



*Life needs answers*

# **cobas IT 1000 solution**

## Host Interface Description



Diagnostics

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Diagnostics

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## 1. Overview & Scope

This document describes the host interface for the **cobas IT 1000** solution. The messages described are to be considered an outline, as the default configuration and mapping may be adapted to a specific installation to consider a specific protocol implementation used by customer systems.

## 2. TCP/IP Low Level Interface

The host (HIS and/or LIS) and **cobas IT 1000** solution computers will communicate using two TCP/IP sockets. The ADT Message socket will be initiated by the host computer. The **cobas IT 1000** solution server will open this socket in a Listen (Server) mode. The Results Message socket is opened in the Connect (Client) mode. The host computer must have the results socket opened in the Listen (Server) mode. If the **cobas IT 1000** solution server can not connect, it will try to reopen the socket periodically.

The packet of information is formatted as follows:

VT {HL7 Message} FS CR

Where:

VT     ASCII character 0x0B

{HL7 Message}     The actual HL7 message with ending CR

FS     ASCII character 0x1C

CR     Carriage Return, ASCII character 0x0D

There is no checksum or other method to determine the packet integrity other than that provided by the TCP/IP layer.

## 3. Message Acknowledgment

This message is sent to the transmitting computer from the receiving computer upon receipt of a message. The receiving computer can accept or reject the message. The **cobas IT 1000** solution at this stage can receive message acknowledgement messages, but does not act upon them.

### 3.1 Segments Used

MSH	Message Header
MSA	Message Acknowledgment

## 3.2 MSH Segment

**MSH|^~\&|SCC|SCC|HIS|cobas  
IT1000|200506101234||ACK|MSG1234|P|2.3|**

SCC	Sending application
SCC	Sending facility
HIS	Receiving application
cobasIT1000	Receiving facility
200506101234	YYYYMMDDHHMM Date/Time of message
ACK	Message type
MSG1234	Message control ID
P	Processing ID (P=Production, D=Development)
2.3	HL7 Version ID

## 3.3 MSA Segment

**MSA|AA|DC1234|Message OK|**

AA	Acknowledgment code (currently only AA [Application Accept] supported)
DC1234	Message ID of acknowledged message
Message OK	Error message text.

## 4. Results Interface (Variant A)

When all test results of a sample have been accepted, the Host Connectivity Agent (HCA) will generate an HL7 message and transmit the message to the Host system. Results transmitted are patient results and demographics.

## 4.1 Segments Used

MSH	Message Header
PID	Patient Identification
PV1	Patient Visit
ORC	Common Order
OBR	Observation Request
OBX	Results Segment

## 4.2 MSH Segment

**MSH|^~\&|**  
**cobasIT1000||LIS||200506101234||ORU^R01|MSG123|P|2.3|**

cobasIT1000	Sending application
LIS	Receiving application
200506101234	YYYYMMDDHHMM Date/Time of message
ORU^R01	Message type
MSG123	Message control ID
P	Processing ID (P=Production, D=Development)
2.3	HL7 Version ID

### 4.3 PID Segment

**PID|1||123456789|98765|PUBLIC^JOHN^Q||19691202|M||C||||R  
C**

1	Set ID
123456789	Patient ID (Internal ID), primary ID
98765	Alternate Patient ID - PID
PUBLIC^JOHN^Q	Patient name LAST^FIRST^MIDDLEINITIAL
19691202	Date of birth
M	Patient sex
C	Ethnic origin
RC	Religion

### 4.4 PV1 Segment

**PV1|1||ICU|||||||||||3334333**

1	Set ID
ICU	Patient Location
3334333	Visit Number (as tertiary patient ID)

### 4.5 ORC Segment

**ORC|NW|^HIS|||CM||||199406100600|**

NW	Order control (NW=New order)
HIS	Placer oder number
CM	Order status
199406100600	Date/Time of transaction



## 4.6 OBR Segment

**OBR|1|^HIS||||||||||||||||19951108132900|||F**

1	Set ID (always 1)
19951108132900	Results Rpt
F	Result Status (always F)

## 4.7 OBX Segment

**OBX|26|ST|PCO2C|1|61.8|mmHg|35.1-45.1|A|||F||20050701120000**

26	OBX Counter
ST	Field type (ST=String) Always ST
PCO2C	Item code (upload Code) (Observation Identifier)
1	Observation Sub-ID Always 1
61.8	Results for the item (Observation Results)
mmHg	Units
35.1-45.1	Normal Ranges (Reference Range)
A	Abnormal Flags
20050701120000	Result Date/Time

#### **4.7.1     Upload Codes**

In addition to the Test Abbreviations used in the **cobas IT** 1000 solution for uploading results, the following upload codes are used to upload data within the framework of OBX segments.

PATID	Primary patient ID
VISIT	Visit ID
LASTNAME	Patient last name
FIRSTNAME	Patient first name
SEX	Patient sex
DATEOFBIRTH	Patient date of birth
ANALYZERNAME	Name attributed to the instrument within the <b>cobas IT</b> 1000 solution
ANALYZEDATETIME	Date and Time the measurement was done
OPID	ID of the operator having performed the measurement

## 5. Results Interface (Variant B)

When all test results of a sample have been accepted, the Host Connectivity Agent (HCA) will generate an HL7 message and transmit the message to the Host system. Results transmitted are patient results and demographics.

### 5.1 Segments Used

MSH	Message Header
PID	Patient Identification
NTE	Notes and Comments
PV1	Patient Visit
ORC	Common Order
OBR	Observation Request
OBX	Results Segment

### 5.2 MSH Segment

**MSH|^~\&|HIS|HOST|||200506101234||ORU^R01|MSG123|P|2.3|**

HIS	Sending application
HOST	Sending facility
200506101234	YYYYMMDDHHMM Date/Time of message
ORU^R01	Message type
MSG123	Message control ID
P	Processing ID (P=Production, D=Development)
2.3	HL7 Version ID

### 5.3 PID Segment

**PID|||123456789|98765|PUBLIC^JOHN^Q||19691202|M||C|||||RC**

123456789	Patient ID (Internal ID), primary ID
98765	Alternate Patient ID - PID
PUBLIC^JOHN^Q	Patient name LAST^FIRST^MIDDLEINITIAL
19691202	Date of birth
M	Patient sex
C	Ethnic origin
RC	Religion

### 5.4 NTE Segment

**NTE|1||Example**

1	Counter
Example	Comment text

### 5.5 PV1 Segment

**PV1|||ICU^1^2|||||||3334333**

ICU	Patient Location
3334333	Visit Number (as tertiary patient ID)

### 5.6 ORC Segment

**ORC|NW||9300001||CM||^ ^ ^ ^ ^R||199406100600|||||||UJ1234**

9300001	(Auto-generated) Sample ID
199406100600	Date/Time of transaction
UJ1234	Instrument serial number

## 5.7 OBR Segment

**OBR|1|||GLUCOSE|||20051001193504|||A|||20051001193504|BLD|  
|||||20051001193505|||F|^ ^ ^ ^|R||||~system~**

1	Set ID (always 1)
20051001193504	Results Rpt
20051001193504	Results Rpt
BLD	Sample Type
20051001193505	Validation Date/Time
~system~	Validating operator ID

## 5.8 OBX Segment

**OBX|26|ST|PCO2C|1|61.8|mmHg|35.1-  
45.1|A||F|||20050701120000||OperID**

26	OBX Counter
ST	Field type (ST=String) Always ST
PCO2C	Item code (upload Code) (Observation Identifier)
1	Observation Sub-ID Always 1
61.8	Results for the item (Observation Results)
mmHg	Units
35.1-45.1	Normal Ranges (Reference Range)
A	Abnormal Flags Blank Normal Range N Normal Range A Critically High B Critically Low C High D Low
20050701120000	Result Date/Time
OperID	Performing Operator ID

### **5.8.1 Upload Codes**

The Test Abbreviations used in the **cobas IT 1000** solution are used for uploading results.

## **6. ADT Interface**

The ADT (Admit, Transfer, Discharge) Interface is responsible for updating the patients in the **cobas IT 1000** solution. Patients discharged from the system are deleted if there is no result data. The interface follows the HL7 2.3 specification and can receive all the ADT message types defined. This section describes the message types that are processed, all other types are ignored. Additional fields not described in the ADT messages are ignored and will not cause a problem if sent to the **cobas IT 1000** solution.

### **6.1 Supported ADT Events**

A01	Admit a patient
A02	Transfer
A03	Discharge (deletes only if patient has no data)
A04	Register a patient
A05	Pre-admit a patient
A06	Change an outpatient to an inpatient
A07	Change an inpatient to an outpatient
A08	Update patient Information
A09	Patient departing - tracking
A10	Patient arriving - tracking
A11	Cancel admit
A12	Cancel transfer
A13	Cancel discharge
A14	Pending admit
A15	Pending transfer
A16	Pending discharge

A18	Merge Patient Information
A21	patient goes on a "leave of absence"
A22	patient returns from a "leave of absence"
A25	cancel pending discharge
A26	cancel pending transfer
A27	cancel pending admit
A28	add person information
A29	delete person information
A32	cancel patient arriving - tracking
A33	cancel patient departing - tracking
A34	ACK/ADT - merge patient information - patient ID only
A35	merge patient information - account number only
A36	merge patient information - patient ID & account number
A38	cancel pre-admit
A40	merge patient - internal ID
A41	merge account - patient account number
A42	merge visit - visit number
A44	move account information - patient account number
A45	move visit information - visit number
A47	change internal ID
A48	change alternate patient ID
A49	change patient account number
A50	change visit number
A51	change alternate visit ID

## 6.2 Segments Used

MSH	Message Header
EVN	Event Type
PID	Patient Identification
PV1	Patient Visit
MRG	Merge Patient Information

## 6.3 MSH Segment

**MSH|^~\&|HIS|HOST||200506101234||ADT^A01|MSG123|P|2.3|**

HIS	Sending application
HOST	Sending facility
200506101234	YYYYMMDDHHMM Date/Time of message
ADT^A01	Message type
MSG123	Message control ID
P	Processing ID (P=Production, D=Development)
2.3	HL7 Version ID

## 6.4 EVN Segment

**EVN|A01|199511161214**

A01	Event Type Code
199511161214	YYYYMMDDHHMM Date/Time of event



## 6.5 PID Segment

**PID|||123456789|98765|PUBLIC^JOHN^Q||19691202|M||C||||RC**

123456789	Patient ID (Internal ID), primary ID
98765	Alternate Patient ID - PID
PUBLIC^JOHN^Q	Patient name LAST^FIRST^MIDDLEINITIAL
19691202	Date of birth
M	Patient sex
C	Ethnic origin
RC	Religion

## 6.6 PV1 Segment

**PV1|||ICU^1^2|||||||3334333**

ICU	Patient Location
3334333	Visit Number (as tertiary patient ID)

## 6.7 MRG Segment

**MRG|O12345**

O12345	Prior Patient ID - Internal
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