

| Location |
| --- |
| /opt/Core/application_host/bin/log4j.xml |

In reproducible scenarios consider, to reset the diagnostic level back to **INFO** or **WARN**, after the scenario has been captured.

# 3 3rd party Diagnostic Data

## 3.1 Windows Server

### 3.1.1 Windows System Information

**Windows System Information** is a system profiler that displays diagnostic and troubleshooting information related to the operating system, hard- and software.

Start the System Information from the Windows command prompt **cmd** and export the data from top-level **System Summary** to Windows Notepad **txt** format.

| Application | Diagnostic |
| --- | --- |
| System Information | <systeminfo>.txt |

| Command |
| --- |
| msinfo32.exe |

| Menu |
| --- |
| File > Export… |

### 3.1.2 Windows Event Viewer

Start the **Windows Event Viewer** from the Windows command prompt **cmd** or from Windows **Control Panel > System and Security > Administrative Tools > Event Viewer.** Save the data to Windows Event Viewer **evtx** format.

| Application | Diagnostic |
| --- | --- |
| Event Viewer | Application.evtx<br>System.evtx |

| | |
|---|---|
| | Security.evtx |

| Command |
|---|
| eventvwr.exe |

| Location |
|---|
| C:\Windows\System32\winevt\Logs |

### 3.1.3 Windows Error Reporting WER

**Windows Error Reporting** is a crash reporting technology. It collects post-error debug information with memory dump files in case an application crashes or stops responding. Please read the documentation about using Windows Error Reporting.

| Documentation *Using Windows Error Reporting* |
|---|
| https://learn.microsoft.com/en-us/windows/win32/wer/using-wer |

The generation of memory dump files is not activated by default and must be enabled. Please read the documentation about enabling memory dump files.

| Documentation *Enabling Memory Dumps* |
|---|
| https://learn.microsoft.com/en-us/windows/win32/wer/collecting-user-mode-dumps |

Start the **Registry Editor** from the Windows command prompt **cmd** and set the registry values according to the table below by following the documentation above.

| Command |
|---|
| regedit.exe |

| Registry Key |
|---|
| HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\Windows Error Reporting\LocalDumps |

| Name | Type | Data |
|---|---|---|
| **DumpCount** | REG_DWORD | 5 |
| **DumpFolder** | REG_EXPAND_SZ | C:\Temp\WER-Dumps |
| **DumpType** | REG_DWORD | 2 |

Windows Error Reporting generates data in a directory of the dump folder above, which is named with the name of the crashing component. Otherwise, data is stored in the default location below. A corresponding entry at the associated point of crash time is written into the **Windows Application Event** log as well.

| Location |
| --- |
| C:\ProgramData\Microsoft\Windows\WER\ReportArchive\AppCrash_<component>.exe |

## 3.1.4 Windows Performance Monitor *Perfmon*

**Windows Performance Monitor** captures various activities on a machine during a shorter or longer time frame, of which CPU usage and/or memory usage are of most interest.

GVS OSCC has available three batch scripts: A batch script, with which a profile with appropriate metrics is created in the Performance Monitor; a batch script, with which subsequently the monitoring is started and a batch script, with which after an observation period the monitoring is stopped. The set of batch scripts can be obtained from GVS OSCC team for usage on your request, resp. will be provided for diagnostics on their request.

It is not needed to start or stop the Windows Performance Monitor itself manually. Instead, execute each of the batch scripts for the intended purpose from the Windows command prompt **cmd**.

| Application | Diagnostic |
| --- | --- |
| Performance Monitor *Perfmon* | CreatePerfLog<version>.bat<br>StartPerfLog.bat<br>StopPerfLog.bat |

| Command |
| --- |
| perfmon.exe |

| Location |
| --- |
| C:\PerfLogs\perf_oscc_<sequence-number>.blg |

## 3.1.5 Windows Process Monitor *Procmon*

**Windows Process Monitor** is a monitoring tool that shows real-time file system, registry, and process/thread activity. The tool can be used, if, e.g., during installation, some component is reported to be “in use”, for which the installation cannot continue. The tool can be downloaded from Microsoft site.

| Download and Documentation ***Windows Process Monitor*** |
| --- |

| |
|---|
| https://learn.microsoft.com/en-us/sysinternals/downloads/procmon |

Start the tool before starting the installation of a Microsoft Installer **msi** or **msp** file and make some settings, here the process **msiexec** of Microsoft Installer:

- Select from menu Filter > Filter.
- Select from the list box Process Name.
- Write in field msiexec.exe and Include only this process.
- Add that process to the Processes to monitor.

Start the installation process and run the installation until the error occurs. Save the log by menu **File > Save** and make some settings:

- **Events displayed using current filter** plus checkbox.
- Format **CSV**.
- Select **Path**.

## 3.1.6 Windows Cluster Log

In a **High Availability** system, there are two OSCC main servers (Node 1 and Node 2) and an optional OSCC Central Reporting Server (CRS). Both nodes are part of the Windows Cluster, whereas the CRS isn't.

The **Windows Powershell** is an application of Windows in which command-lets can be executed. Windows Powershell can be either started by opening the application, or from the Windows command prompt **cmd**.

| **Command** |
|---|
| powershell.exe |

The **Windows Cluster Log** can be obtained by the command-let **Get-ClusterLog** in the Windows Powershell. The diagnostic level of the Windows Cluster Log can be set by the command-let **Set-ClusterLog**. The Windows Cluster Log can be obtained from both nodes of the cluster.

Set the diagnostic level of the Windows Cluster Log to 5, by executing the command-let with the corresponding parameter. Five is the highest level containing **Error**, **Warning**, **Info**, **Verbose** and **Debug**. If no further parameter is specified, then the diagnostic level applies to the local cluster.

| **Documentation *Set-ClusterLog*** |
|---|
| https://learn.microsoft.com/en-us/powershell/module/failoverclusters/set-clusterlog |

| **Powershell Command** |
|---|
| Set-ClusterLog -Level 5 |

Generate the Windows Cluster Log for both nodes by executing the command-let without parameters. If done so, then the logs are generated for the local cluster and stored in the default directory on both nodes of the cluster.

| **Documentation G*et-ClusterLog*** |
| --- |
| https://learn.microsoft.com/en-us/powershell/module/failoverclusters/get-clusterlog |

| **Powershell Command** | **Diagnostic** |
| --- | --- |
| Get-ClusterLog | Cluster.log |

| **Location** |
| --- |
| C:\Windows\Cluster\Reports |

## 3.1.7 Windows Cluster Event Log

The **Windows Cluster Event Log** is obtained from the **Failover Cluster Manager** application, which can be started from the **Windows Administrative Tools**. In the Failover Cluster Manager select **Cluster Events** on the left pane. Then, select **Query** on the right pane **Actions**, to define the criteria for which cluster events need to be displayed. In the window **Cluster Events Filter** select the following criteria:

| **Cluster Event Filter** | **Criterium** |
| --- | --- |
| Nodes | <Node1><br><Node2> |
| Event Logs | Microsoft-Windows-FailoverClustering-*<br>Read only cluster events from the System log |
| Level | Critical<br>Error<br>Warning<br>Informational<br>Verbose |
| From resp. To | Date resp. Time Frame |

Save the Windows Cluster Event Log from the Failover Cluster Manager to Windows Event Viewer **evtx** format.

| **Application** | **Diagnostic** |
| --- | --- |

| | |
|---|---|
| Failover Cluster Manager | <cluster-event-log>.evtx |

| **Command** |
|---|
| mmc.exe cluadmin.msc |

| **Menu** |
|---|
| Right-pane Actions > Save Events as… |

| **Location** |
|---|
| As chosen by user |

## 3.1.8 Windows Cluster Validation Report

The **Windows Cluster Validation Report** can be obtained by the command-let **Test-Cluster** in the **Windows Powershell**, see section **Windows Cluster Log** for the usage of Windows Powershell. The command-let runs validation tests for the cluster and intends to do the following:

- Find hardware or configuration issues before a failover cluster goes into production.
- Help ensure that the clustering solution you deploy is dependable.
- Provide a way to validate changes to the hardware of an existing cluster.
- Perform diagnostic tests on an existing cluster.

If the command-let is executed without parameters, then all applicable cluster validation tests are done on the local cluster and include both nodes without presenting the Wizard **Validate a Configuration**. After the tests run, the result will be written into the **Windows Cluster Validation Report**, which is a file in **htm** format.

| **Documentation *Test-Cluster*** |
|---|
| https://learn.microsoft.com/en-us/powershell/module/failoverclusters/test-cluster |

| **Powershell Command** | **Diagnostic** |
|---|---|
| Test-Cluster | Validation Report <*date-time*>.htm |

| **Location** |
|---|
| C:\Windows\Cluster\Reports |

## 3.2 Windows Client

Diagnostic data of the Windows client machine is usually not needed and if so, a specific request will be made after investigation of the problem by GVS/DEV.

## 3.3 Linux Server

### 3.3.1 Linux Logs

The following diagnostics on the level of the operating system are available.

| Location |
|---|
| /var/log/warn |
| /var/log/messages |

The file **prolog.txt** contains besides the OSCMS configuration, the system information on the level of the operating system, e.g.: network interfaces, hard disks, CPU, memory, and operating system.

| Configuration | Diagnostic |
|---|---|
| Linux, Hardware, Vmware | prolog.txt |

| Location |
|---|
| /opt/cms/log |

### 3.3.2 Linux Network Traffic

**Network traffic** from and to the OSCMS server can be captured by the Linux tool **tshark.** To capture the traffic on the default network interface **eth0**, use the command below. If the tool should continue to run in a longer session in the background after the user logged off from the system, use the same command with the **nohup** prefix and the **&** postfix.

If the output directory **/opt/cms/log** of the OSCMS applications diagnostic files is chosen, then this network trace and the diagnostics of the OSCMS applications can be downloaded in one step with the **Contact Media Service Configuration** web application, see section **OSCMS Applications**. The file format is **pcap**, which is also the format used by **Wireshark.**

| Command |
|---|
| tshark -i eth0 -b filesize:30000 -w /opt/cms/log/tsharkcms.pcap |
| nohup tshark -i eth0 -b filesize:30000 -w /opt/cms/log/tsharkcms.pcap & |

To stop capturing network traffic, press **<Ctrl>C**. To stop capturing network traffic as background task, use the following commands.

| Command |
| --- |
| ps -ax \| grep tshark |
| kill <tshark-procid> |

## 3.4 Communication Platform

Diagnostic data of the communication platform **OSV**, **OS4000** and **OSBiz** is usually not evaluated by the OSCC team. In case an issue needs to be cross escalated, then the other team will determine, which diagnostic data is likely necessary to continue the investigation of the specific problem. In case a relationship of the problem with the communication platform is suspected by the service technician, then it is recommended to provide diagnostic data of the communication platform in advance. Please consult the document below, containing guidelines for opening tickets.

| Documentation *Guidelines – Opening Tickets* |
| --- |
| https://app-enterprise.unify.com/gdmsproxy/retrieve?id=lr7omTdjomvp2VwXZE37BfIXGifo%2BpqcMi8fgi%2Fxu%2BaBPJBCX1rw1g%3D%3D |

## 3.5 Corporate Email Server

Diagnostic data of the corporate email server is usually not needed and if so, a specific request will be made after investigation of the problem by GVS/DEV. In case a relationship of the problem with a specific email is suspected or confirmed by the service technician, then it is recommended to save that problematic email from the OSCC Inbox or IMAP Working folder. The email must be saved in **eml** format with an appropriate email client, like e.g., **Thunderbird**. As emails are quickly moved upon arrival from OSCC Inbox to IMAP Working folder, in reproducible scenarios, the OSCC email server must be paused before arrival of the problematic email in the OSCC Inbox.

In scenarios in which communications problems between the OSCC system and the corporate email server is suspected, e.g., delays, a trace of the network traffic is helpful.

## 3.6 Corporate Web Server

Diagnostic data of the corporate web server is usually not needed and if so, a specific request will be made after investigation of the problem by GVS/DEV.

## 3.7 External IVR Machine

The external IVR machine can be integrated in OSCC by either using the **OSCC IVR API** or by using the **OSCC VoiceXML API**, which latter is the modern approach of external IVR integration.

## 3.8 External IVR and OSCC IVR API

When using the **OSCC IVR API**, the IVR can be connected with an OSV, OS4000 or OSBiz communication platform.

The IVR interacts with the caller and with the OSCC server to gather information. This information is used by the IVR to define the queue for the specific caller. Which information is gathered, is

defined by the customized **IVR script**. Finally, the IVR script will enqueue the call for a specific queue and OSCC will route the call to a user accordingly.

| **Documentation *OpenScape Contact Center Enterprise*** |
| --- |
| IVR API – Integration Guide |

| **Diagnostic** |
| --- |
| IVR script |
| IVR log |

### 3.8.1 External IVR and OSCC VoiceXML API

When using the **OSCC VoiceXML API**, the IVR can be connected with an OSV or OS4000 communication platform.

This is a web-based solution with the involvement of a **corporate web server** to gather information by **VoiceXML subdialogs**. The IVR interacts with the caller and with the OSCC server through the corporate web server. The **OSCC web interaction server** acts as entry point for the requests. The information is used by the IVR to define the queue for the specific caller. Which information is gathered, is defined by the customized **IVR script**. Finally, the IVR script will enqueue the call for a specific queue and OSCC will route the call to a user accordingly.

| **Documentation *OpenScape Contact Center Enterprise*** |
| --- |
| VoiceXML – Integration Guide |

| **Diagnostic** |
| --- |
| IVR script |
| IVR log |

## 3.9 Processes crash / Memory leak

Insufficient machine resources may cause crashes and memory leaks in OSCC, Application, and OSCMS servers. It is essential to adhere to the system requirements recommended in the respective guides for these servers.

**OSCC Servers**

System requirements for High Availability, Main, Central Reporting, and Auxiliary servers are described in the OpenScape Contact Center V11 R1 Installation Guide:

- Chapter 3.1: System Requirements for High Availability
- Chapter 4.1.1: System Requirements for a Main Server Machine
- Chapter 4.2.1: System Requirements for a Central Reporting Server Machine
- Chapter 4.3.1: System Requirements for an Auxiliary Main Server Machine

**Application Servers**

System requirements for Application server are described in:

- Chapter 4.7.1: Installing the OpenScape Contact Center Application Server on a Main Server Machine
- Chapter 4.7.2: Installing the OpenScape Contact Center Application Server on a Separate Machine

Java memory allocation for Tomcat must be configured using the tomcat8w.exe and tomcat9w.exe tools. For more information, please refer to the respective instructions in the OSCC Application Server installation guide.

**OSCMS Servers**

System requirements for the OpenScape Contact Media Service are described in the OpenScape Contact Media Service Guide:

- Chapter 2.1: System Requirements for a Stand-Alone Server Machine

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**NOTE:** Additional configurations when using virtual machines are described in the OpenScape Solution Set V10 Guide, OpenScape Virtual Machine Resourcing and Configuration Guide:

- Chapter 5.11: OpenScape Contact Center
- Chapter 5.12: OpenScape Contact Media Service

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# 4 How-To-Solve Scenarios

This section lists solutions for common problematic scenarios.

## 4.1 Recover daily, weekly, and monthly roll-up data

If for **daily**, **weekly** and/or **monthly** reports no data is presented, then rollups may have failed to propagate statistical data from the 15-minutes tables to the daily resp. to the weekly resp. to the monthly tables.

**Prerequisites**

For the procedure below make sure, that the **15-minutes statistical data** is available for the problematic time frame and the problematic table(s), as this is the master data, which needs to be rolled-up.

If the system is stand-alone, then ignore in the procedure below the steps about replication. If the system is in a **high availability** environment with or without central reporting server, then execute the steps of the procedure on each machine, for which statistical data needs to be rolled-up.

Remove from the script below those lines, which tables do not need to be rolled-up, because all statistical data is in fact available.

**Procedure**

1. Stop the OSCC Service.
2. Stop the replication.
3. Use the Informix tool **DBAccess** to connect to the database **hppcdb** and execute the following **SQL script** to delete all statistical data from the **daily**, **weekly,** and **monthly** tables.

```
delete from agentdaily;
delete from agentmonthly;
delete from agentweekly;
delete from agentstatedaily;
delete from agentstatemonthly;
delete from agentstateweekly;
delete from agentstatereasondaily;
delete from agentstatereasonmonthly;
```

```
delete from agentstatereasonweekly;
delete from callbackdaily;
delete from callbackmonthly;
delete from callbackweekly;
delete from calltypedaily;
delete from calltypemonthly;
delete from calltypeweekly;
delete from dnisdaily;
delete from dnismonthly;
delete from dnisweekly;
delete from groupdaily;
delete from groupmonthly;
delete from groupweekly;
delete from groupstatedaily;
delete from groupstatemonthly;
delete from groupstateweekly;
delete from trunkdaily;
delete from trunkmonthly;
delete from trunkweekly;
delete from wrapupreasondaily;
delete from wrapupreasonmonthly;
delete from wrapupreasonweekly;
```

4. Restart the OSCC service.

In this moment, the roll-ups will start and the statistical data for the daily, weekly, and monthly tables is re-created from scratch. Depending on the amount of data in the 15-minutes tables and the number of tables to be rolled-up, the roll-ups can take more or less time.

5. Restart the replication.

**Recommendations**

- Make an Informix level 0 backup before starting the procedure.

## 4.2 Recover 15-minutes data from export files

The OSCC statistics server will automatically create **export** files for data present in the **temporary** tables of the OSCC database (tables named with **1** and **2** at the end), if for some reason the content of those tables cannot be written to the corresponding **permanent** tables (same-named tables without 1 and 2 at the end) after each 15-minutes interval. This can happen permanently, e.g., due to a corrupt index of the table, or occasionally, e.g., due to a temporary lock of the table.

When export files have been generated and the root cause of the issue is not present anymore, then it is necessary to load the content of those export files manually into the permanent tables of the OSCC database. For this purpose, development has implemented a **batch script**, that will insert the data into the database while doing some consistency checks. The batch script can be obtained from GVS OSCC team for your usage.

The batch script will insert export data for the following tables:

- agentfifteenmin
- agentonoff
- agentrecord
- agentstatefifteen
- agentstatereason
- agentstatereasonfifteenmin
- attemptlog
- callbackfifteenmin
- callbackrecord
- callbackschedules
- calldata
- callrecord
- calltypefifteenmin
- cdcomponentfifteenmin
- dnisfifteenmin
- groupfifteenmin
- groupstatefifteen
- userpostprocessingreason
- userpostprocessingreasonfifteenmin
- workflowfifteenmin
- wrapupreason
- wrapupreaonfifteenmin

**Prerequisites**

If the root cause of the issue on the tables is caused by a **bad index**, then it is needed to fix the index first. The bad index, e.g., for table **agentfifteenmin**, can be found by executing the Informix command.

| Command |
| --- |

| |
|---|
| oncheck -cDIx hppcdb:agentfifteenmin |

In the output of this command a line would appear, like:

ERROR: Index ix_agentfifteenmin for hppcdb:informix.agentfifteenmin is bad

If so, the index for the table needs to be re-created, before running the batch script in the procedure below. The re-creation of the index is done by the following Informix commands, in either of both cases A resp. B.

**A. The index starts with ix_**

This is not a unique index.

| Command |
|---|
| drop index "informix".ix_agentfifteenmin;<br><br>create index "informix".ix_agentfifteenmin on "informix".agentfifteenmin (recordtimestamp,agentkey,departmentkey,agentsite,busunitkey) using btree IN reporting_dbs; |

**B. The index starts with uxpk_**

This is a unique index.

| Command |
|---|
| drop index "informix".uxpk_agentfifteenmin;<br><br>alter table "informix".agentfifteenmin drop constraint "informix".pk_agentfifteenmin;<br><br>create unique index "informix".uxpk_agentfifteenmin on "informix".agentfifteenmin(agentsite,recordkey,recordtimestamp) using btree IN reporting_dbs;<br><br>alter table "informix".agentfifteenmin add constraint primary key(agentsite,recordkey,recordtimestamp) constraint "informix".pk_agentfifteenmin; |

The **create index** part (case A) resp. **create unique index** part (case B) of these Informix commands can be obtained from the Informix **dbschema** command, e.g., in the case of the **agentfifteenmin** table.

| Command |
|---|
| dbschema -t agenfifteenmin -d hppcdb |

Notice that, at the end of the **create (unique) index** command, **IN reporting_dbs** has been added, in order to allocate the index on the right database space. Similar with the **alter table** part of the Informix command to define the exact syntax.

**Procedure**

1. Copy the batch script **insertexpfiles.bat** to a folder on the OSCC Server. This folder must be named without blanks.
2. Copy the export files (with extension **exp**), which need to be imported into the database to the same folder.
3. In the Windows command prompt **cmd** under the **informix** user, execute the batch script. It is recommended to redirect the command output and error output to a file. The batch script can be executed while the OSCC system is running. It is **not** needed to stop the OSCC Service.

| Command |
| --- |
| insertexpfiles.bat > results.txt 2>&1 |

The entries in the output file can be expected to look like this:

Inserting data on agentfifteenmin table
Database selected.
Temporary table created.
8 row(s) loaded.
11 row(s) loaded.
8 row(s) merged.
Database closed.

**Recommendations**

- Make an Informix level 0 backup before starting the procedure.
- If there are a lot of export files to be processed by the batch script, then execute the batch script multiple times with (smaller) portions, e.g., first with the export files of table **agentfifteenmin1**, then another time with the export files of table **agentonoff2**, etc. If "too many" data is to be processed at once, the procedure could take too long, timeouts could occur, and the batch script could fail.
- Do not run the batch script, when the OSCC statistics server itself is moving data from the temporary tables to the permanent tables, i.e., not around the minutes 04, 19, 34 and 49.

## 4.3 Add new chunk to full database space

The data of the Informix database is stored in multiple **database spaces**. Each database space can have one or more **database chunks**. If the database chunk(s) of a database space are full, then a new database chunk should be automatically created. Sometimes this does not happen, the OSCC system will become dysfunctional, and the Informix log will show corresponding errors. In that case a new database chunk must be added manually to the database space.

### Prerequisites

The state of the database can be obtained by the Informix command **onstat**, which shows the **database spaces** in the upper part and the **database chunks** in the lower part.

| Command |
|---|
| onstat -d |

### Example Database Spaces

| Address | number | flags | fch | nch | pgsize | flags | owner | name |
|---|---|---|---|---|---|---|---|---|
| c7e68e8 | 1 | 0x1 | 1 | 1 | 4096 | N BA | informix | rootdbs |
| **e073018** | **2** | **0x1** | **2** | **2** | **4096** | **N BA** | **informix** | **physdbs** |
| e073230 | 3 | 0x1 | 3 | 1 | 4096 | N BA | informix | logdbs |
| e073448 | 4 | 0x8001 | 4 | 2 | 4096 | N SBA | informix | sbspace |
| e073660 | 5 | 0x1 | 5 | 2 | 4096 | N BA | informix | admin_dbs |
| e073878 | 6 | 0x1 | 6 | 1 | 4096 | N BA | informix | realtime_dbs |
| e073a90 | 7 | 0x1 | 7 | 3 | 4096 | N BA | informix | reporting_dbs |
| e073ca8 | 8 | 0x2001 | 8 | 1 | 4096 | N TBA | Informix | temporary_dbs |
| e074018 | 9 | 0x1 | 9 | 1 | 4096 | N BA | Informix | processing_dbs |
| e074230 | 10 | 0x1 | 10 | 1 | 4096 | N BA | informix | web_dbs |
| e074448 | 11 | 0x8001 | 11 | 1 | 4096 | N SBA | informix | bts_dbspace1 |
| e074660 | 12 | 0x1 | 12 | 1 | 4096 | N BA | informix | openmedia_dbs |
| e074878 | 13 | 0x1 | 13 | 2 | 4096 | N BA | informix | logical_log_dbs |
| e074a90 | 14 | 0x8001 | 14 | 1 | 4096 | N SBA | Informix | sbspace_000 |

The above example shows that the database space **physdbs** with number 2 (column **number**) has two database chunks (column **nch**).

### Example Database Spaces

| address | ch | dbs | offset | size | free | bpages | flags | pathname |
|---|---|---|---|---|---|---|---|---|
| c897018 | 1 | 1 | 0 | 192000 | 177808 | | PO-B-D | D:\Programme\Informix\storage\rootdbs.000 |
| **e076018** | **2** | **2** | **0** | **6656** | **6603** | | **PO-B-D** | **D:\Programme\Informix\storage\plogdbs.000** |
| e077018 | 3 | 3 | 0 | 168192 | 203 | | PO-B-D | D:\Programme\Informix\storage\llogdbs.000 |

e078018 4 4 0 8192 7576 7576 POSB-D
D:\Programme\Informix\storage\sbspace.000

e079018 5 5 250 392966 384532 PO-B-D

d:\Programme\Contact Center Data\admin_chunk1

e07a018 6 6 250 524038 504609 PO-B-D

d:\Programme\Contact Center Data\realtime_chunk1

e07b018 7 7 250 5242630 432857 PO-B-D

d:\Programme\Contact Center Data\reporting_chunk1

e07c018 8 8 250 524038 523985 PO-B-D

d:\Programme\Contact Center Data\temporary_chunk1

e07d018 9 9 250 1048326 999469 PO-B-D

d:\Programme\Contact Center Data\processing_chunk1

e07e018 10 10 250 261894 261061 PO-B-D

d:\Programme\Contact Center Data\web_chunk1

e07f018 11 11 250 261894 244514 244534 POSB-D

d:\Programme\Contact Center Data\bts_chunk1

e080018 12 12 250 1048326 1037772 PO-B-D

d:\Programme\Contact Center Data\openmedia_chunk1

e081018 13 13 250 384000 23947 PO-B-D

d:\Programme\Contact Center Data\logical_log_chunk1

e082018 14 14 0 2500 2242 2253 POSB-D
D:/Programme/Informix/storage/sbspace_000

**e083018 15 2 250 255500 0 PO-B-D**
**D:\Programme\Informix\storage\phys_chunk2**

e084018 16 4 250 254000 237208 237208 POSB-D
D:\Programme\Informix\storage\sbspace_chunk2

e085018 17 7 250 268500 67936 PO-B-D

d:\Programme\Contact Center Data\reporting_chunk2

e086018 18 13 250 1048750 48747 PO-B-D

d:\Programme\Contact Center Data\logical_log_chunk2

e087018 19 7 250 5000000 4277764 PO-B-D

d:\Programme\Contact Center Data\reporting_chunk3

e088018 20 5 250 250000 249997 PO-B-D

d:\Programme\Contact Center Data\admin_chunk2

The above example shows that the database space with number 2 (column **dbs**) has two database chunks, with numbers 2 and 15 (column **ch**):

D:\Programme\Informix\storage\plogdbs.000 with 6603 pages free

D:\Programme\Informix\storage\phys_chunk2 with 0 pages free

As database chunk **plogdbs.000** is almost full and database chunk **phys_chunk2** is completely full, the database space **physdbs** can be considered as full. It is needed to add a third database chunk **phys_chunk3** at the same location to the database space **physdbs**.

**Procedure**

This procedure is to be applied on each database space, which was found to be full.

1. In order to create a database chunk with the Informix command **onspaces** in step 2, the file must be already there with that name. So, create a text file with size zero and rename it to the desired name.

| File |
| --- |
| D:\Programme\Informix\storage\phys_chunk3 |

2. In the Windows command prompt **cmd** under the **informix** user, execute the following commands with the **database space** in option **-a** resp. **-d** and with the **database chunk** in option **-p**. The command can be executed while the OSCC system is running. It is **not** needed to stop the OSCC Service.

| Command |
| --- |
| onspaces -a physdbs -p “D:\Programme\Informix\storage\phys_chunk3” -o 0 -s 1048076<br><br>onparams -p -s 1000000 -d physdbs |

**NOTE:** The second command onparams is only necessary to execute in case a database chunk is added to the database space physdbs, not for adding a database chunk to other database spaces.

**Recommendations**

- Make an Informix level 0 backup before starting the procedure.
- After the commands have been executed, verify with the command **onstat**, that the new database chunk has been added correctly. And verify in the Informix log, that messages about full database spaces do not occur anymore.
- In case of a **high availability** system, add the database chunk to the database space on both nodes for reasons of symmetry, even if no issue is observed on the other node.

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