|  |  |  |
| --- | --- | --- |
| ExchangeA  ex: nLink  CON\_SPEC\_ICD\_COPRA  ex: BW\_SPEC\_SW\_WIFI  ICD for the COPRA system  ex: Wireless Interface Software Component Requirements | | |
| Issued by | Verified by | Approved by |
| Name : C.Fournier  Function : SYS Architect  Date:  Signature : | Name ~~: F.Grube~~  Function : SYS Team Manager  Date:  Signature :  Name : P.Henck  Function : SW Team Manager  Date:  Signature | Name : ~~O.Dervyn~~  Function : Project Manager  Date:  Signature |

# Revisions history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Author | N° révision | Modification(s) | DC/DP N° |
| Jan, 12th, 2016 | CFR | 0 | First Issue | DC15-0111 |

## Table of contents

1 Revisions history 1

Table of contents 2

2 Object 3

3 Application Area 3

4 Linked Documents 3

5 Abbreviations and definitions 3

6 Requirements Coding 3

7 Requirements Chapters 4

7.1 Message 4

7.1.1 SEND: Initialization message 4

7.1.2 SEND: Update Message 4

7.1.3 SEND: Event message 4

7.1.4 RECEIVE: ACK 5

7.2 Message Format 5

7.2.1 Slot States (aka “Qualified Status”) 5

7.2.2 SEND : Message Structure 8

7.2.3 RECEIVE : ACK 13

7.3 Connection to Copra 13

7.4 Misc 13

# Object

The present document is aimed at describing the interface betwwen ~~EchangeA~~ and the COPRA system.

Describe the Object of the document here.

**Ex**: the object of this document is to describe the software requirements for the wireless networking function.

# Application Area

EchangeA

Describe the Application Area of the document here.

**Ex** :nLink+

# Linked Documents

|  |  |  |
| --- | --- | --- |
| **N°** | **Document title** | **Document reference & Revision** |
|  | Spezifikation\_3724\_Anbindung\_Infusionssysteme\_v1.6\_final.pdf | [Linked to the present document] |
|  | CON\_SPEC\_FDD\_TOPOLOGY | [CC10462-0] |
|  | HL7\_ImplementationGuide\_V2.3.pdf | [Linked to the present document] |

# Abbreviations and definitions

|  |  |
| --- | --- |
| Pillar | A Link+, in COPRA paradigm |
| periodic message | A message generated on a time basis |
| aperiodic message | A message generated on an event basis |
| plugin | The program generating messages for the COPRA system |

# Requirements Coding

For correct coding refer to AQ0411.

Req Item Code: [CCxxxx\_YYYYNNNN]

**CCxxxx =** Basedoc Id: : Enter the CC reference (example: CC3994)

**YYYY**: INFO: Information such as:

**SYS:** System

**SRS : S**oftware **R**equirement **S**pecification

**SDD: S**oftware **D**esign **D**escription

… any further information to code the requirement (limit to reasonable length of 32 char)

**NNNN**: is the incremental tag number (starting with 0001, generated by the macro)

Item Code: [CC10515\_ICD\_COPRA]

Use Initdoc for the ItemCode initialisation

# Requirements Chapters

## Message

### SEND: Initialization message

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {fc5231ff-3876-43a5-896c-50b858e79133} | CC10515\_ICD\_COPRA0005 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <CC10462\_TOPO0016> | |
| An **initialization message** shall describe a complete Connector:   * including all the connected pumps, with Qualified Status “4” * including all the empty slots, with Qualified Status “0” | | | | | | | | | | | |
| Nota: for Qualified Status, see later in the present document | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {b9812335-2394-4f9d-9ed4-cffb45f564c5} | CC10515\_ICD\_COPRA0006 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| When **CONNECTED** to the COPRA system, the Plugin shall send all **initialization messages** within 5 minutes | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {f544c8a5-09ae-49cd-855f-8ca0d9d190df} | CC10515\_ICD\_COPRA0010 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The Plugin is considered as **CONNECTED** to the COPRA system as soon as the COPRA system replies with an ACK message (see below) to the first **initialization message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {31544dc4-dc5f-4ce7-b14c-f375652e95ea} | CC10515\_ICD\_COPRA0077 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The first **Initialization message** is the message of the first Link+ detected, or missing | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {804bc70c-856b-433e-b1a4-12110a8f30a0} | CC10515\_ICD\_COPRA0079 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **Initialization message** of an missing Link+ is constituted of empty slots, only Qualified Status “0” | | | | | | | | | | | |
| Nota: for Qualified Status, see later in the present document | | | | | | | | | | | |

### SEND: Update Message

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {88a2b043-dace-425f-95d1-9e9c070ad39e} | CC10515\_ICD\_COPRA0001 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <CC10462\_TOPO0016> | |
| An **update message** shall describe a complete connector:   * including all the connected pumps | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {60904335-cc0d-4a61-ad29-766ab6fb49c1} | CC10515\_ICD\_COPRA0003 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| An **update message** shall be send periodically, configurable   * Min 60 seconds * Max 300 seconds * Default value 240 seconds | | | | | | | | | | | |

### SEND: Event message

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {c74e7556-c7f9-4808-86fd-a27c2e3462d4} | CC10515\_ICD\_COPRA0002 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| An **event** **message** for a pump shall describe the pump when the event occurred, and only that pump | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {76ff847b-4000-4fc7-a301-ca20457460c4} | CC10515\_ICD\_COPRA0076 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The disconnection of a connector shall generate an **event message**:   * with all slots set to empty, Qualified Status “0” | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {d0e1cfec-bb51-45bf-a3a0-de8c794246b1} | CC10515\_ICD\_COPRA0080 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The reconnection of a connector shall generate an **event message**:   * including all the connected pumps, with Qualified Status “4” * including all the empty slots, with Qualified Status “0” | | | | | | | | | | | |

### RECEIVE: ACK

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {67fe5a7f-6561-4c9a-b1b2-e512a26dc195} | CC10515\_ICD\_COPRA0007 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| For each emitted message, the Plugin shall expect an ACKnowledgement from COPRA | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {85a6be47-77e3-4c1a-87ca-960137e016b4} | CC10515\_ICD\_COPRA0075 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The Plugin shall wait ACK before sending a new HL7 message | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {0716fc58-99af-4864-86f1-dcdf9887fba5} | CC10515\_ICD\_COPRA0008 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| If no ACK is received after ack\_timeout the connection shall be considered as **DISCONNECTED** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {a9311bc6-a675-4d24-9e6e-e96f6ddd1d98} | CC10515\_ICD\_COPRA0053 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| ack\_timeout shall be configurable:   * Min 1 second * Max 10 seconds * Default 1 second | | | | | | | | | | | |

What about nACK?

## Message Format

### Slot States (aka “Qualified Status”)

COPRA considers the status of the slots of a connector.

COPRA names the status of a slot as: “Qualified Status”

COPRA’s pillar is the equivallent of a connector (example: Link+ for Agilia Range)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {6930ceef-208d-4c2a-91a1-1b12d595ee94} | CC10515\_ICD\_COPRA0013 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The qualified status shall comply with one of the following values:   |  |  | | --- | --- | | Qualified Status Value | Qualified Status Name | | 0 | Removed | | 1 | Active Pumping | | 2 | Bolus | | 3 | Pause | | 4 | Stop | | 5 | Priming | | | | | | | | | | | | |
| Nota: see details hereafter | | | | | | | | | | | |

#### Conditions for state: Removed (“0”)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {345b4a1b-ecb0-4872-ab79-27a17a666864} | CC10515\_ICD\_COPRA0014 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Removed** (value 0) : no pump is plugged in a slot 🡪 **initialization message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {23b4112b-e698-4e6f-9bd5-3b324838ef37} | CC10515\_ICD\_COPRA0015 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Removed** (value 0) : a pump is plugged in a slot but suddenly no more data is available 🡪 **event message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {32262060-a206-4445-bdc7-e248d94b8802} | CC10515\_ICD\_COPRA0022 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Removed** (value 0) : a pump is plugged in a slot but suddenly is removed from that slot 🡪 **event message** | | | | | | | | | | | |

#### Conditions for state: Active Pumping (“1”)

Active Pumping conditions do not apply to: Manual Bolus / Simple Bolus / Programmed Bolus / Loading Dose : see Bolus “2”

Active Pumping conditions do not apply to: Priming : see Priming “5”

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {665abecc-fe66-48a0-9bb4-0f9a6b8666c2} | CC10515\_ICD\_COPRA0023 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Active Pumping** (value1) :  a pump, already plugged in a slot, starts delivering drug (the flowrate changes from 0 to value>0) 🡪 **event message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {64abfdf4-b942-45ac-a844-1b2f7a5acbcc} | CC10515\_ICD\_COPRA0024 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Active Pumping** (value1) : a pump actively delivering drug (flowrate>0) is suddenly plugged in an empty slot🡪 **event message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {e2763111-f171-43aa-bdc3-a2a4ec9f9c9a} | CC10515\_ICD\_COPRA0012 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Active Pumping** (value1) : a pump, already plugged in a slot, is actively delivering drug (flowrate > 0) 🡪 **update message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {ec1297df-f5c7-4324-8ea8-9f99e98616a7} | CC10515\_ICD\_COPRA0026 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Active Pumping** (value1) : a pump, already plugged in a slot, ends a Manual Bolus / Simple Bolus / Programmed Bolus / Loading Dose (see “Bolus 2) and resumes original flowrate 🡪 **event message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {0022c849-7a45-4cc6-abc6-4c795ba88cba} | CC10515\_ICD\_COPRA0087 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Active Pumping** (value1) :  The requirements CC10515\_ICD\_COPRA0023 / CC10515\_ICD\_COPRA0024 / CC10515\_ICD\_COPRA0012 / CC10515\_ICD\_COPRA0026 shall be applied when the pump is in KVO regulation | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {7a73c934-2240-4b93-9720-82e8ce92abc2} | CC10515\_ICD\_COPRA0083 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| When an infusion is over and a KVO is started, the PlugIn shall send 2 **event messages** for the concerned pump:   * A first message with Qualified Status “4” (“Stop”) * Then a second message with Qualified Status “1” (“Active Pumping”) and an **empty** DrugName | | | | | | | | | | | |

#### Conditions for state: Bolus (“2”)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ~~req~~ | | ~~<MOD>~~ | ~~{491ace7c-acbe-46d0-a508-d8b5904f4056}~~ | ~~CC10515\_ICD\_COPRA0016~~ | ~~1~~ | ~~M~~ | ~~Design\_resources~~ | ~~<Chapter>~~ | ~~<Project>~~ | ~~<CR>~~ | ~~<RSK>~~ | ~~<REQREF>~~ | |
| **~~Bolus~~** ~~(value 2) :~~  ~~a pump, already plugged in a slot, starts a Manual Bolus / Simple Bolus / Programmed Bolus / Loading Dose 🡪~~ **~~event message~~** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {393065b0-65d6-4273-8dfc-66b40bfafe19} | CC10515\_ICD\_COPRA0017 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Bolus** (value 2) :  a pump, already plugged in a slot, stops a Manual Bolus / Simple Bolus / Programmed Bolus / Loading Dose 🡪 **event message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {a37150ba-14ff-48c3-a52e-f013078bd036} | CC10515\_ICD\_COPRA0025 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Bolus** (value 2) :  a pump, already plugged in a slot, has a Manual Bolus / Simple Bolus / Programmed Bolus / Loading Dose in progress 🡪 **update message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {37d5861c-9fbc-45df-b256-0e3d320c5b1d} | CC10515\_ICD\_COPRA0035 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Bolus** (value 2): a pump actively delivering drug through Manual Bolus / Simple Bolus / Programmed Bolus / Loading Dose is suddenly plugged in an empty slot🡪 **event message** | | | | | | | | | | | |

#### Conditions for state: Pause (“3”)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {9e2c956b-7a77-4478-9b90-bcd3bd0b8b03} | CC10515\_ICD\_COPRA0027 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Pause** (value 3) :  a pump, already plugged in a slot and actively delivering a drug (flowrate > 0), suddenly stops delivering (flowrate=0), and infusion can then be resumed at any time 🡪 **event message**, then **update message** | | | | | | | | | | | |
| Nota:this requirement is not applicable when the stop origin is due to a complete infusion (example: end of infusion alarm) | | | | | | | | | | | |
| Nota: this is applicable if the stop is due to a user action | | | | | | | | | | | |

#### Conditions for state: Stop (“4”)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {55dbc77a-4fa4-4b84-adeb-341354786b33} | CC10515\_ICD\_COPRA0028 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Stop** (value 4) :  a pump, already plugged in a slot and actively delivering a drug (flowrate > 0), suddenly stops delivering (flowrate=0), and infusion cannot be resumed 🡪 **event message**, then **update message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {421d7e5e-ddff-4d40-8d60-f1cd2a8bbf05} | CC10515\_ICD\_COPRA0029 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Stop** (value 4) :  a pump is being turned off 🡪 **event**, then **update message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {dfb4b767-107f-4652-940a-dad4401ac88f} | CC10515\_ICD\_COPRA0034 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Stop** (value 4) : a pump OFF is suddenly plugged in an empty slot🡪 **event message** | | | | | | | | | | | |

#### Conditions for state: Priming (“5”)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {85ca6e0d-6c0f-422d-b37a-41b6b8a59e85} | CC10515\_ICD\_COPRA0030 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Priming** (value 5) :  a pump, already plugged in a slot, starts Priming 🡪 **event message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {512bc84d-9a3f-477c-bc81-b777f7dff2f3} | CC10515\_ICD\_COPRA0032 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Priming** (value 5) :  a pump, already plugged in a slot, has Priming in progress 🡪 **update message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {d2ae3726-d8f8-41d5-bed7-37ae483a8ff1} | CC10515\_ICD\_COPRA0031 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Priming** (value 5) :  a pump, already plugged in a slot, stops Priming 🡪 **event message** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {eddbbd2e-9299-457b-9234-eebfda4d4db1} | CC10515\_ICD\_COPRA0036 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| **Priming** (value 5): a pump actively Priming is suddenly plugged in an empty slot🡪 **event message** | | | | | | | | | | | |

### SEND : Message Structure

#### MSH

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Ref.** | **Name in HL7 message** | **Required for QualifiedStatus** | | | | | |
|  | | **0** | **1** | **2** | **3** | **4** | **5** |
| *MSH* | | | | | | | |
| 1 | *SourceSystemName* | X | X | X | X | X | X |
| 2 | *SourceSystemVersion* | X | X | X | X | X | X |
| 3 | *DataTypeID* | X | X | X | X | X | X |
|
| 4 | *MessageTimeStamp* | X | X | X | X | X | X |
|
| 5 | *MessageId* | X | X | X | X | X | X |

X = Required

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {ba20b55a-31b3-4042-9cc2-15f6734ea45b} | CC10515\_ICD\_COPRA0062 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The MSH is required and shall comply with following scheme:  MSH|^~\&|***SourceSystemName***|***SourceSystemVersion***|||***MessageTimeStamp***||ORU^ ***DataTypeId***|***MessageId***|P|2.3<CR> | | | | | | | | | | | |
| Nota: words in bold are detailed hereafter | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {49a9fe13-53f8-41c2-a140-b89943a5705f} | CC10515\_ICD\_COPRA0037 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **SourceSystemName** shall be a HL7 string: “FreseniusKabi-COPRA6V1.6” | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {0cd54593-9e84-4c71-a532-02ab299c0f50} | CC10515\_ICD\_COPRA0038 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **SourceSystemVersion** shall be a HL7 string : software version of the Copra Plugin, “1.0.0” for the first release | | | | | | | | | | | |

Nota: when a COPRA6 version 1.7 will be released, there shall be 2 versions of the plugin:

Version 1: **SourceSystemName** “FreseniusKabi-COPRA6V1.6” with **SourceSystemVersion** “2.2.9” for example

and

Version 2: **SourceSystemName** “FreseniusKabi-COPRA6V1.7” with **SourceSystemVersion** “1.0.0” for example

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {84b3bd34-5cf2-47c0-9638-25d36b544d7f} | CC10515\_ICD\_COPRA0039 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **DataTypeID** shall be a HL7 string: always “Pump” | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {d9d31f2d-987f-4a71-ad71-c5f2f88ca57f} | CC10515\_ICD\_COPRA0040 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **MessageTimeStamp** shall be a date with the following format::  yyyyMMddHHmmss | | | | | | | | | | | |
| Nota: no Offset | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {4e820fca-e201-4be7-99ac-efe683ad5c74} | CC10515\_ICD\_COPRA0070 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **MessageTimeStamp** shall be the date of the message generation | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {762b6e23-d89a-4497-b74d-7689132e44a4} | CC10515\_ICD\_COPRA0041 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **MessageId** shall be a string : “<msg\_number>”   * First message number value: “0” * Last Possible value : “65535” * Then “0” again | | | | | | | | | | | |
| Nota: increment from one message to the next shall be 1 | | | | | | | | | | | |

#### PID

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {c803de3e-aaf0-46e1-b96c-1f8d94403e05} | CC10515\_ICD\_COPRA0063 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The PID is required and shall comply with following scheme:  PID||UNKNOWN||UNKNOWN|<CR> | | | | | | | | | | | |

#### PIV

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Ref.** | **Name in HL7 message** | **Required for QualifiedStatus** | | | | | |
|  | | **0** | **1** | **2** | **3** | **4** | **5** |
| *PIV* | | | | | | | |
| 6a | *ClinicName* | X | X | X | X | X | X |
|
| 6b | *LocationName* | X | X | X | X | X | X |
|
| *Information about the infusion device OBR / OBX* | | | | | | | |

X = Required

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {1a4252a4-f2e1-4f22-a2ff-7ebb5a29ff18} | CC10515\_ICD\_COPRA0064 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The PV1 is required and shall comply with following scheme:  PV1|||***ClinicName***^^***LocationName***<CR> | | | | | | | | | | | |
| Nota: words in bold are detailed hereafter | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {a991d89a-9f31-443f-91c7-7b361000446c} | CC10515\_ICD\_COPRA0065 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <CC10462\_TOPO0020> | |
| The **ClinicName** shall be a HL7 string, name of ward (as defined in document [2]) | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {6362419c-c056-4dbe-83f0-e656e7ffd417} | CC10515\_ICD\_COPRA0042 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <CC10462\_TOPO0016> | |
| The **LocationName** shall be a HL7 string, name of bed (as defined in document [2]) | | | | | | | | | | | |

#### OBR

For each pump:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {e327f97f-3134-4a7c-9738-b650bbe5edf2} | CC10515\_ICD\_COPRA0068 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The OBR segment is required and shall comply with following scheme:  OBR|||||||***Timestamp***<CR> | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {821bfee7-bd4f-44e9-ba93-5affd185aeff} | CC10515\_ICD\_COPRA0043 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **TimeStamp** shall be a date with the following format::  yyyyMMddHHmmss[+/-ZZzz] | | | | | | | | | | | |
| Note: [+/- ZZzz] is an offset, which indicates the deviation of the local time from UTC (Coordinated Universal Time) in hours (ZZ) and minutes (zz). | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {fb181eaf-2404-4889-ba4d-2e973087676a} | CC10515\_ICD\_COPRA0069 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **TimeStamp** is the date when the original “event” occurred on the pump | | | | | | | | | | | |
| Nota: The “event” is a real event (start/stop/….) or an update (for display refresh only) | | | | | | | | | | | |

#### OBX

**For each OBX segment:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {d5a23a60-0ac0-40b7-b5d8-ee840e371fb0} | CC10515\_ICD\_COPRA0066 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| Each OBX shall comply with following scheme:  OBX||ST|[**ParameterId**]||[ParameterValue]|<CR> | | | | | | | | | | | |

**List of ParametersId:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Ref.** | **Name in HL7 message** | **Required for QualifiedStatus** | | | | | |
|  | | **0** | **1** | **2** | **3** | **4** | **5** |
| *Information about the infusion device OBR / OBX* | | | | | | | |
| 8 | *PumpId* |  | X | X | X | X | X |
|
| 9 | *PumpTypeId* |  | X | X | X | X | X |
|
| 10 | *Pillar* | X | X | X | X | X | X |
|
| 11 | *Slot* | X | X | X | X | X | X |
|
| 12 | *QualifiedStatus* | 0 | 1 | 2 | 3 | 4 | 5 |
|
| 13 | *AdjustmentValue* |  | X |  |  |  |  |
| 14 | *AdjustmentUnit* |  | X |  |  |  |  |
|
|
| 15 | *DeliveryRate* |  | X |  |  |  |  |
| 16 | *PatientWeight* |  | (X) |  |  |  |  |
|
| 17 | *BolusVolume* |  |  | X |  |  |  |
|
| 18 | *TotalVolumeInfused* |  | **X** |  |  |  |  |
|
| 19 | *ResidualVolume* |  | **X** |  |  |  |  |
|
| 20 | *ResidualTime* |  |  |  |  |  |  |
|
| 21 | *DrugName* |  | **X** | **X** |  |  |  |
|

X = Required / <empty> = Optional

**For each ParameterId of each pump:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {01f0ee4c-a3f3-4642-94fd-e32e1a41e0ab} | CC10515\_ICD\_COPRA0044 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **PumpId** shall be a HL7 string : combination of **productId** and **SerialNumber** of the pump **: “<productId>/<SerialNumber>”** | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {d1b48d5f-ece4-40bc-89ef-73983fd3d655} | CC10515\_ICD\_COPRA0045 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **PumpTypeId** shall be a HL7 string:   * “vol” for volumetric pump * “syr” for syringe pump | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {9602e39c-ca13-4060-a73c-e9b794ab84df} | CC10515\_ICD\_COPRA0046 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <CC10462\_TOPO0016> | |
| The **Pillar** shall be a HL7 string:   * “1” for the first connector declared for a bed in document [2] * “2” for the second connector declared for a bed in document [2] | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {238cf71c-b454-4a7a-9c82-aa915217a34f} | CC10515\_ICD\_COPRA0047 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **Slot** shall be a HL7 string: position of the pump on the connector   * “1” : first slot * Upto “8” for Agilia Connector (Link+) * Upto “24” for ONG Connector (CommBox) | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {47a5b1a3-861b-4a6a-aa37-584c486f163a} | CC10515\_ICD\_COPRA0048 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **QualifiedStatus** shall be a HL7 string, see requirement CC10515\_ICD\_COPRA0013 | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {453d74c1-c849-4bf0-bb47-2c57afc59320} | CC10515\_ICD\_COPRA0049 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **AdjustmentValue** shall be a HL7 string , representing a decimal value of the rate of the pump:   * Dose Rate * Or Flow rate if Dose Rate is not available | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {2b4acfae-f48f-4db9-ac95-616f4f388e08} | CC10515\_ICD\_COPRA0060 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **AdjustmentValue** shall be the rate value displayed on pump’s screen, including decimal places | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {e46888c0-f339-4a12-a311-d667c348bffe} | CC10515\_ICD\_COPRA0050 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **AdjustmentUnit** shall be a HL7 string, representing the rate unit displayed on the pump. | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {9882f4be-43ec-4017-81f1-680d9181afd5} | CC10515\_ICD\_COPRA0061 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **AdjustmentUnit** shall be the unit displayed on pump’s screen | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {6481fc26-08ad-4010-8331-c7f603aadb55} | CC10515\_ICD\_COPRA0051 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **DeliveryRate** shall be a HL7 string, representing a decimal value of FlowRate in mL/h, same as pumps’s screen if pump is infusing in mL/h, including decimal places | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {e092526c-8140-4be1-8a83-bd9d7b3018b5} | CC10515\_ICD\_COPRA0052 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **PatientWeight** shall be a HL7 string, representing the patient weight, in grams (integer value) | | | | | | | | | | | |
| Nota: PatientWeight is present only if the pump is infusing in doserate mode | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {5ebfab46-7876-464c-88df-3640fafd27a6} | CC10515\_ICD\_COPRA0054 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **BolusVolume** shall be a HL7 string, representing the total infused volume during Bolus, in mL, including decimal places | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {e3403ec4-1bbd-43a8-8438-e1c22f363b39} | CC10515\_ICD\_COPRA0055 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **TotalVolumeInfused** shall be a HL7 string, representing the total infused volume since last syringe or bag exchange in mL, including decimal places | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {b6eea3f6-e425-4b7d-9570-c4b0c45529a1} | CC10515\_ICD\_COPRA0057 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **ResidualVolume** shall be a HL7 string, representing the total remaining volume till syringe or bag exchange in mL, including decimal places | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {a25b7961-7ae1-4922-9d80-dab1a6ba8f4c} | CC10515\_ICD\_COPRA0059 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The **ResidualTime** is not used | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {1ebc32a3-6d5c-41d3-9b26-9c0f4cbd8661} | CC10515\_ICD\_COPRA0067 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The DrugName shall be a HL7 string, UTF8 compliant | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {f097a873-4c85-4441-8607-fe0c0848b2ef} | CC10515\_ICD\_COPRA0056 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The decimal separator for represented decimal values is the point “.” | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {6ea9d4f0-829f-4544-9387-2e3b4806f40a} | CC10515\_ICD\_COPRA0058 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The number of decimal places is limited to three | | | | | | | | | | | |

#### ZCS (Integrity)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {ce04469e-3c50-462a-9fa0-793507ec1ec0} | CC10515\_ICD\_COPRA0071 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| Tye last segment shll be an integrity segment and shall comply with following scheme:  ZCS|***CheckSum***<CR> | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {144ba498-4da1-456c-96d9-1be51da481c4} | CC10515\_ICD\_COPRA0072 | 1 | C | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The ***CheckSum*** is calculated from “MSH” untill the “ZCS|”:  MSH|…<CR>PID|…<CR>PV1|…<CR>OBR|…OBX|…<CR>ZCS|06A1<CR>  Only the red part is included in the CRC calculation | | | | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {955e748b-e8f6-4bfb-94f0-74b837d1d1bb} | CC10515\_ICD\_COPRA0073 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The ***CheckSum*** shall use same algorithm, initialization values and polynom as the following implementation:  **public class** Crc16{  **const ushort** polynomial=0xA001; **ushort**[] table= **new ushort**[256];  **public ushort** ComputeChecksum(**byte**[] bytes) { **ushort** crc=0;  **for**(**int** i=0; i<bytes.Length;++i) { **byte** index=(**byte**)(crc^bytes[i]);  crc = (**ushort**)((crc >> 8) ^ table[index]);  }  **return** crc;  }  **public byte**[] ComputeChecksumBytes(**byte**[] bytes) { **ushort** crc=ComputeChecksum(bytes);  **return** BitConverter.GetBytes(crc);  }  **public** Crc16() { **ushort** value; **ushort** temp;  **for**(**ushort** i=0; i<table.Length;++i) {value = 0;  temp = i;  **for**(**byte** j=0; j<8;++j) {  **if**(((value^temp)&0x0001)!=0) {  value = (**ushort**)((value >> 1) ^ polynomial); } **else** {  value >>= 1;  }  temp >>= 1;  }  table[i] = value;  }  }  } | | | | | | | | | | | |

### RECEIVE : ACK

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {d301fcbd-e1ef-4dbb-9d8d-8714eeb35d53} | CC10515\_ICD\_COPRA0074 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| The Plugin shall be able to receive an ACK that complies with following scheme:  MSH|^~\&|Co6HL7||||***DateTime***||ACK||P|2.3<CR>  MSA|AA|***MessageId***|Msg received | | | | | | | | | | | |
| Nota:   * ***DateTime*** is generated by COPRA, and compliant with requirement CC10515\_ICD\_COPRA0040 * ***MessageId*** is the same as the one snt by the Plugin, see requirement CC10515\_ICD\_COPRA0041) | | | | | | | | | | | |

## Connection to Copra

COPRA Ready / then Exchange

Exchange Ready / then COPRA

Detection COPRA down ? 🡪 no ACK ?

Detection link down ? 🡪 no ACK

How to resume communication ? 🡪 full restart ?

## Misc

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| req | | <MOD> | {03156321-33e5-4308-a2dc-0354fe8fc01f} | CC10515\_ICD\_COPRA0088 | 1 | M | Design\_resources | <Chapter> | <Project> | <CR> | <RSK> | <REQREF> | |
| All messages shall be sent chronologically, by pump | | | | | | | | | | | |

## Example

### 1 Link+ / 1 Pump

### 1 Link+/ 2 Pumps