OCP - OMNIA Control Protocol

Introduction

The OMNIA Control Protocol is the COSMED solution to connect OMNIA to a third-party software, to carry out functions, to gather information, to execute tests, and to integrate data even without interacting with Omnia graphical user interface.
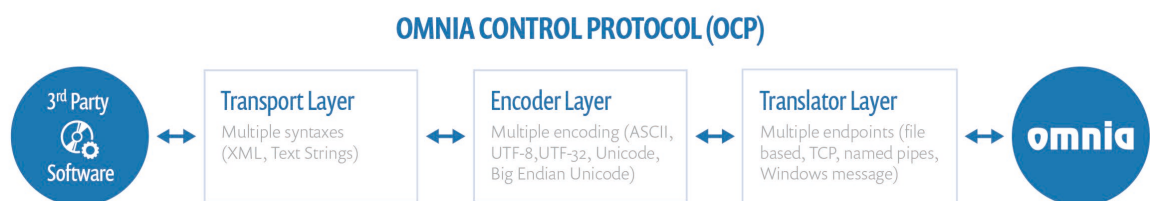
Architecture

The OCP enables a bridge between the OMNIA and a third-party application using a three-layer architecture:

- a **Transport Layer** that creates an endpoint where OMNIA can be connected.

- an **Encoder Layer** that handles the syntax and the grammar of the communication

- a **Translator Layer** that acts as language interpreter.

Each layer is also decoupled from its neighborhood:

- The <u>Transport Layer</u> furnishes an endpoint (a TCP port, a folder, etc.) and transports data in both directions, from the endpoint to the sibling layer and vice versa. It does not know anything about the information; it only deals with streams of bytes.

- The <u>Encoder Layer</u> formats a stream of data in a well-formed form, and vice-versa. It knows everything about the syntax, it will reject any message that does not respect it, but it does not know anything about the message meaning.

- The <u>Translator Layer</u> is an interpreter that translates a message from a "foreign language", spoken by the Outside World, to the "OMNIA language" and vice versa. It does not know anything about what the message will do once delivered to OMNIA.

OMNIA supports multiple syntaxes (XML, Text Strings), multiple encoding (ASCII, UTF8, UTF32, Unicode, Big Endian Unicode) and multiple endpoints (file based, TCP, named pipes, Windows message).

OMNIA CONTROL PROTOCOL (OCP)

Besides the classic client-server architecture, OMNIA implements a kind of publish-subscribe architecture for unsolicited messages toward its clients. For example, when the user starts a new test, OMNIA informs its clients. This is because while a test is in progress some commands are not accepted, and clients should consider this. In addition, OMNIA can request actions to be performed by its clients, again by sending an unsolicited message to them. Every unsolicited message is time stamped: in case of multiple messages, they can be processed in the right order.

For security purpose, all commands that will alter in any way the data stored in the OMNIA Database are logged. To execute any OCP command, it is also necessary passing through an authentication process obtaining an identity token that expires when the session is closed.

OCP Developer Program

It is possible to join the free OCP Developer Program designed for students and researchers: by signing a license agreement, you will receive the OCP manual (C05188-02-91), and you will be able to interact with Omnia software using the OCP protocol.

An advanced development program is available upon quote, offering more advanced support tools and early access to new versions of the software and commands and dedicated email support.

OCP Developer License

While Omnia is always ready to receive the OCP commands, it is necessary to have an Omnia license for running the software. The license is always supplied with an Omnia enabled COSMED devices. Without the device an OCP license can be ordered to run the software for development purposes.

OCP Developer License is available for both the Omnia software versions, Standalone and Network:

C04724-01-11 OMNIA Control Protocol, OCP-SDK (Standalone Dongle key license)

C04724-02-11 OMNIA Control Protocol, OCP-SDK (Network eLicense)