**RDE\_Cerner PharmNet\_TheraDoc Requirements**

**Version 1.3**

**Prepared By: Art Schwartz & Lois Whitley**

**Date: 7/26/2019**

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# **Document Control**

## Resources

|  |  |  |
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## Project Distribution List

## Document Version Control

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Modifier** | **Description** |
| V1.0 | 11/21/2016 | Lois Whitley | Originally Created |
| V1.1 | 11/21/16 | Art Schwartz | Updated Messaging Protocols |
| V1.2 | 5/25/2017 | Art Schwartz | Updated |
| V1.3 | 7/26/19 | Charles Markwardt & Tiffany Bohall | Model upgrade changes from Cerner consolidated interfaces |
|  |  |  |  |

# 1. Introduction

## 1.1 Purpose

The purpose of this document is to outline the Pharmacy Orders (RDE) interface requirements for the TheraDoc application from Cerner PharmNet.

## 1.2 Project Scope

Integration for the TheraDoc application includes an ADT interface from Soarian, ADT interface from Cerner for Heights, Weights and Allergies, Orders from the Cerner PharmNet (Pharmacy) system, and results from Cerner PathNet (Lab) and GE Centricity IDX (RIS). The There is a Cerner SurgiNet CCL component that passes surgical procedure information to TheraDoc, but this is a flat file and does not pass through Cloverleaf.

## 1.3 Terminology Standards

### 1.3.1 Acronyms

**ADT** – Admission, Discharge and Transfer message

**CCL** – Cerner Command Language; used to query the database and put the information in a user-friendly format

**ORU** – Observation Result/Unsolicited; this is a raw feed form Cerner PathNet or GE Centricity IDX (Radiology) – the same feed goes into Cloverleaf that comes out and goes to TheraDoc

**PharmNet** – Cerner’s Pharmacy Solution

**RDE** – Pharmacy Encoded Order Message

**RIS** – Radiology Information System

### 1.3.2 Glossary

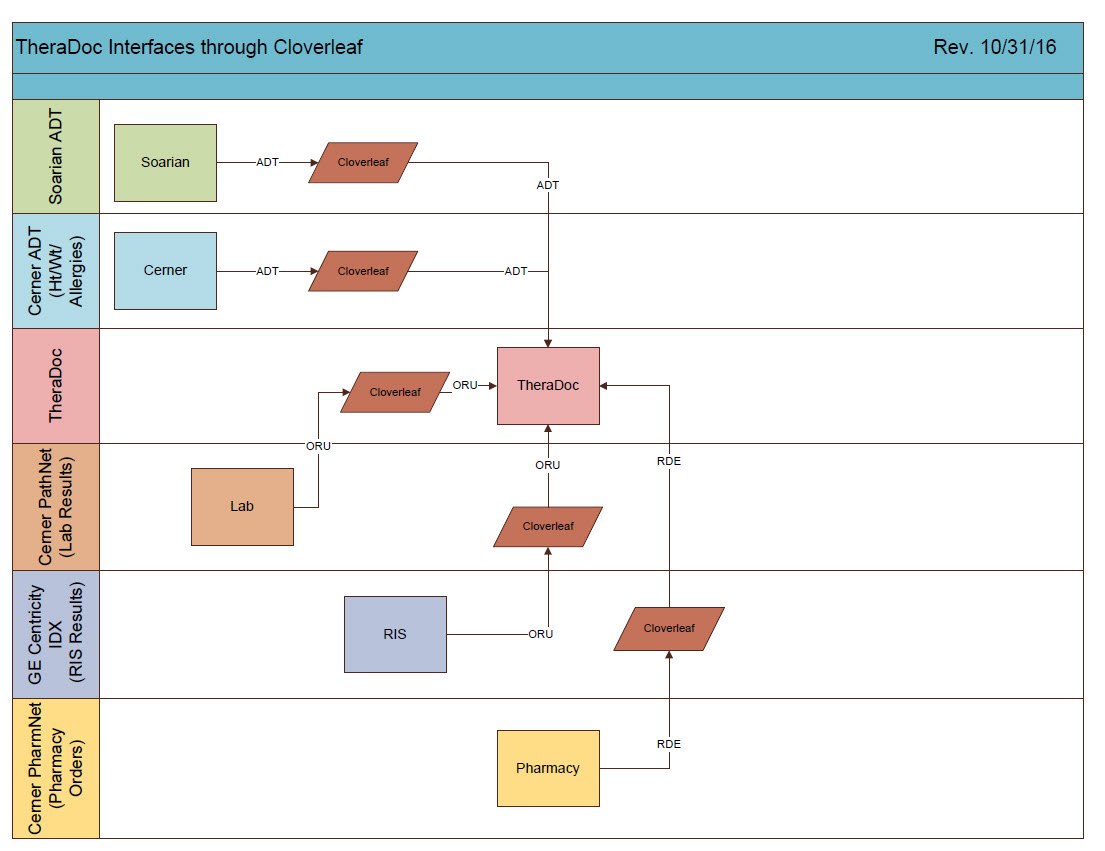
**TheraDoc** – clinical surveillance application name

**Premier, Inc.** – vendor name

## 1.4 Document References

TDoc\_Spec\_Ch\_04\_Pharmacy

# 2. Diagram



# 3. Requirements

## 3.1 Functional Requirements

Provide detail for the below functional requirements. The message transformation requirements for the components defined in this specification should be specified in section 4.2 of this document.

|  |  |  |
| --- | --- | --- |
| **Cloverleaf** |  |  |
| **Number** | **Requirement Name** | **Requirement Description** |
| FR.2019.7.30.1 | tpsHl7FilterSegment | Discard the following segments from each message: AL1, OBX and RXO. |
| FR.2019.7.30.2 | tpsTheraDocRXCHandler | Null the following fields:  RXC.2.3  RXC.2.4  RXC.2.5  RXC.2.6  RXC.4.2  RXC.4.3  RXC.4.4  RXC.4.5  RXC.4.6 |

|  |  |  |
| --- | --- | --- |
| **Cerner** |  |  |
| **Number** | **Requirement Name** | **Requirement Description** |
|  |  |  |
| 2019.07.17 | Cerner interface | Existing interface rde\_tcp\_out is used to send both Pharmacy order (RDE) and Dispense (RDS) messages for IV fluid meds. |
|  | Contributor system | PYXISRX |
|  | Contributor Source | PYXIS |
|  | Outbound field processing | MSH 3.0 = HNAM  MSH 4.0 = HNAM  MSH 5.0 = PYXIS  MSH 6.0 = PYXIS  Send AL1 segments  Send the Pharmacy ID type = Pyxis Interface ID  Send Item Alias  Round duration and infusover to whole numbers  Repeating OBX  Max number of OBX = 2 |
|  | Global Script - ESO\_GET\_ORDER\_SELECTION | Skip if the order doesn’t have any ingredients |
|  | Mod Object – rde\_rds\_pharm\_out | Skip if there is no RDE group in the message  Skip if the order control reason (ORC 16.4) = CD:89800833  Preforms additional business logic which can be found in the section 4.3 FSI Data Transformation |

## 3.2 Non-Functional Requirements

Provide concise detail for the below non-functional requirements. The below requirements must be evaluated for every project.

|  |  |  |
| --- | --- | --- |
| **Cloverleaf** |  |  |
| **Number** | **Requirement Name** | **Requirement Description** |
| NFR.20XX.1.0 | Click here to enter text. | Click here to enter text. |

## 3.3 Messaging Protocols

Below are listed the details for the messaging protocols that will be leveraged for this integration. Please see the reference document located on the Integration SharePoint server: <insert link to document here>

### 3.3.1 Inbound to the BayCare Cloverleaf

### 3.3.2 Outbound to the Vendor

* TCPIP

### 3.3.3 Inbound From BayCare Cerner

Test

IP 10.5.250.203

Port 23222

Prod

IP 10.5.250.201

Port 9070

• FSI Comserver: RDE\_RDS\_PHARMACY\_OUT

### 3.3.4 Outbound To Theradoc

Test

IP 10.44.110.28

Port 8005

Prod

IP 10.44.129.56

Port 9002

# 4. HL7 Messaging

## 4.1 Messaging Format

### 4.1.1 Segments

The segments utilized for this interface are:

MSH

PID

PV1

ORC

RXE

NTE

RXR

*Message Construction Notes:*

*[Square Brackets] – Optional*

*{Curly Brackets} – Repeatable*

*MSH – Message Header*

*PID – Patient ID segment*

*PV1 – Patient Visit segment*

*ORC – Common Order segment*

*RXE – Rx/Treatment Encoded Order segment*

*NTE – Notes and Comments Segment*

*RXR – Pharmacy/Treatment Route segment*

*[{ – Start of optional, repeatable group*

*}] – End of optional, repeatable group*

### 4.1*.*2 Messaging Event Types

Below are the messages types necessary for this integration and supported by TheraDoc and Soarian.

|  |  |
| --- | --- |
| **Event Type** | **Description** |
| O01 | Pharmacy/treatment encoded order message |

### 4.1*.*3 Cloverleaf Configuration Files

Click here to enter text.

### 4.1.4 Cloverleaf Site Location

theradoc\_25

## 4.2 Data Transformation Requirements Cloverleaf

Results from RIS is a raw feed to TheraDoc. No translate No transformation of data

| **Field Description** | **HL7 Field Loc.** | **Required Y/N** | **Data Type** | **Length** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| Message Header | MSH |  |  |  | Pathcopy MSH |
| Sending Application | MSH.3 |  |  |  |  |
| Sending Facility | MSH.4 |  |  |  |  |
| Receiving Application | MSH.5 |  |  |  | PYXIS |
| Receiving Facility | MSH.6 |  |  |  | PYXIS |
| Date/Time of Message | MSH.7 |  |  |  |  |
| Message Type | MSH.9 |  |  |  | RDE^O01 |
| Message Control ID | MSH.10 |  |  |  |  |
| Patient Identification | PID |  |  |  | Primary means of identifying patients in TheraDoc |
| Set ID | PID.1 |  |  |  |  |
| Patient ID (External ID) | PID.2 |  |  |  | Person Identifier in TheraDoc |
| Patient ID (Internal ID) | PID.3 |  |  |  | MRN; matches value against TheraDoc patient table; required to link the report to a patient |
| Alternate Patient ID | PID.4 |  |  |  |  |
| Patient Name | PID.5 |  |  |  | FamilyName^GivenName |
| Date/Time of Birth | PID.7 |  |  |  | YYYYMMDD; calculates current age of patient |
| Sex | PID.8 |  |  |  | M=Male  F=Female  U=Unknown |
| Race | PID.10 |  |  |  |  |
| Patient Address | PID.11 |  |  |  |  |
| Primary Language | PID.15 |  |  |  |  |
| Marital Status | PID.16 |  |  |  |  |
| Religion | PID.17 |  |  |  |  |
| Patient Account Number | PID.18 |  |  |  | Primary identifier for encounters; matches against TheraDoc encounter table; required to link the report to a patient visit |
| Social Security Number | PID.19 |  |  |  |  |
| Ethnic Group | PID.22 |  |  |  |  |
| Birth Order | PID.25 |  |  |  |  |
| Patient Visit | PV1 |  |  |  |  |
| Set ID | PV1.1 |  |  |  |  |
| Patient Class | PV1.2 |  |  |  |  |
| Assigning Patient Location | PV1.3 |  |  |  |  |
| Admission Type | Pv1.4 |  |  |  |  |
| Attending Doctor | PV1.7 |  |  |  | ProvNum^FamilyName^GivenName^ |
| Hospital Service | PV1.10 |  |  |  |  |
| Admit Source | PV1.14 |  |  |  |  |
| VIP Indicator | PV1.16 |  |  |  |  |
| Admitting Doctor | PV1.17 |  |  |  |  |
| Patient Type | PV1.18 |  |  |  |  |
| Financial Class | PV1.20 |  |  |  |  |
| Servicing Facility | PV1.39 |  |  |  |  |
| Account Status | PV1.41 |  |  |  |  |
| Admit Date/Time | PV1.44 |  |  |  | YYYYMMDDHHMM |
| Common Order | ORC |  |  |  |  |
| Order Control | ORC.1 |  |  |  |  |
| Placer Order Number | ORC.2 |  |  |  | Serves as identifier for the order; TheraDoc does not parse components out of this field – if supplied, the entire value is sent |
| Filler Order Number | ORC.3 |  |  |  | Serves as identifier for the order; TheraDoc does not parse components out of this field – if supplied, the entire value is sent |
| Order Status | ORC.5 |  |  |  | TheraDoc stores this value but uses the Order Control Code (ORC.1) to determine the status and behavior of an order |
| Quantity/Timing | ORC.7 |  |  |  | TheraDoc looks for quantity/timing on medication orders in RXE.1. If no value is present in RXE.1, TheraDoc looks in ORC.7. |
| Date/Time of Transaction | ORC.9 |  |  |  |  |
| Entered By | ORC.10 |  |  |  |  |
| Ordering Provider | ORC.12 |  |  |  |  |
| Order Effective Date/Time | ORC.15 |  |  |  | When a medication order is changed, TheraDoc discontinues for existing order and creates a new order. The “new” order date is set as the Order Effective Date (ORC.15) if available. If ORC.15 is null, order date is set to message header date (MSH.7). |
| Pharmacy Encoded Order | RXE |  |  |  |  |
| Quantity/Timing | RXE.1 |  |  |  | If quantity timing in the RXE segment is empty, quantity timing information will be pulled from the ORC segment (ORC.7) if available  Quantity^interval(frequency)^duration^start date/time^end date/time^priority^condition |
| Give Code | RXE.2 |  |  |  | Information in give code plays significant role in TheraDoc rules and logic  Identifier^text^name of coding system^^alternate text |
| Give Amount - Minimum | RXE.3 |  |  |  | Primary use of this value is for determining proper dosing and therapy cost; TheraDoc expects give amount to be in the form of a strength (i.e give amount =250) as opposed to a dose form (i.e. “1 tab”) |
| Give Units | RXE.5 |  |  |  | Primarily used to determine proper dosing and therapy cost; TheraDoc expects give amount to be in the form of a strength (i.e give units =mg) as opposed to a dose form (i.e. “1 tab”); calculates cost if value is one of the following: mM, MEQ, EA, APPL, APP, U, UNIT,UNITS, CAP, TAB, GM, MG, MCG |
| Give Dosage Form | RXE.6 |  |  |  | Used to categorize the medication order as injectable or non-injectable; can be used as sorting/grouping criteria  Injectable = INJ, IV, IM, IP, SC |
| Dispense Amount | RXE.10 |  |  |  |  |
| Dispense Units | RXE.11 |  |  |  |  |
| Pharmacist/Treatment Supplier’s Verifier ID | RXE.14 |  |  |  |  |
| Prescription Number | RXE.15 |  |  |  |  |
| Notes & Comments | NTE |  |  |  | Must appear after RXE segments |
| Set ID | NTE.1 |  |  |  |  |
| Source of Comment | NTE.2 |  |  |  |  |
| Comment | NTE.3 |  |  |  | Displayed in medication panel detail drilldown; displayed in bulleted list fashion |
| Pharmacy Route | RXR |  |  |  | Can come before or after any RXE segments |
| Route | RXR.1 |  |  |  | Identifier^Text  If information is not supplied, TheraDoc attempts to infer route by looking at dose from (RXE.6):  When dose form contains INJ, TheraDoc infers the route of IV  When dose form contains CAP, TAB, SUSP, TheraDoc infer route of PO |
| Administration Method | RXR.4 |  |  |  |  |

## 4.2.1 Cerner data transformation

| **Field Description** | **HL7 Field Loc.** | **Required Y/N/RE** | **Notes** |
| --- | --- | --- | --- |
| Sending Application | MSH.3 | Y | MSH 3.0 = HNAM |
| Sending Facility | MSH.4 | Y | MSH 4.0 = HNAM |
| Receiving application | MSH.5 | Y | MSH 5.0 = PYXIS |
| Receiving Facility | MSH.6 | Y | MSH 5.0 = PYXIS |
| Date/Time of Message | MSH.7 | Y | YYYYMMDDHHMMSS  Date/Time the ACK message was created |
| Common order | ORC | Y |  |
| Quantity/Timing | ORC.7 | Y |  |
| Quantity | ORC.7.1 | N | If the order\_detail table has the value of oe\_field\_display\_value = “Soft Stop” and oe\_field\_meaning = “STOPTYPE” this field will be blank. |
| Interval | ORC.7.2 | N | If frequency is present this field will be populated |
| End Date/Time | ORC.7.5 | N | If the order\_detail table has the value of oe\_field\_display\_value = “Soft Stop” and oe\_field\_meaning = “STOPTYPE” this field will be blank. |
| Pharmacy Encoded Order Segment | RXE | Y |  |
| Quantity/Timing | RXE.1 |  |  |
| Interval | RXE.1.2 | N | If frequency is present this field will be populated |
| Duration | RXE.1.3 | N | If the order\_detail table has the value of oe\_field\_display\_value = “Soft Stop” and oe\_field\_meaning = “STOPTYPE” this field will be blank. |
| End Date/Time | RXE.1.5 | N | If the order\_detail table has the value of oe\_field\_display\_value = “Soft Stop” and oe\_field\_meaning = “STOPTYPE” this field will be blank. |
| Give Amount - Minimum | RXE.3 | N | Copied from RXC.3 |
| Give Amount – Maximum | RXE.4 |  | Copied from RXC.4 |
| Pharmacy Order Component | RXC |  |  |
| Component Code – Name of Alternate Coding System | RXC.2.6 | N | If the medication identifier has a value on the med\_identifier table in Cerner |
| Custom segment | ZX1 |  |  |
| Dispense category | ZX1.7 |  | Populate if present |

## 4.3 Sample Message

**Pharmacy Orders to TheraDoc**

**Inbound to Cloverleaf from Cerner PharmNet**

MSH|^~\&|HNAM|HNAM|PYXIS|PYXIS|20190728121153||RDE^O01|Q4432211400T5825941928||2.3||||||8859/1

PID|1|2006002755^^^BCMRN^MRN|2006002755^^^BCMRN^MRN||UATESTING^MCSBABY^^^^^Current||20170201|F||||||||||1006009523^^^BCFN^FIN NBR|||||||0

PV1|1|O|NICC^^^MCS^^Nurse Unit(s)^Mease Countrysi||||MS052182^TESTER^TESTER^^^^^^BayCare Dr Number|||||||||||O|||||||||||||||||||||MCS||Active|||20190508090100

ORC|XO|15232566245^HNAM\_ORDERID|||Pending Complete||^q6hr&0000,0600,1200,1800^D10.000000^20190718120000^20190728115900^Routine||20190728121150|^SYSTEM^Donotchange^^^^^^^Personnel||66666^MUCLLFXUSH^SD HWAGWD^^^^^^MCS^Personnel^^^ORGANIZATION DOCTOR|||20190728121150

RXO|clindamycin^clindamycin^PYXIS^^Cleocin (dx other )|20||mg^^^^20 mg / 2 mL|Inj^Inj||||||0||0||||M30.000000||||4.000000|mL/hr

NTE|1|Order Comment|Target Dose: Cleocin (dx other ) 10 mg/kg (Actual Dose: 10 mg/kg) 07/18/2019 09:54:11

RXR|IVPB^IVPB|||INTERMITTENT

RXE|^q6hr&0000,0600,1200,1800^D10.000000^20190718120000^20190728115900^Routine|2344184^clindamycin+d5w 10mg/mL inj^Pyxis Interface ID^^Cleocin (dx other )|20||mg^^^^20 mg / 2 mL|Inj^Inj|^concentration = 10mg/ml\.br\Refrigerate. For PEDS IV use only|||2|EA|||^SYSTEM^Donotchange^^^^^^^Personnel|15232566245|||||||M30.000000|4.000000|mL/hr

NTE|1|Order Comment|Target Dose: Cleocin (dx other ) 10 mg/kg (Actual Dose: 10 mg/kg) 07/18/2019 09:54:11

RXR|IVPB^IVPB|||INTERMITTENT

ZX1|||||||IV-pedi-Intermittent

OBX|1|IS|Stop Type^Stop Type^PYXIS||Physician Stop

OBX|2|NM|Total Volume^Total Volume^PYXIS||2

OBX|3|ST|CD:2702380305^Antibiotic Indicator Other||sepsis

**Outbound from Cloverleaf to TheraDoc**

MSH|^~\&|HNAM|HNAM|PYXIS|PYXIS|20190728121153||RDE^O01|Q4432211400T5825941928||2.3||||||8859/1

PID|1|2006002755^^^BCMRN^MRN|2006002755^^^BCMRN^MRN||UATESTING^MCSBABY^^^^^Current||20170201|F||||||||||1006009523^^^BCFN^FIN NBR|||||||0

PV1|1|O|NICC^^^MCS^^Nurse Unit(s)^Mease Countrysi||||MS052182^TESTER^TESTER^^^^^^BayCare Dr Number|||||||||||O|||||||||||||||||||||MCS||Active|||20190508090100

ORC|XO|15232566245^HNAM\_ORDERID|||Pending Complete||^q6hr&0000,0600,1200,1800^D10.000000^20190718120000^20190728115900^Routine||20190728121150|^SYSTEM^Donotchange^^^^^^^Personnel||66666^MUCLLFXUSH^SD HWAGWD^^^^^^MCS^Personnel^^^ORGANIZATION DOCTOR|||20190728121150

NTE|1|Order Comment|Target Dose: Cleocin (dx other ) 10 mg/kg (Actual Dose: 10 mg/kg) 07/18/2019 09:54:11

RXR|IVPB^IVPB|||INTERMITTENT

RXE|^q6hr&0000,0600,1200,1800^D10.000000^20190718120000^20190728115900^Routine|2344184^clindamycin+d5w 10mg/mL inj^Pyxis Interface ID^^Cleocin (dx other )|20||mg^^^^20 mg / 2 mL|Inj^Inj|^concentration = 10mg/ml\.br\Refrigerate. For PEDS IV use only|||2|EA|||^SYSTEM^Donotchange^^^^^^^Personnel|15232566245|||||||M30.000000|4.000000|mL/hr

NTE|1|Order Comment|Target Dose: Cleocin (dx other ) 10 mg/kg (Actual Dose: 10 mg/kg) 07/18/2019 09:54:11

RXR|IVPB^IVPB|||INTERMITTENT

ZX1|||||||IV-pedi-Intermittent

# **5. Testing**

## 5.1. Unit Testing Scenarios

|  |  |
| --- | --- |
| **Scenario** | **Expected Result** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

## 5.2 Integrated Testing Scenarios

|  |  |
| --- | --- |
| **Scenario** | **Expected Result** |
|  |  |
|  |  |

## 5.3 Testing Approvals

|  |  |  |  |
| --- | --- | --- | --- |
| **Testing Phase** | **Date** | **Department** | **Team Member** |
| PH1.UNIT |  |  |  |
| PH1.INTEGRATED |  |  |  |

### 

## 5.4 Piloting

List the facilities and associated networks in scope for pilot testing.

## 5.5 Approvals

|  |  |  |  |
| --- | --- | --- | --- |
| **Testing Phase** | **Date** | **Department** | **Team Member** |
| PH1.0 |  |  |  |
|  |  |  |  |
|  |  |  |  |

# 6. Deployment / Implementation Model

Provide the detail as to how to deploy the solution defined in the IDBB from both the BAYCARE and vendor perspective.

## 6.1 Alerts

Are you going to need alerting on this connection?

|  |  |
| --- | --- |
| Yes |  |
| No |  |

If the answer is yes, please complete the table below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Site Name** | **Hours of Support** | **Distribution Group** | **Comments** |
|  |  |  |  |
|  |  |  |  |

# Appendix A: Risks and Concerns

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project Name** |  |  | | |  |  |  |  |
| **Number** | **Risk / Concern** | **Comment** | **Mitigation** | | |  |  |  |
| RC.2013.1.0 |  |  | |  | |  |  |  |

# Appendix B: Issues List

This is a dynamic list of the open issues related to the IDBB that remain to be solved, including but not limited to TBDs, pending decisions, information needed, conflict awaiting resolution, and the like.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Project Name** |  |  | | |  |  |  |  |
| **Number** | **Issue** | **Comment** | **Fix** | | |  |  |  |
| I.2013.1.0 |  |  | |  | |  |  |  |

* End of document