OmniPCX Office Hospitality Link

Driver Installation & Configuration

Platform	Alcatel-Lucent Enterprise OXO Connect & Evolution
Interface	**OHL / OLD**
Version	**R2.4.1**
Revision	**Edition 4.0** – January 2020
Abstract	This document describes the software installation process and configuration specifications of the OXO Connect OHL Driver.

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History of the document

Edition 1.0	June 04	creation of the document
Edition 1.2	June 05	New Operating System taken into account
Edition 2	October 07	update for version 2
Edition 3.0	December 15	Update with new form
Edition 3.1	February 2017	OLD 2.3.14 / OXO Connect R2
Edition 3.2	September 2017	OLD 2.3.15 / OXO Connect R2
Edition 4.0	**January 2020**	**OLD 2.4.1 / OXO Connect R3.2**

References

- [1] OHL API Developers Guide

1 Generalities

1.1 Introduction

This document will give all the details necessary to install and implement the OmniPCX Office OHL Driver software. The document is written from an AAPP developer point of view, including the description of features and protocols.

Alcatel has developed an IP interface called **AHL** (stands for **A**lcatel **H**ospitality **L**ink) for connecting its PABX (like OXO/E or 4400 series) with the Applications developed by Partners within the Alcatel Application Partners Program (AAPP). **OHL** (stands for **O**mniPCX Office **H**ospitality **L**inks) is a functional subpart of AHL, designed for small systems. The OmniPCX Office Hotel Driver adapts the OmniPCX PCMAN and SDMR interface to the AHL standard. This adaptation therefore provides a transparent connection for the Hotel Application provided by the Partner through the OHL API.

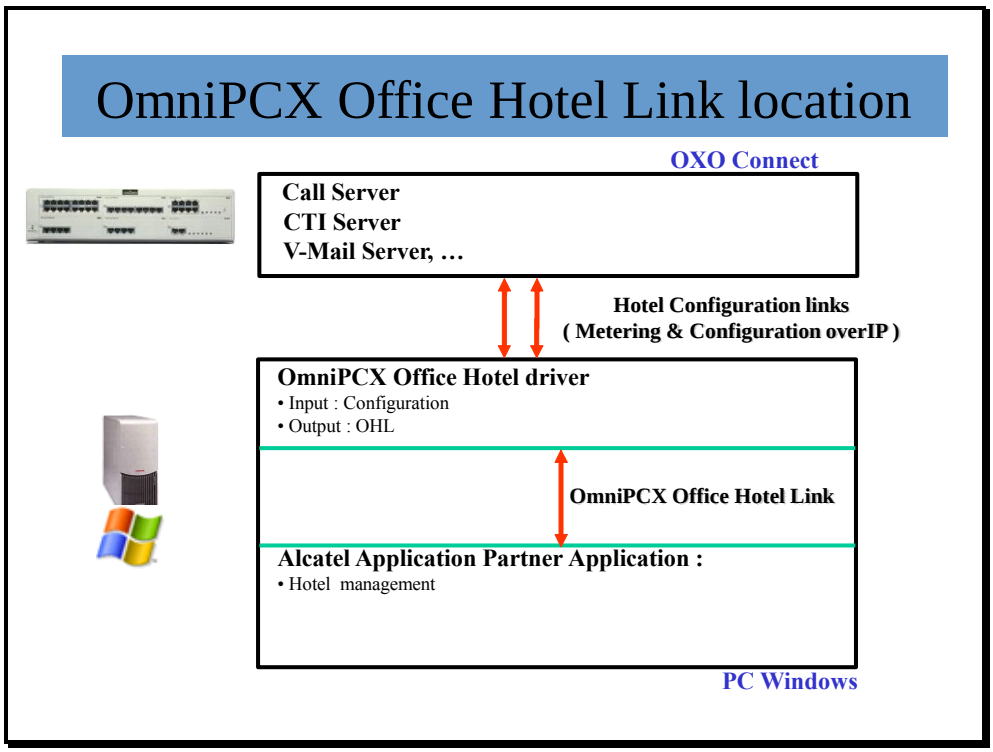
The OHL driver provides also a metering mode: when activated, all tickets received from OXO Connect are printed in a XML file.

1.2 Terminology

- ACK — **ACK**nowledgement message
- AAPP — **A**lcatel **A**pplication **P**artners **P**rogram
- AHL — **A**lcatel **H**ospitality **L**ink
- API — **A**pplication **P**rogramming **I**nterface
- CRC — **C**yclic **R**edundancy **C**ode
- ETX — **E**nd **T**ransmission
- IP — **I**nternet **P**rotocol
- NACK — **N**on-**ACK**nowledgement message
- OXO — **O**mniPC**X** **O**ffice
- STX — **S**tart **T**ransmission
- SMDR — **S**tation **M**essage **D**etail **R**ecording
- TCP — **T**ransmission **C**ontrol **P**rotocol
- GUI — **G**raphical **U**ser **I**nterface
- PCMAN — OmniPCX Office internal management IP interface
- OHL — **O**mniPCX Office **H**ospitality **L**ink
- PM5 — OmniPCX configuration management application
- MMC — **M**an **M**achine **C**onfiguration

2 Architecture

2.1 Type of configuration



2.2 Software/Hardware compatibilities and restrictions

- Operating System

The Office Link Driver (OLD) software will run, as a Windows Service, on the following operating systems:

Compatibility only available from OLD **2.3.0 and higher** version:

- Microsoft Windows 2000 SP4,
- Microsoft Windows 2000 server,
- Microsoft Windows 2003 server,
- Microsoft Windows 2003 server SP1,
- Microsoft Windows XP SP1,
- Microsoft Windows XP SP2.
- Microsoft Windows Vista.
- Microsoft Windows 7

Compatibility only available from OLD **2.3.12 and higher** version:

- Microsoft Windows 7
- Microsoft Windows 8 / 8.1
- Microsoft Windows 10
- Microsoft Windows Server 2012 and 2012 R2

- OmniPCX Office, OXO Connect and OXO Connect Evolution software

The OHL Driver is compatible from OmniPCX Office software R3.x (lower releases are not supported) but OHL version greater than 2.0.0 must be used for OmniPCX Office software R5.x and greater. The OHL Driver will be updated to support these new software releases when and as necessary.
The OmniPCX Office software release must be configured in "**Hotel**" mode only for Hotel mode. If the driver is used as a metering printer, the system can be configured in Business or Hotel mode.

Restrictions:

Upgrade from OLD 2.0.0 does not work. If you have OLD 2.0.0 installed, first uninstall OLD driver and run the last OLD setup.
Upgrade from OLD >= 2.0.1 is working well, no need to do uninstall

- OmniPCX Office, OXO Connect and OXO Connect Evolution TCP/IP port

The OmniPCX TCP/IP service port number reserved for the hotel interface function is fixed by default to the number "2561", and can be configured by the corresponding configuration file (see section 3.2.1.8: OHL Driver Configuration).

Known O. L. D limitations :

 Default Wake up setting on Check-out: Currently on check-out an inactive wakeup time is set on a guest room in the OmniPCX Office and the default time is 12:05. On check-in without wakeup programming, the operator set hospitality application displays this appointment as ACTIVE with this default time, but it is not really active.

Be careful when leaving the wakeup menu. Do not press 'OK' it will activate the 12:05 wakeup! (**corrected since O.L.D v 2.2.0**)
 SMDR ticket cost center field: After starting the driver, if no re-initialization frame for all devices is requested, the cost center field could be filled with spaces

 Currently there is no possibility to change the room clean/unclean status and the room problems on a checked-out or checked-in room. It is also not possible to view both room cleaning status and room problem on a checked-out room.

 The Configuration Application is not refreshed during a test sequence. Wait until the test succeeds or after timeout popup.

 Meter Total Recall assignment charge SMDR does not contain the Booth phone extension number in order to make the association with the initial metering ticket. The current method to associate the two SMDR is by the date /time /duration/Trunk number and cost contained in the two SMDR.

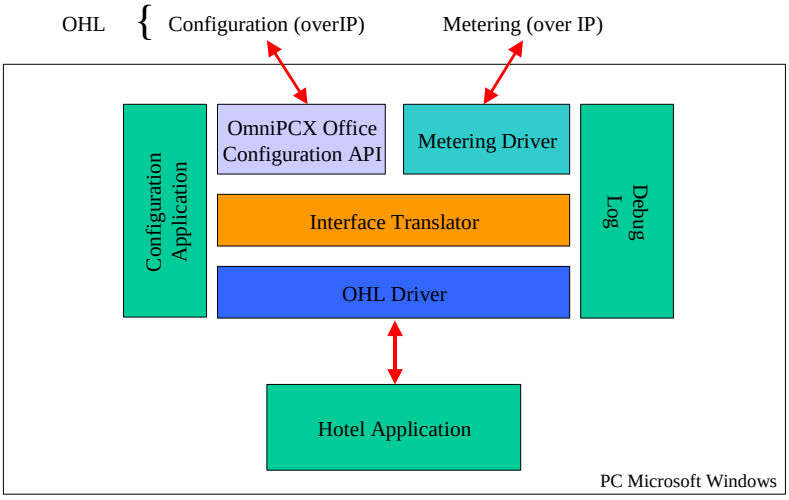
 The Language field must be filled in the check in frame from the Hotel application.

 It is required to send a Password in the Check in frame to the OLD. Otherwise, the Voice mail will not be initialized.

3 Description

3.1 Basic Technical Description

The OHL Driver is composed of the following blocks:



- **Interface Translator**: the application which adapts the OmniPCX " Office Hospitality Links" into "Alcatel Hospitality Link",
- **Metering driver**: metering ticket reception treatment from the OmniPCX Office IP metering interface.
- **OmniPCX Office Configuration API:** Provide configuration connectivity with the OmniPCX Office using the same link as OMC application.
- **OmniPCX Office Hospitality Link driver**: to deliver the **O**mniPCX Office **H**ospitality **L**ink interface to the Partner Hotel Application,
- **Configuration Application:** used to enter the OmniPCX Administrator account identification, defines the PBX Host Name or IP (allowing communication tests between the OmniPCX and OHL/AHL driver). The 'Configuration Application' is a user-friendly interface application to configure the OHL configuration file. Many more configuration possibilities are available by manually editing the configuration file.
- **Debug/Logs**: trace the interfaces and their behavior (All traces are recorded in a Global log text file – see section 3.2.1.8: OHL Driver Configuration)

3.2 Detailed Technical Description

3.2.1 List of functions

The OmniPCX Hotel Driver software allows:

- Installation
- Configuration
- Start / stop
- Application connection / disconnection
- Request processing
- Behavior logs
- Error handling

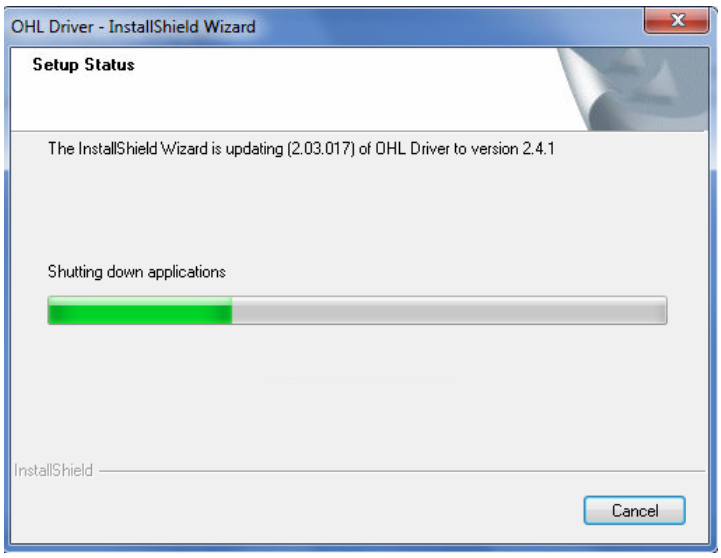
3.2.1.1 OHL Driver (OLD) Installation

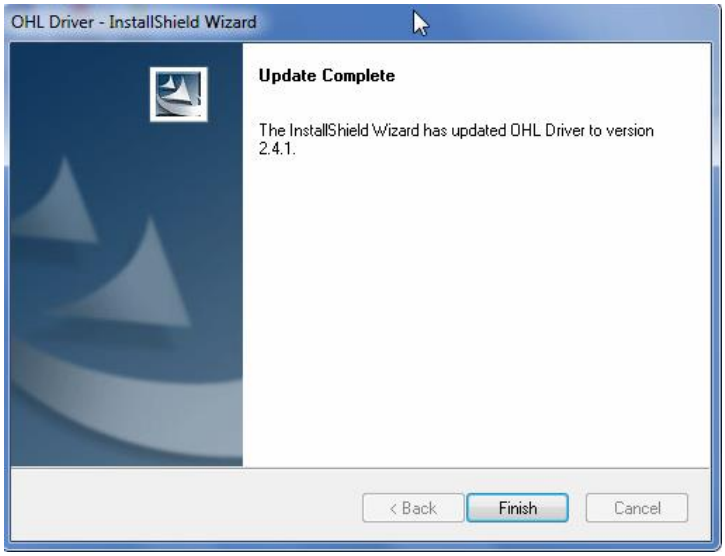
The driver program installation is easy to use and could be done by any user with administrator rights on the local PC. This is a graphical installation (by default) via a GUI interface; a silent installation could be also processed, according to specific command line parameters (See 3.2.1.4 Install Application: Silent Mode). In case of evolution of the OmniPCX Office OHL Driver, the install program proposes a “Modify” mode, and “Remove” mode to erase the Alcatel Hotel Driver software and all associated installed files.

After its installation, the Alcatel Hotel Driver will run as a Windows service with automatic starting.

3.2.1.2 Update of previous version

While starting the setup file, it will detect that a previous version is already installed and then will upgrade it.



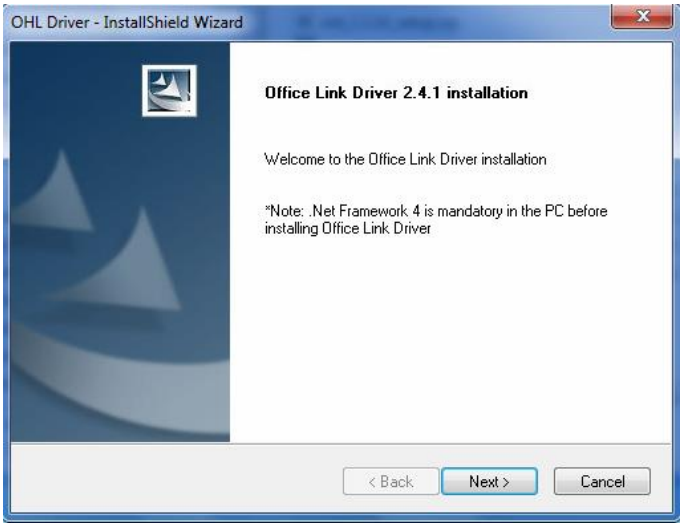


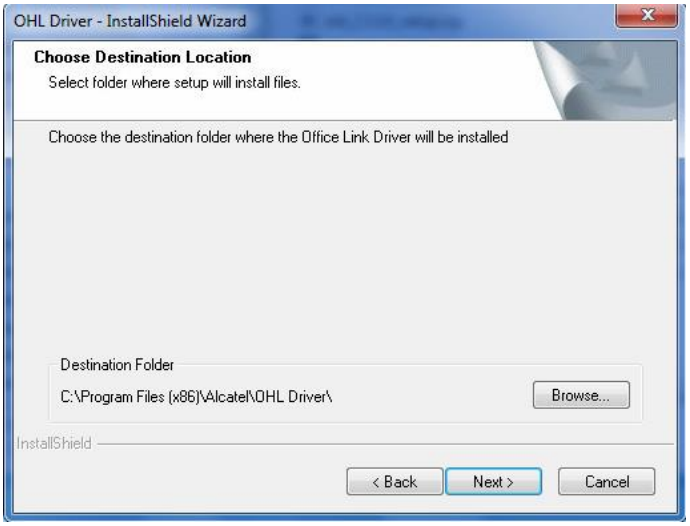
3.2.1.3 Install Application

By running the “setup.exe” file, the OHL Driver can be installed via the following interface, in the English language.

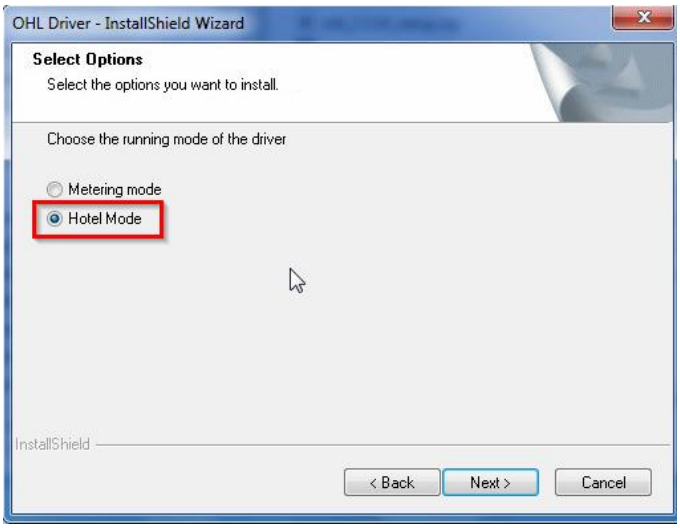
When the installation starts. The “Destination folder “screen will appear.

The default directory folder installation path/name is shown: the driver and configuration files will be installed in this directory. The proposed directory can be changed with the “Browse” button.



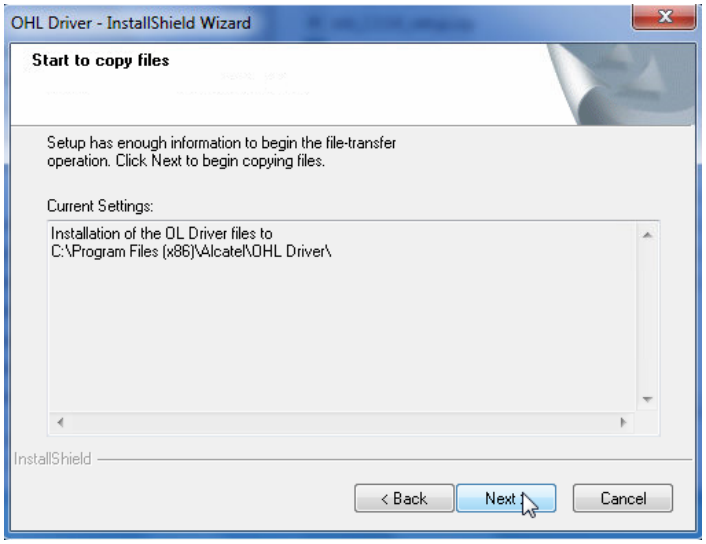


Then the program will ask for the running mode of the driver.

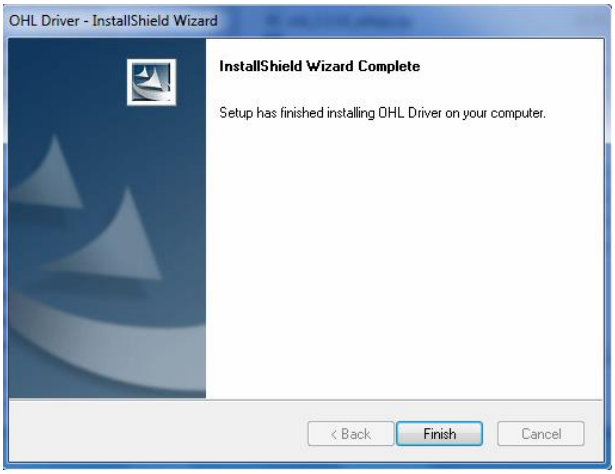


In Metering mode, the metering tickets are printing in a XML file (no application needed and driver is always running). On Hotel mode, an hotel application is required to be connected to the driver.

Afterwards, the program will ask for confirmation to start the installation.

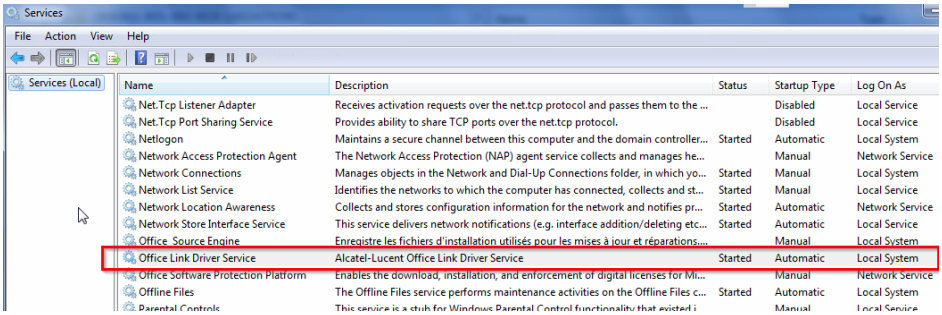


The driver files will then be copied, and the service will be registered.



When the installation is finished both the OHL driver and its associated Configuration application are installed on the P.C. To configure the main OHL driver parameters, launch the Configuration application at the end of the installation either using the desktop icon, which has been created or via the Program file menu. If you are using Windows Vista, you must run the Configuration application with a full administrator access token. To perform this operation, right-click the program icon or shortcut, and then click “Run as administrator”.

Then the OHL driver service is installed and launched it appears in the “Services” list (Settings / Control Panel / Administrative Tools / Services)



Note: In case of a PC crash while the OHL driver is running, the driver restarts automatically only if it has been installed as an automatic “start up type ” in Windows “Services” (this is the case by default after installation).

3.2.1.4 Install Application: Silent Mode

The driver can be installed in silent mode « i.e.: command mode ». The setup program can be launched via the following commands:

setup.exe /r /f1"c:\setup.iss"

In order to run the installation program in silent mode, you must first run Setup.exe with the **/r** switch to generate a response file, which stores information about the data entered and options selected by the user at run time. Using the **/f1** argument allows you to specify where the response file is (or where it should be created) and what its name is.

The setup.iss file contains the equivalent parameters as the screen captures, and can be edited to be customized:

- Field "**szDir**" equals the target directory location
- Field "**szFolder**" equals the program folder name
- Field "**UpdateOption**" to enable updates via Internet.

Note: Command-line options that require a parameter must be specified with no space between the option and its parameter. Based on Installshield DevStudio tool, all command line options available could be passed to the "*setup.exe*".

See http://helpnet.installshield.com/robo/projects/helplibdevstudio9/SetupIss.htm for more information on silent installation mode.

3.2.1.5 Key registered after driver installation

After that, the following key registers have been set:

• Product Name	HKEY_LOCAL_MACHINE\SOFTWARE\Alcatel\DriverOHL • PRODUCT_NAME
• Installation Path	HKEY_LOCAL_MACHINE\SOFTWARE\Alcatel\DriverOHL • INSTALLATION_PATH
• Product Version	HKEY_LOCAL_MACHINE\SOFTWARE\Alcatel\DriverOHL • PRODUCT_VERSION
• Configuration Application Version	HKEY_LOCAL_MACHINE\SOFTWARE\Alcatel\DriverOHL • CONFIG_VERSION

3.2.1.6 Uninstall

To uninstall the Alcatel Hotel Driver, the following methods are possible:

- Use the “Add/Remove Programs” in the “Control Panel” and select the OHL Driver,
- Select the “Uninstall OHL Driver” shortcut on the desktop or in the program folder,
- Launch the installation program via “*setup.exe*” and select the “Remove” check box

Then the driver application service will be uninstalled, the driver files will be deleted and the associated key registers will be removed.

3.2.1.7 Update

When you have a new version of the OHL Driver, you can update the current installed OHL Driver version by launching the installation program via “*setup.exe*” and selecting the “Modify” check box. You may also uninstall (see the previous section 3.2.1.6: Uninstall) the OHL Driver and then perform an install with the new OHL Driver version.

3.2.1.8 OHL Driver Configuration

The OHL driver configuration is possible at any time (driver running or not). New configuration parameters are written and saved in a file that is reloaded at each AAPP application connection.

If the driver is running and a hotel application is connected, the new parameters are only taken into account when the hotel application connection is released, or in case of when a timeout is reached.

These configuration parameters are saved in a text file, and the password parameter will be encrypted for security reasons. This text file can be easily set via the graphical configuration application (see section 3.2.1.10: OmniPCX Office Hotel Driver Configuration Application). The text file is under the main install directory and its name is “OhlDriver.conf”.

The file must contain the following expressions:

- OHL parameters:

AHL_PORT: TCP port, which should be fixed by default to the service port number reserved for the hotel interface.
(Default value: 2561)

CRC_PRESENCE: CRC presence parameter to allow compatibility with some applications that use CRC presence in the TCP/IP connection and keep alive messages.
(Default value: 0 = CRC disabled: value 1 = CRC enabled)

AHL_INTERFACE_LOG_LEVEL: Log level (level 1 to 4): trace level for OHL information default value: 4, (see section 0:
Log file and level description for definition of the 4 log levels).

- OXO parameters:

OXO_PASSWORD: Administrator password for OXO configuration link, (encrypted for security reasons). It is the same password as the Administrator OXO password (as entered in OMC application) and must be updated by the user/technician if changed in the OmniPCX Office.

OXO_LOG_LEVEL: OXO Log level (up to 4): trace level for OXO information. (Default value: 4 (see section 0:
Log file and level description for definition of the 4 log levels).

OXO_TIMEOUT: OHL inactivity connection time limit in second (default value: 30s). Modify this value only according to technician recommendations.

OXO_IP_HOSTNAME: Hostname identifier of the OXO, this could be an IP address, or an identifier host name (ex: MainAlize), but in this case the mapping of the host name / IP address should be entered in the network parameter file /winnt/system32/drivers/ etc/hosts (eg.: **192.168.92.246 MainAlize**).

DRIVER_RUNNING_MODE: It could be Hotel or Metering depending of the installation choice. This value can be changed and taken into account after a stop/start driver action.

- Proxy parameters

OHL driver can access OXO through a proxy server. Here are the parameters to configure this access :

PROXY_IP_HOST_NAME: Host name or IP address of proxy server. If blank (default value), direct access to OXO.

PROXY_PORT_NUMBER: Port number of the proxy server

PROXY_USER_NAME: user name used to login into the proxy server

PROXY_USER_PASSWORD: user password associated to user name.

- Metering parameters:

METERING_OVER_HTTPS: Define protocol used for metering link : 0 for HTTP and 1 for HTTPS (default value).

METERING_COLLECTOR_DIR: Define the directory that will contain the collector files. If blank, installation directory is the default one. On Windows Vista, this parameter is defaulted to the public documents folder (for example, C:\Users\Public\Documents).

METERING_COLLECTOR_FILE: Define the name of the collector ticket file. Default value = TicketCollector.xml

METERING_COLLECTOR_MAX_TICKET: Define the maximum number metering ticket that can be stored in one occurrence of collector file. Default value is 1000.

METERING_PORT: Not used

METERING_BAUDRATE: Not used

METERING_BUFFER_MAX_SIZE: Not used

METERING_OVERFLOW_THRESHOLD: Not used

METERING_OVERFLOW_BEHAVIOR: Not used

METERING_LOG_LEVEL: Metering Log level (1 to 4 levels): trace level for metering information. (Default value: 4 - see section 0:
Log file and level description for definition of the 4 log levels).

- Global parameters:

GLOBAL_LOG_FILE: Global Log file name (containing all log file data).
(See section 0:
Log file and level description for definition of the 4 log levels).

GLOBAL_LOG_LEVEL: Trace level for global information.
(Default value: 4 - see section 0:
Log file and level description for definition of the 4 log levels)

LOG_FILES_MAX_SIZE: Maximum size, in bytes, of the log file
(Default value: 500000)

3.2.1.9 Example of configuration file

```
#########################################################
# XXX_LOG_LEVEL,:
# - 1 = ERROR
# - 2 = ERROR and WARNING
# - 3 = ERROR, WARNING and INFO
# - 4 = ERROR, WARNING, INFO and DEBUG
#
# FTP_PASSWORD
# Encoded OXO FTP password using BASE64 algorithm
#
# OXO_TIMEOUT
# OXO access timeout in seconds
#
# METERING_BUFFER_MAX_SIZE
# maximum number of metering messages
#
# METERING_OVERFLOW_THRESHOLD
# filling percentage of the buffer (0 < value < 100)
#
# METERING_OVERFLOW_BEHAVIOR :
# - 0 = NO OVERFLOW (messages discarded)
# - 1 = OVERFLOW TO FILE
#
# LOG_FILES_MAX_SIZE
# value = maximum trace file size in bytes
#
# DRIVER_RUNNING_MODE
# running mode of the driver
# - Metering = AHL link is disabled and Call accounting interface is always up. Ticket are printing into METERING_COLLECTOR_FILE
# - Hotel    = AHL link layers is enabled and call accouting interface is up only if AHL application is connected.
#########################################################


#########################################################
# System Version
#########################################################
OmniPCX Office Version : 3EH30537BAAA RCEFR103/010.003

OmniPCX Office Mode : Hotel

Driver version : 2.3.14

Configuration application version : 2.3.14


#########################################################
# AHL parameters
#########################################################
AHL_PORT=2561
CRC_PRESENCE=0
AHL_INTERFACE_LOG_LEVEL=1
```

```
#########################################################
# OXO parameters
#########################################################
OXO_PASSWORD=S2lsbzE5ODc=
OXO_LOG_LEVEL=1
OXO_TIMEOUT=30
OXO_IP_HOSTNAME=10.1.3.40
DRIVER_RUNNING_MODE=Hotel

#########################################################
# PROXY parameters
#########################################################
PROXY_IP_HOST_NAME=
PROXY_PORT_NUMBER=
PROXY_USER_NAME=
PROXY_USER_PASSWORD=

#########################################################
# Metering parameters
#########################################################
METERING_OVER_HTTPS=1
METERING_COLLECTOR_DIR=C:\Users\Public\Documents
METERING_COLLECTOR_FILE=TicketCollector.xml
METERING_COLLECTOR_MAX_TICKET=1000
METERING_PORT=COM1
METERING_BAUDRATE=9600
METERING_BUFFER_MAX_SIZE=2000
METERING_OVERFLOW_THRESHOLD=80
METERING_OVERFLOW_BEHAVIOR=0
METERING_LOG_LEVEL=1
#########################################################
# Global parameters
#########################################################
GLOBAL_LOG_FILE=C:\Users\Public\Documents\log.txt
GLOBAL_LOG_LEVEL=4
LOG_FILES_MAX_SIZE=500000

#########################################################
# Snapshot TEST report
#########################################################
Initializing the connection
Sending the connection message
Receiving ACK to the connection message
Sending the Request message
Receiving ACK to the reinit message

room number opened :    106
#########################################################
# Metering TEST report
#########################################################
Initializing the connection
Sending the connection message
Receiving ACK to the connection message
Sending the Check In message
```

Receiving ACK to the check in message
Getting the message from the driver
Receiving ACK to the check out message

Log file and level description

The driver creates one global log file. It contains AHL_Interface, metering, OXO Library and Warning/Error information. The Global log file is found in the public documents folder on Windows Vista (for example C:\Users\Public\Documents) and in the main OHL Driver installation directory for older versions of Windows.

Note 1: LOG_LEVEL for each module (AHL_interface, metering, OXO library and global log) represents the degree of severity that user wants to be printed in log files.
Thus:

_LOG_LEVEL=1 → only errors are printed
_LOG_LEVEL=2 → errors and warnings are printed
_LOG_LEVEL=3 → errors, warnings and info are printed
_LOG_LEVEL=4 → same as _LOG_LEVEL = 3 + debug messages are printed

Note 2: The length of the log files is set via the LOG_FILES_MAX_FILES value available under the configuration file. When a log file is full, it is renamed with a “1” concatenated at the end of its name. The new log file has the same name as the old one. So there is maximum 2 files of log outputs.

Example: Old file: LOG.txt.1
Actual file: LOG.txt

The content of a log file is as follow:
TIMESTAMP----- LOG LEVEL-----THREAD NUMBER-----LOCALISATION-----MESSAGE

As a Multithreaded service process, the OHL driver uses separated threads during running time. The THREAD NUMBER is the given internal system value for each of them. This value is useful in order to know for example a service restarting.

Examples:
Wed May 26 09:54:04 2004 WARN 2544 AlcAHLLinkLayer::stopAckTimer : Can't stop the Ack timer : it is not
Wed May 26 09:54:04 2004 DEBUG 2544 AlcAHLLinkLayer::stopKeepAliveTimer : Timer 0 stopped
Wed May 26 09:54:04 2004 WARN 2544 AlcAHLMetering::resetInterface : Interface reset
Wed May 26 09:54:04 2004 ERROR 1264 AlcAHLPortCom::read : ReadFile() failed
Wed May 26 09:54:04 2004 INFO 1264 AlcAHLThread::exitThread : Exit thread

3.2.1.10 OmniPCX Office Hotel Driver Configuration Application

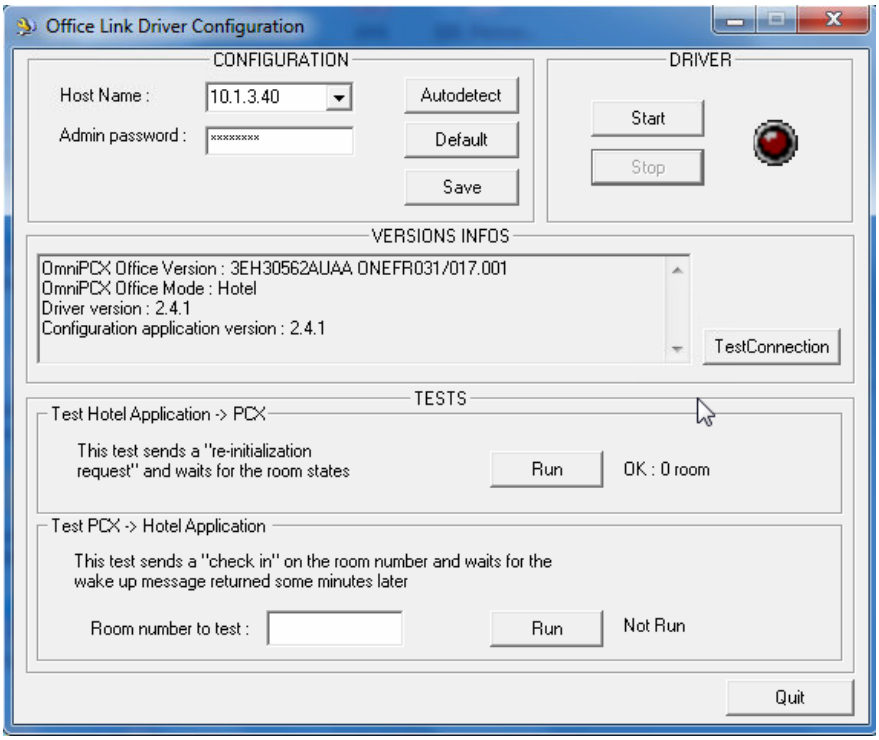
After installation, the OmniPCX Office Hotel driver configuration application can be launched either using the shortcut on the desktop or via “Start / Program Files” menu.

If you are using Windows Vista, please remember that you must run the configuration application with a full administrator access token (to perform this operation, right-click the program icon or shortcut, and then click “Run as administrator”).

The different fields will be set with the default values, otherwise the configuration text file (file called: “OhlDriver.conf”), if existing, will be read and the data updated. The configuration text file is placed in the main directory where the OHL driver has been installed.

The configuration application offers a graphical user interface (GUI) to change the main parameters in the configuration file. If the user wants to customize additional parameters not provided in the configuration screen, he must edit manually the configuration text file parameters (see the previous section 3.2.1.8 OHL Driver Configuration).

The “Configuration application “window will be opened with the following appearance:



To save a created or modified file, the user has just to click on the “Save” Button after entering Hostname and Administrator Password values, then he can quit the application by clicking on the “Quit” Button.

To display default values for the different fields in the configuration application, the user has to click on the “Default” Button.

If the user clicks on the “Quit” button without having first saved, in case of changes, a message box appears to inform the user if he wants to save the file or not.

- **”Autodetect” button**

The “Autodetect” button launches a test to detect the main IP network addresses of the OmniPCX that must be seen by the PC. When the auto detection has finished, the PBX address should appear in the “Host Name” list box. If the “Autodetect” feature fails, the fields can also be filled manually.

- **“TEST” buttons**

Some tests are available on the driver, each test must be processed sequentially: Test Connection, Test Hotel Application -> PCX and Test PCX -> Hotel Application. Each test must succeed in order to process the next one. The OHL Hotel Driver service must be already started to be able to pass these tests: the tested part will communicate with the driver in the same way as the Hotel application. PM5 Management applications or NMC applications should not be connected to the OmniPCX Office platform.

- **Driver “START/STOP” buttons**

Those elements allow starting and stopping the OHL Driver service. The current service status is done via a status green/red light.

Detailed description of the tests:

- Test Connection:

Goal of this test: Validation of hostname and password, software version and OmniPCX platform configuration type (either Hotel as requested, or Business mode).

Test sequence:

- ➔ Initializes the connection,
- ➔ Get the PBX parameters (system language, version…).

The test is considered as OK if all these commands succeed
The report of the tests will be appended to the configuration file.

Warning:

- If your OHL service has just started please wait 30 seconds before performing a connection test due to driver restart time.
- If a Hotel application is connected to the driver, disconnect it before performing tests.

- Test Hotel Application -> PCX:

Goal of this test: Validation of the capability to be connected to the OHL driver and process traffic on it.

- ➔ Establish the connection
- ➔ Send a Full ReInit request, with no room extension specified, to get a full snapshot of all checked in rooms.
- ➔ Get the successive ReInit messages associated to checked-in rooms which are available.

The test is considered as OK if all these commands succeed.
The report of the tests will be appended to the configuration file and the quantity of checked-in rooms will be displayed next to the test ‘Run’ button.

- Test PCX -> Hotel Application:

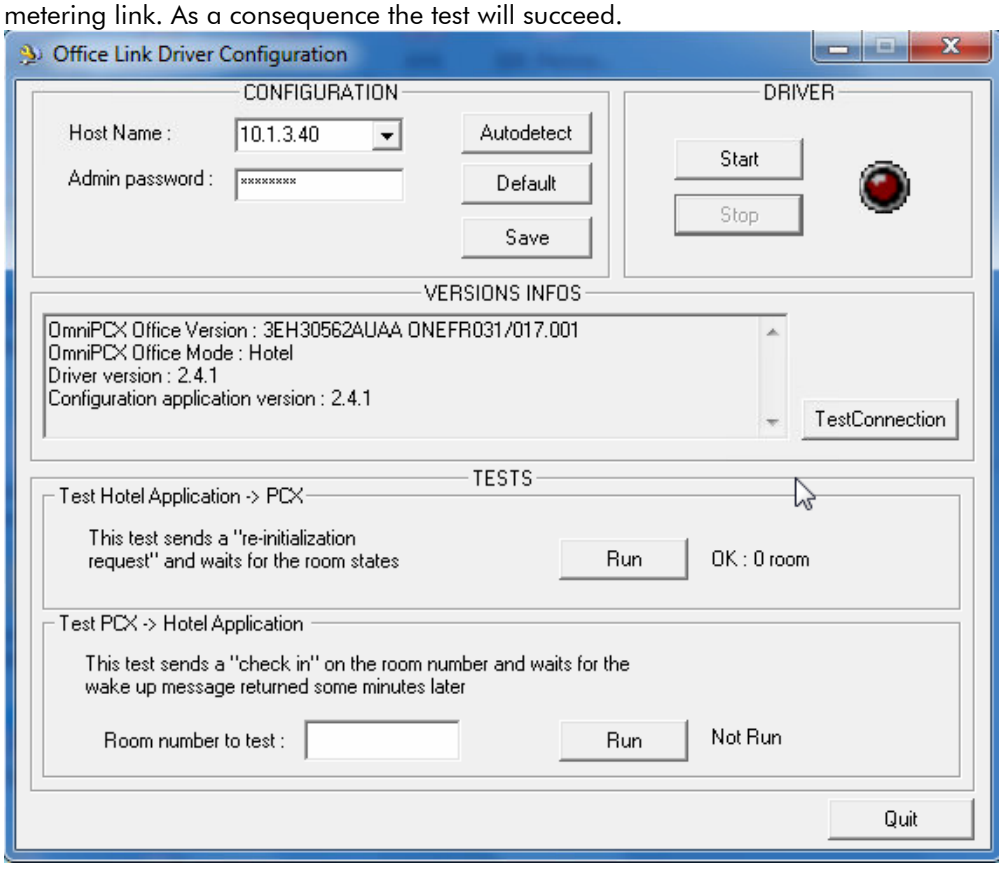
Goal of this test: Validation of the metering link configuration and connectivity, make a check on a free room, and programming an appointment on it, in order to generate metering traffic.

- ➔ The user fills the 'Room number to test' field with a free room extension number.
- ➔ Establish the connection
- ➔ Send a Check In Message on the specified room, with the "Wake Up" field active and the "Wake Up Time" set to the current system hour + 2 minutes
- ➔ If the reply is positive, wait (until a timeout) for the "Wake Up Event" message from the Driver,
- ➔ In case of reception of this message, the test is considered as OK, and a Check out on the room proceeds in order to go back in the previous room free configuration.

The test is considered as OK if all these commands succeed.

The report of the tests will be appended to the configuration file.

In order to process this test quickly, use the hotel administrative set or the selected room set, to change or to delete the Wake up call for this room. A WAKEUP message will be produce on the metering link. As a consequence the test will succeed.



3.2.1.10.1 System configuration

If using OHL driver in Hotel mode, the OmniPCX Office product must be started in “Hotel” mode, and not in “Business” mode. “Hotel mode” can be selected by using the OmniPCX MMC “ Reflexes” phone set “WIZARD” session after a cold reset of the OmniPCX Office. Hotel/Business mode is selected by soft key in the first screen of the WIZARD session or using the PM5 Configuration wizard also available after a cold reset.

3.2.1.10.2 Metering configuration

Due to the analysis of the frames coming from the OmniPCX IP Metering interface which generate OHL Messages, the metering must be configured using the OmniPCX Office OMC configuration software as shown in the following description.
If using OHL driver in metering mode, only the part concerning Metering menu should be configured.

Call accounting over IP:

You have to check that your software key contains the Call accounting over ip enabled : In ‘**System**’ screen, ‘**Software key**’ tab, -> ‘**Network Management**’ : “**Call accounting over IP**” should be **enabled**. If not, update your system software key with a license containing this property.

Debug labels, Details:

- ➔ **Memory Read/Write ‘Debug Label’**: “**OpeMetEna**”
- ➔ **Value must be:** “**01**”

(This remarkable address enable metering of the operator/receptionist).

Other labels, Details:

- ➔ **Memory Read/Write ‘Others Label’**: “**OHL_Activ**”
- ➔ **Value must be:** “**01**”

(This remarkable address is automatically re-written to value 01 the first time a connection is established by the Hotel application).

Hotel Parameters:

- ➔ The “**Print Check-In/Check-Out Ticket**” checkbox must be **checked**.
- ➔ Click “**OK**” to confirm your configuration

Metering:

- Metering Printout sheet:
  - ➔ The “**External Metering Activation IP**” checkbox should be **checked**.
  - ➔ The “**Appointment printout**” for… “**Activation, Cancellation, Failed, Complete**” checkboxes should be **checked**.
- Hotel Metering for Active Currency:
  - ➔ The “**Print Room Status Ticket at any manual status change**” checkbox should be **checked**.
  - ➔ Click “**OK**” to confirm your configuration

3.2.1.11 Start / stop

The driver is started / stopped like any Windows service (using the Configuration panel for instance), and could be also started by the on-line command:

Service starting:
net start ”OHL Driver Service”

Service stopping
net stop ”OHL Driver Service”

On Windows Vista, please remember that you must run the command line tool with a full administrator access token.

The driver could also be started or stopped using the OHL Driver configuration application.

- *In Hotel mode* :
  - when the driver is started, no connection with OmniPCX Office is processing (PCMan over IP and metering over IP), until a hotel application is connected.
  - When the driver is stopped, the hotel application is automatically disconnected.
- *In Metering mode:*
  - When the driver is started, metering connection with OmniPCX Office is immediately done and the metering tickets are printed as soon they arrived.
  - When the driver is stopped, metering connection is logged out.

In case of a PC crash while the OHL driver is running, the driver automatically restarts only if it has been installed as an automatic “ start up “ Windows service (see section 3.2.1.2: Install Application).

3.2.1.12 Application connection / disconnection

3.2.1.12.1 Connection and restrictions

The connection is performed during the “started” phase (see previous section 3.2.1.11: Start/Stop).

Only **one** Hotel application at a time can connect to the driver, and only one driver program execution is allowed to exchange data with the OmniPCX Office. Multi client applications are not handled by the driver but by the hotel application.

There is no restriction concerning simultaneous access to configuration link. If OMC or MMC on set session is active, OHL driver can always connect to the OmniPCX Office.

Simultaneous Hotel operations, from both a hotel application and OmniPCX Office “Reflexes” phone terminal (e.g. check in/ out of a room), are allowed. The hotel application will be informed of the changes made on the phone terminal (Reception set), or of bill tickets, through the metering interface.

3.2.1.12.2 Disconnection

When the hotel application disconnects from the driver, configuration link and metering link are logged out from OmniPCX Office.

If there is a request in progress, the driver waits for the response before releasing the connection with the hotel application.

3.2.1.12.3 Request processing

The OHL driver processes only one OHL request at a time: even if several requests are sent to the driver, the driver will only process a new request when it has received the response from the OmniPCX Office to the previous one. The other ones are buffered in order to be analyzed and treated afterwards.

Data synchronization between the OmniPCX Office and the application is out of the scope of the driver. For re-synchronization with the OXO database, the hotel application must send a “Re-initialization request” message to the driver, to get a full snapshot of the checked in room states.

3.2.1.13 Behavior /error logs

See previous section 0
Log file and level description. Additional definitions of the different error logs are available in annex 4.1.

3.3 Interactions with partner application

3.3.1 Protocol exchange with Hotel Application Partner

The messages, sent by the Hotel Application, are analyzed, and depending of their type of contents, will invoke an OXO library method. Positive/negative acknowledgement or data will be returned to the Hotel Application.

List of the different types of allowed messages sent by the Hotel application:

- Check in - When Guest is allocated a room
- Phone allocation – To request, or to program, a DDI number to the guest room.
- Modification – To change parameters entered at “Check In”
- Check Out – When a Guest is de-allocated from a room
- Interrogation – To get the guest telephone accounts.
- Re-initialization request – To get data on a specific guest or on every checked in rooms (snapshot)

3.3.1.1 Acknowledgement and flow control

Since TCP guarantees:

- At the receiving end, the same order in which data are sent,
- The integrity of data,
- Flow control,

Because we send only one frame at a time, the management of XON and XOFF is unnecessary.

3.3.1.2 Keep alive mechanism

A “Keep Alive” mechanism is implemented between the OmniPCX Office and the external application, to detect if one of them does not respond any more.

Every 30 seconds, a message is sent by an entity (Hotel application or Hotel driver) to the other. If, during 2*30 sec, no keep-alive frame is received from its neighbor, this neighbor will be considered as dead. Using this process, each entity is notified about the availability of its neighbor.

3.3.1.3 Common exchanged data

All messages begin with the data field “STX” for the start of text (one byte) and “Type” (one byte), and are ending by an optional CRC field (2 bytes) and a ETX (one byte) for the end of text.

3.3.1.4 Data content

The message data content are described in the document “OmniPCX Office: Hotel Driver API”, and will not be described here.

3.3.1.5 Bad cases controlled by the driver

Through the Partner Hotel Application, the user wants to check a room in (or make a modification / check out).

The driver reads the room state before calling the OmniPCX Office configuration API methods, and responds for the bad case with a refused action reply.

These bad cases may occur when:

- The room is allocated and a “Check In” is requested for it,
- The room is not yet allocated and a “Modification” is requested for it,
- The room is not yet allocated and a “Check Out” is requested for it,

3.3.1.6 Checked in Guest Room re-initialization

When the driver receives a Guest Room re-initialization Message, it could be for one room, or if the room number is not specified, all checked in rooms are concerned. This snapshot allows synchronization between the Hotel Application and the OmniPCX Office Checked in room status.

The Hotel application must wait up to the end of the checked in room re-initialization (reception of a re-initialization message with a *sub-type* value ‘**E**’ (End) for full data, and ‘**O**’ for partial data), before sending any new command.

Depending on the initialization type, the Re-Initialization could be “partial” (only the main information of the checked in room are sent into the message) or “full” (The message will contain every information of the checked in room specified).

3.3.1.7 Other messages and detailed protocol

For more details on this snapshot, please see the document “OmniPCX Office: Hotel Driver API”.

3.3.1.8 Protocol of exchange with Metering interface

The driver-metering interface is seen only as an input: the messages will transit only in the direction from the OmniPCX Office IP metering interface to the Hotel driver-metering interface.

Two kinds of tickets can be received:

- **Metering tickets**
- **Information tickets**

3.3.1.8.1 Metering ticket

The metering tickets give information on the guest phone use (communication taxation, charge assignment).

Each received and recognized ticket is translated into an OHL SMDR message and sent to the hotel application.

The ticket format must be programmed on the OmniPCX Office side, (see section 0 How to configure OmniPCX Office System and Metering using : paragraph “Then the tickets have a fixed format which could be analyzed by the hotel driver.”).

3.3.1.8.2 Information tickets

The information tickets give information on the room activity (check-in or check-out from the OmniPCX Office embedded application for instance).
They are used to synchronize the embedded and external hotel applications.

By default, they are not enabled and so the OmniPCX Office has to be programmed to generate them. (See section 0: section How to configure OmniPCX Office System and Metering using)

The information tickets, giving the characteristics associated to the guest are translated into an OHL Check-In, Modification, Check-out, Room Status, or Wake up message.

3.3.1.8.3 Priorities

Concerning the priority between messages from the Metering Interface and from the OHL Input Thread, the OHL Messages from the Hotel application have the same priority as Metering ones: they are treated alternatively.

For priority between Metering (taxation) ticket and Information tickets, the taxation tickets have a higher priority: one information ticket will not be treated if there is still a metering ticket.

4 Annex

4.1 Log error description

4.1.1 ALCAHLDATALAYER

LOCALIZATION	TYPE
AlcAHLDataLayer Constructor	Manager instance error: No management module found
AlcAHLDataLayer Constructor	AlcAHLLinkLayer instantiation failure
AlcAHLDataLayer Constructor	AlcAHLMetering instantiation failure
AlcAHLDataLayer Constructor	AlcOHAPIAdapter instantiation failure
AlcAHLDataLayer Constructor	AlcSystemInfoStruct instantiation failure
AlcAHLDataLayer Constructor	Unable to start the data layer thread
AlcAHLDataLayer Constructor	Untreated exception caught
AlcAHLDataLayer Constructor	Error caught
initAHLDataLayer	AHL link initialization error
initAHLDataLayer	Metering initialization error
initAHLDataLayer	AHL link reset error
initAHLDataLayer	Metering reset error
selectAndCallOHAPI	Invalid message pointer
selectAndCallOHAPI	Untreated exception caught
ManageCheckInOrModifMessage	Untreated exception caught
ManageCheckOutMessage	Error caught
ManageCheckOutMessage	Untreated exception caught
ManagePhoneAllocMessage	Error caught
ManagePhoneAllocMessage	Untreated exception caught
ManageInterrogationMessage	Untreated exception caught
ManageReInitMessage	Untreated exception caught
ManageSMDRMessage	Pb at the message composition-No AHL message generated

4.1.2 ALCAHLLINKLAYER

LOCALIZATION	TYPE
AlcAHLLinkLayer Constructor	Manager instance error
AlcAHLLinkLayer Constructor	Unable to instantiate KeepAlive message
AlcAHLLinkLayer Constructor	Unable to start the link layer thread
sendAHLDataMessage	Transmission failed, link disconnected
Run	AHL layer reset failed
extractMessage	Invalid input parameters
extractMessage	Unable to instantiate a new message, remaining bytes dropped
linkLayerFsm	Transmission failed, link disconnected
linkLayerFsm	Retransmission failed, link disconnected
linkLayerFsm	Message with bad CRC or bad length received
startAckTimer	Can't start the Ack timer : it is already running
startAckTimer	m_pManager not instantiated
stopAckTimer	m_pManager not instantiated
restartKeepAliveTimer	m_pManager not instantiated
stopKeepAliveTimer	m_pManager not instantiated
timeoutProcedure	Instantiation error
timeoutACKProcedure	Instantiation error

4.1.3 ALCAHLMETERING

LOCALIZATION	TYPE
AlcAHLMetering Constructor	Manager instance error
extractMessage	Invalid input parameters
extractMessage	Unable to instantiate a new message, remaining bytes dropped
extractNextField	Invalid input parameters
extractCausefromDialedNumber	dialed number : xxx
startTrashTimer	m_pManager not instantiated
stopTrashTimer	m_pManager not instantiated
timeoutProcedure	Instantiation error

4.1.4 ALCAHLMESSAGE

LOCALIZATION	TYPE
decode	Too long AHL link message (XX bytes)
decode	Too short AHL link message (XX bytes)
decode	Missing start or end character in AHL link message
getLinkType	Empty AHL message

4.1.5 ALCAHLMUTEX

LOCALIZATION	TYPE
AlcAHLMutex Constructor	apr_initialize() failed (error = XX)
AlcAHLMutex Constructor	apr_pool_create() failed (error = XX)
AlcAHLMutex Constructor	apr_thread_mutex_create() failed (error = XX)
lock	apr_thread_mutex_lock() failed (error = XX)
tryLock	Mutex not available
tryLock	apr_thread_mutex_trylock() failed (error = XX)
unLock	apr_thread_mutex_unlock() failed (error = XX)

4.1.6 ALCAHLPORTCOM

LOCALIZATION	TYPE
SetBaudrate	CreateFile() failed
SetBaudrate	GetCommState() failed
SetBaudrate	Invalid number of bits
SetBaudrate	Invalid parity
SetBaudrate	SetCommState() failed
SetBaudrate	GetCommTimeouts() failed
write	WriteFile() failed
read	ReadFile() failed
write	GetOverlappedResult() failed
write	WaitForSingleObject() failed

4.1.7 ALCAHLSOCKET

LOCALIZATION	TYPE
AlcAHLSocket Constructor	apr_pool_create() failed (error = XX)
AlcAHLSocket Destructor	apr_socket_close() failed (error = XX)
disconnect	apr_socket_close() failed (error = XX)
connect	No memory pool is instanciated

connect	apr_socket_create() failed (error = XX)
connect	apr_sockaddr_info_get() failed (error = XX)
connect	apr_socket_connect() failed (error = XX)
waitForConnection	No memory pool is instanciated
waitForConnection	apr_socket_create() failed (error = XX)
waitForConnection	apr_sockaddr_info_get() failed (error = XX)
waitForConnection	apr_bind() failed (error = XX)
waitForConnection	apr_socket_listen() failed (error = XX)
waitForConnection	apr_socket_accept() failed (error = XX)
write	apr_socket_send() failed (error = XX)

4.1.8 ALCAHLTHREAD

LOCALIZATION	TYPE
AlcAHLThread Constructor	apr_pool_create() failed (error = XX)
startThread	No memory pool is instanciated
startThread	apr_thread_create() failed (error = XX)
stopThread	apr_thread_join() failed (error = XX)
exitThread	apr_thread_exit() failed (error = XX)
threadEntry	No thread instanciated

4.1.9 AHL ERRORS

TYPE OF AHL ERROR	IDENTIFIER
AHL_NO_ERROR	0
AHL_APR_ERROR	1
AHL_INSTANTIATION_ERROR	2
AHL_MISSING_PARAMETER	3
AHL_CONFIG_ERROR	4
AHL_MEMORY_ERROR	5
AHL_LINK_LAYER_MSG_ERROR	6
AHL_LINK_LAYER_DISCONNECTED	7
AHL_PARAM_ERROR	8
AHL_WOULDBLOCK	9
AHL_MESSAGE_COMPOSITION	10
AHL_MESSAGE_ROOM_STILL_CHECK	11
AHL_MESSAGE_SET_SUBSCRIBER_METERING	12
AHL_MESSAGE_GET_SUBSCRIBER_METERING	13

AHL_MESSAGE_SET_GUEST_PARAMETERS	14
AHL_MESSAGE_GET_GUEST_PARAMETERS	15
AHL_MESSAGE_GETLINE	16
AHL_MESSAGE_ERROR_COST	17
AHL_MESSAGE_SETLINE	18
AHL_MESSAGE_SET_PASSWORD	19
AHL_MESSAGE_GET_PASSWORD	20
AHL_MESSAGE_SET_BARRING	21
AHL_MESSAGE_GET_BARRING	22
AHL_MESSAGE_SET_APPOINTMENT	23
AHL_MESSAGE_GET_APPOINTMENT	24
AHL_MESSAGE_DO_NOT_DISTURB	25
AHL_MESSAGE_BAD_SUBTYPE	26
AHL_MESSAGE_BAD_LANGUAGE	27
AHL_MESSAGE_BAD_BARRING	28
AHL_MESSAGE_BAD_MSG_WAITING	29
AHL_MESSAGE_BAD_WAKE_UP	30
AHL_MESSAGE_BAD_PB_STATUS	31
AHL_MESSAGE_BAD_DO_NOT_DISTURB	32
AHL_MESSAGE_BAD_PREPAYMENT	33

4.1.10 OmniPCX Office Configuration API errors description

NAME	IDENTIFIER
SSMGR_NO_ERROR	0
SSMGR_NO_ERROR_EMPTY_RESULT	1
SSMGR_LOGICAL_ERROR	1000
SSMGR_API_PARAMETERS	1100
SSMGR_API_ARGUMENT_EMPTY	1101
SSMGR_API_ARGUMENT_OUT_OF_RANGE	1102
SSMGR_API_ARGUMENT_INVALID_PARAM _VALUE	1103
SSMGR_API_UNKNOWN_EDN	1104
SSMGR_API_UNKNOWN_COMMON_ REPERTORY_INTERNAL_NUMBER	1105
SSMGR_API_UNKNOWN_LANGUAGE	1106
SSMGR_API_NO_MEVO_FOR_USER	1107
SSMGR_API_SSMGR_GLOBAL_INIT_NOT_DONE	1108
SSMGR_RUNTIME_ERROR	2000
SSMGR_MEMORY_ERROR	2100
SSMGR_MEMORY_ALLOCATION_ERROR	2101

SSMGR_MATH_ERROR	2200
SSMGR_MATH_DIV0_ERROR	2201
SSMGR_PROCESS_ERROR	2300
SSMGR_PROCESS_THREAD_MISSING	2301
SSMGR_CNX_ERROR	3000
SSMGR_CNX_PARAMETERS_NOT_SPEC	3001
SSMGR_CNX_ALREADY_USED	3002
SSMGR_CNX_PROTOCOL_ERROR	3003
SSMGR_CNX_UNABLE_TO_CONNECT	3004
SSMGR_CNX_UNABLE_TO_DISCONNECT	3005
SSMGR_CNX_PBX_RESPONSE_TIMEOUT	3006
SSMGR_CNX_FTP_ERROR	3100
SSMGR_CNX_FTP_SOCKET_ERROR	3101
SSMGR_CNX_FTP_UNKNOWN_HOST	3102
SSMGR_CNX_FTP_UNKNOWN_USER	3103
SSMGR_CNX_FTP_WRONG_PASS	3104
SSMGR_CNX_FTP_BAD_USER_OR_PASS	3105
SSMGR_CNX_SUPERVISION_ERROR	3200
SSMGR_CNX_SUPERVISION_SOCKET_ ERROR	3201
SSMGR_DISCNX_ERROR	3300
SSMGR_CNX_UNKNOWN_ERROR	3400
SSMGR_POST_ERROR	4000
SSMGR_POST_UNKNOWN_ERROR	4001
SSMGR_POST_RETRIEVE_UNKNOWN_ ERROR	4002
SSMGR_POST_PBX_REQUEST_FAILED	4003
SSMGR_POST_PROTOCOL_ERROR	4004
SSMGR_POST_DATAID_VERSION_ERROR	4005
SSMGR_UNKNOWN_ERROR	9000