OMNIA Connector

OMNIA Connector is a software package designed to allow communication between COSMED OMNIA Cardiopulmonary Diagnostic Suite and a Hospital Information System (HIS) using HL7® standard.

Product REF

Part Number	Description	Version
A-670-100-013	OMNIA Connector Module	1.5

Introduction

HL7® is a standard protocol the supplies a framework for the exchange, integration, sharing and information retrieval in a Hospital Information System (HIS). This protocol defines the guidelines and the workflow methodologies that allows sharing and processing the health data information in a consistent and standard way. In the ISO/OSI layer the HL7® works at application level granting the possibility of data interchange between heterogeneous software's and medical devices.

Some of HL7® field of application are: management of patient demographic data; recording of orders, under different aspects (laboratory analysis, drugs, vaccines, etc.); research formulation; management of financial aspects (invoices, insurance, etc.); management of laboratory results; management of shared reference files (user list, employee list, etc.); document management (results, reports, administrative documentation, etc.); appointments management; moving patient data between different structures; treatment paths; automation management of laboratories; coordination of applications running on the same workstation; staff management.

Product Description

COSMED developed a software module allowing the interaction between Omnia suite and the HIS using the HL7® protocol. The module is compatible with Omnia both standalone and network versions.

Messages from the HIS are managed in a work list interface and processed within the Omnia software and devices. Demographic data can be requested directly from the HIS using direct queries.

The test results are then processed and exported back to the HIS in several formats, transmitting the link to the PDF report or even embedding the file encoded in base64 format together the raw data parameters resulting by the test.

Implemented Messages

Omnia connector can receive and manage the following messages.

ADT: Patient Administration messages
Are used to exchange the patient state within a healthcare facility. HL7® ADT messages keep patient demographic and visit information synchronized across healthcare systems. ADT messages within the HL7® standard are typically initiated by the Hospital Information Systems (HIS), or a registration application, to inform ancillary systems that a patient has been admitted, discharged, transferred, merged, that other demographic data about the patient has changed or that some visit information has changed.

ADT Managed Events:

A01 - Admit/Visit notification	This event is intended to be used for "Admitted" patients only. An A01 event is sent because of a patient undergoing the admission process which assigns the patient to a bed.
A04 - Patient registration	This event signals that the patient has arrived or checked in as a one-time, or recurring outpatient, and is not assigned to a bed.
A05 - Patient pre-admission	This event is sent when a patient undergoes the pre-admission process. During this process, episode-related data is collected in preparation for a patient's visit or stay in a healthcare facility. For example, a pre-admit may be performed prior to inpatient or outpatient surgery so that lab tests can be performed prior to the surgery. This event can also be used to pre-register a non-admitted patient.
A08 - Patient information update	This event is used when any patient information has changed but when no other trigger event has occurred. For example, an A08 event can be used to notify the receiving systems of a change of address or a name change. The A08 event can include information specific to an episode of care, but it can also be used for demographic information only.
A11 - Patient information update	For "admitted" patients, this event is sent when an A01 (admit/visit notification) event is cancelled, either because of an erroneous entry of the A01 event, or because of a decision not to admit the patient after all. For "non-admitted" patients, the A11 event is sent when an A04 (register a patient) event is cancelled, either because of an erroneous entry of the A04 event, or because of a decision not to check the patient in for the visit after all.
A28 - Add person or patient information	This event allows sites with multiple systems and respective master patient databases to communicate activity related to a person regardless of whether that person is currently a patient on each system.
A29 - Delete person Information	This event can be used to delete all demographic information related to a given person. This event "undoes" an A28 (add person information) event. The information from the A28 event is deleted.
A38 - Cancel pre-admit	This event is sent when an A05 (pre-admit a patient) event is cancelled, either because of erroneous entry of the A05 event or because of a decision not to pre-admit the patient after all. The fields included when this message is sent should be the fields pertinent to communicate this event.
A40 - Merge patient - Patient Identifier List	This event is used to signal a merge of records for a patient that was incorrectly filed under two different identifiers. The "incorrect source identifier" identified in the MRG segment (MRG-1 - Prior Patient Identifier List) is to be merged with the required "correct target identifier" of the same "identifier type code" component identified in the PID segment (PID-3 - Patient Identifier List). The "incorrect source identifier" would then logically never be referenced in future transactions.

ORM: Order Message (ORM^O01)

It is any request for materials or services. The transmission of clinical orders occurs between the application placing the order (the placer) and the clinical application filling the order (the filler). Typically, the caregiver (e.g., physician) is entering orders on the HIS application which acts as the placer application in HL7® messaging parlance. The system to which the order is targeted (e.g., the lab in the case of a complete blood count order) is the filler of the order.

ORU - Observation Result (ORU^R01)

It is usually in response to an order and provides clinical observations. It provides structured patient-oriented clinical data between systems (e.g., EKG results to a physician's office). ORU messages also can be used for linking orders and results to clinical trials (e.g., new drugs or new devices). ORU message transmits observations and results from the producing system/filler i.e. LIS, EKG system) to the ordering system/placer (i.e. HIS, physician office application). The ORU message is a structured report where each observation is separated into an individual entity, and then separated into fields. ORU messages use varying data types but most often use text, numbers and codes and can embed pdf report and another document format.

QRY/ADR – Patient Query for registration status (QRY^A19/ADR^A19)

It is formed by QRY (a query from the OMNIA connector) and ADR (a response from the HIS Patient Administration system). If the patient is present in the HIS database a reply is sent and a demographic data are sent back to the worklist manager.

Workflow
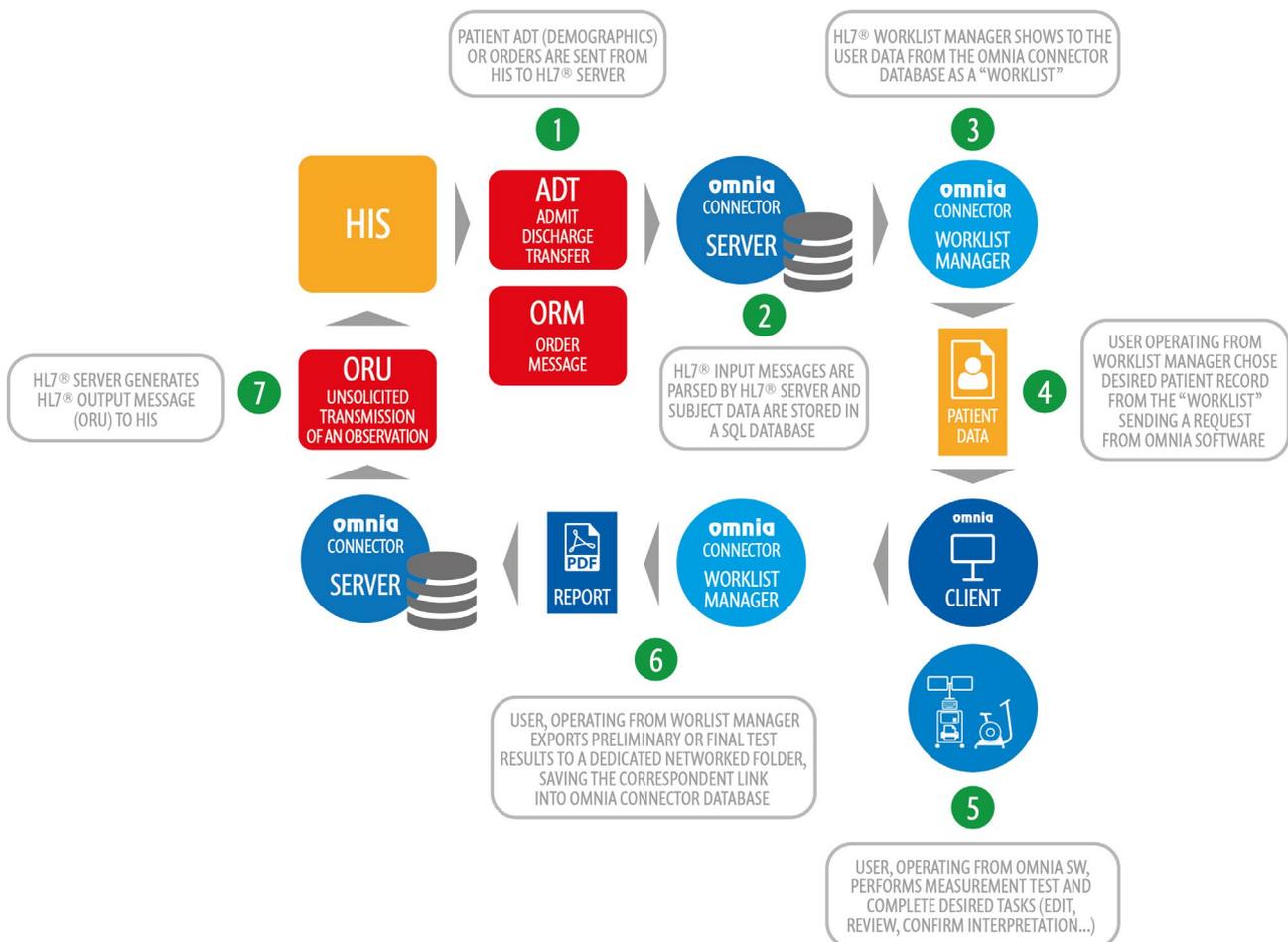
Technical Specifications

HL7® Versions Compatibility

From 2.3.1 to 2.8

Message transfer Methods

- Shared file message

- TCP/IP protocol

Data Exchange Methods

- Link to physical file

- Base64 embedded

Test Results Formats

- RAW Data

- PDF

- XLS (only for metabolic tests and 6MWT)