

# Star 04.01 - B2B programmer guide for R3

Version 04  
15/07/2016

## Table of Contents

Chapter 1. History .....	3
Chapter 2. Introduction .....	4
Chapter 3. Using the B2B portal .....	5
3.1. STAR B2B REST API.....	5
3.2. Description of the REST API.....	5
3.2.1. Server-side.....	5
3.2.2. client-side.....	5
Chapter 4. ReserveBid process description.....	6
4.1. Introduction .....	6
4.2. Send a ReserveBid message .....	6
4.2.1. The Bidder initiates a R3BidDocument to Elia. ....	6
4.3. Message Validation process. ....	6
4.3.1. Description .....	6
4.3.2. Technical validation.....	7
4.3.3. Business validation .....	7
Chapter 5. Messages specifications .....	<u>89</u>
5.1. R3BidDocument XML structure.....	<u>89</u>
5.1.1. Data structure R3BidDocument body XML. ....	<u>89</u>
5.1.2. Message parts.....	<u>910</u>
5.2. R3BidDocumentResponse structure. ....	<u>1213</u>
5.2.1. Data structure R3BidDocumentResponse .....	<u>1213</u>
5.3. Generic message parts.....	<u>1314</u>
5.3.1. Data structure Partner: Partner identifier.....	<u>1314</u>
5.3.2. Data structure Reason: Reason identifier.....	<u>1415</u>
5.4. Data types .....	<u>1618</u>
Chapter 6. Sample message .....	<u>1820</u>
6.1. R3BidDocument. ....	<u>1820</u>
6.2. R3BidDocumentResponse.....	<u>1921</u>

## Chapter 1. History

<b>Version</b>	<b>Date</b>	<b>Changes</b>
Star 03.01 Doc V1	05-06-2015	Initial version
Star 04.01 Doc V1	15/08/2016	Version modified for R3 2017 using Flex and Standard R3 products

## Chapter 2. Introduction

This document is a developer guide for the use of the STAR B2B REST API for communicating between Bidder and Elia with the STAR application. This document describes the how a bidder can send its offer about R3 reserves. This is done using the process "R3Bid" using XML messages exchange.

This document is organized into four sections.

- [Using the Star B2B portal](#)

The first part explains how the communication interface with the B2B portal actually works. C# code samples are supplied.

- [R3Bid process description](#)

The second part describes the process of the R3Bid.

- [Messages specifications](#)

The third part is a detailed message specification.

- [Message samples](#)

The last part gives some samples of XML messages.

## Chapter 3. Using the B2B portal

### 3.1. STAR B2B REST API

The STAR REST API is for the interface between Elia Web server and the client Web browser.

### 3.2. Description of the REST API

#### 3.2.1. Server-side

The STAR REST API is the programmatic interface to a defined request-response message system expressed in XML exposed via HTTPS based web server.

- HTTPS – PUT method for sending R3BidDocument
  - o URI= to be defined (<https://star.elia.be/b2B/R3/offers/v2>)
  - o Method= PUT
  - o ContentType = text/xml
  - o Authentication using the ISOEXT login
  - o Body: XML as defined in section [Reserve Bid Document protocol](#)
  - o BodyResponse: XML as defined in the [R3BidDocumentResponse](#).

#### 3.2.2. client-side

Not Applicable

## Chapter 4. R3Bid process description

### 4.1. Introduction

This section describes how B2B process to communicate with STAR is implemented concerning in order for the bidders to send bids to ELIA STAR system.

### 4.2. Send a R3Bid message

#### 4.2.1. The Bidder initiates a R3BidDocument to Elia.

The Bidder decides to generate several bids for a specific delivery period. To do that he can decide to send a B2B message to the application STAR containing the bid details.

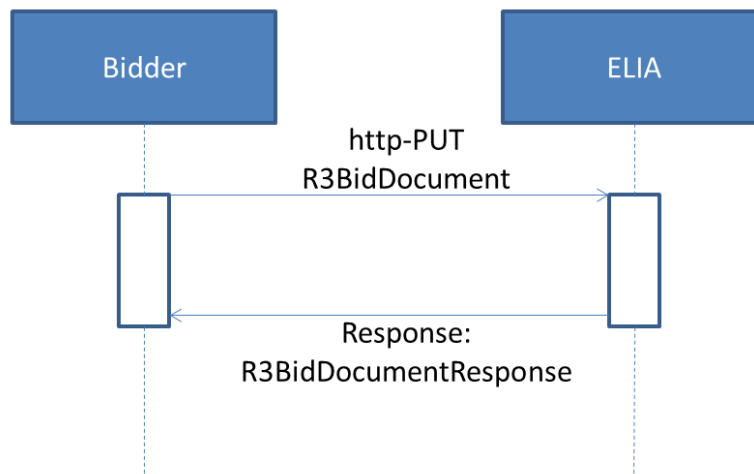
The bidder will use an HTTP-PUT method with an XML message (as defined in [Messages specifications](#)) containing all the necessary information to push their bids into STAR.

The message contains for each bid, the contract reference related to the bid, the quantity and the price per MW/H. Additionally to that, some Bid parameters will be defined to specify:

- the tariff Period applicable for the bid
- if the bid may not be combined with other bids
- if the bid contains a volume of power that is divisible or not

The TSO replies by a response giving the result of the transaction.

The following diagram illustrates the scenario description:



### 4.3. Message Validation process.

#### 4.3.1. Description

The validation process is the process defined in the STAR application to validate the structure and the content of the received message. R3BidDocumentResponse will contain the result of this validation process

### 4.3.2. Technical validation

#### 4.3.2.1. XML structure validation

The received XML message R3BidDocument will be validated through its XML structure using XSD validation. If this validation fails, the message will be rejected.



R3BidDocument.xsd

#### 4.3.2.2. Authentication validation

It is validated at this level that authentication used by the caller is a valid one.

Based on the ISOEXT login used, STAR application will identify the bidder with its EIC code.

### 4.3.3. Business validation

#### 4.3.3.1. Delivery Period Validation

Check is done to verify that Start date /End date specified for the auction period correspond to an existing auction in STAR and for which gate 1 is open and only the first next one.

#### 4.3.3.2. Bidder Contract validation

For all bid/contractReference, following checks are done

- The contractReference exists
- The contractReference is well associated to the bidder (linked to the ISOEXT login)
- The contractReference is valid for the auction period: so only 1 contract reference per product (1 for R3CIPU, and/or 1 for R3NonCIPU)

#### 4.3.3.3. R3Type validation

Per contract one volume can be offered per R3Type (defined in the contract). So maximum of 2 volumes/prices combination can be defined, one per R3Type

#### 4.3.3.4. Bid details validation

- Check "mayNotbeCombinedWith" contains only valid bidNumber (existing bidNumber as specified in bid itself)
- Check that bidNumber are unique in the whole message
- Check that "mayNotbeCombinedWith" for "BASE" bids, are defined with other all other BASE offers of same contract reference.
- Check that "mayNotbeCombinedWith" is not defined across different contract reference (it is not possible to define a MayNotBeCombinedWith between an offer for R3CIPU and another one on R3NonCIPU).

## Chapter 5. Messages specifications

### 5.1. R3BidDocument XML structure

#### 5.1.1. Data structure R3BidDocument body XML.

##### 5.1.1.1. Synopsis

Field	Cardinality	Data type	Description
<a href="#">deliveryPeriod</a>	Mandatory	<a href="#">Period</a>	The delivery Period applicable for the whole message
<a href="#">Bid</a>	0 <= n	List of <a href="#">bid</a>	List of bids sent by the bidder.

##### 5.1.1.2. Detailed fields information

###### 5.1.1.2.1. Field [deliveryPeriod](#)

This information represents the delivery period for which the R3BidDocument message is applicable.

This information gives the start and end date period for the current tender. Based on this field, STAR application will check if the gate 1 is well opened for this period.

Cardinality	Mandatory
Data type	<a href="#">Period</a>

###### 5.1.1.2.2. Field [bid](#)

List of Bid

This information describes the list of bids sent by the bidder for the tendering period. If no bid is specified, all existing bids in STAR for this bidder and for the given delivery period will be deleted in STAR.

Cardinality	0 <= n
Data type	list of <a href="#">bid</a>



## 5.1.2. Message parts

### 5.1.2.1. Data structure bid: Base information for a bid

XML Namespace: <http://www.elia.be/namespaces/public/Star/b2bmsg>

#### 5.1.2.1.1. Synopsis

Field	Cardinality	Data type	Description
<a href="#">bidNumber</a>	mandatory	<a href="#">Int</a>	Identifier of the Bid. Must be unique in the whole message and must starts with '1'
<a href="#">contractReference</a>	Mandatory	<a href="#">string</a>	Contract reference
<a href="#">mayNotBeCombinedWithAll</a>	mandatory	<a href="#">boolean</a>	Indicates if the current bid cannot be combined with ALL other bids.
<a href="#">mayNotBeCombinedWith</a>	0 <= n	<a href="#">MNBCW</a>	Contains a list of bids that cannot be combined with this one.
<a href="#">tariffPeriod</a>	mandatory	<a href="#">String</a> (3 characters)	Indicates the auction TariffPeriod for which the current bid is applicable.
<a href="#">divisible</a>	Mandatory	<a href="#">boolean</a>	Indicates if the volume specified in the list of bid detail is divisible or not.
<a href="#">bidDetail</a>	1 <= 2	List of <a href="#">bidDetail</a>	List of product applicable for the current bid

#### 5.1.2.1.2. Detailed fields information

##### 5.1.2.1.2.1 Field bidNumber

This information describes the identifier of the bid. This is a unique number in the R3BidDocument starting from '1'.

Cardinality	Mandatory
Data type	<a href="#">Int</a>

##### 5.1.2.1.2.2 Field contractReference

This information represents the contract reference like 'R3-xxxx-2015'.

Cardinality	Mandatory
Data type	<a href="#">string</a>

##### 5.1.2.1.2.3 Field mayNotBeCombinedWith

This information gives the list of bids that cannot be combined with this one.

This field is optional in case the MayNotBeCombinewithAll is set to 'True' and for BASE offers.

Cardinality	0 <= n
Data type	<a href="#">MNBCW</a>

#### 5.1.2.1.2.4 Field mayNotBeCombinedWithAll

If true, that means that the current bid cannot be combined with all the other bids of the same products and non-BASE sent in this R3BidDocument message.

Cardinality	Mandatory
Data type	<a href="#">boolean</a>

#### 5.1.2.1.2.5 Field tariffPeriod

This information describes the applicable TariifPeriod for the bid.

Cardinality	Mandatory
Data type	<a href="#">string</a> (3 characters)

The following table indicates the valid values:

Value	Description
A01	The auction is for a BASE period
A02	The auction is for a PEAK period
A03	The auction is for a Long Off Peak period

#### 5.1.2.1.2.6 Field divisible

This field indicates if current bid can have the volume divisible or not.

Cardinality	Mandatory
Data type	<a href="#">boolean</a>

#### 5.1.2.1.2.7 Field bidDetail

This field indicates the details of the bid.

Cardinality	1 <= 3
Data type	<a href="#">BidDetail</a>

### 5.1.2.2. Data structure MNBCW: May not be combined with indicator

#### 5.1.2.2.1. Synopsis

This field indicate the BidNumber for which the current bid cannot be combined with

Field	Cardinality	Data type	Description
-------	-------------	-----------	-------------

Field	Cardinality	Data type	Description
<a href="#">bidnumber</a>	Mandatory	<a href="#">int</a>	Bid Number

### 5.1.2.2.2. Detailed fields information

#### 5.1.2.2.2.1 Field bidNumber

This information represents a Bid number that cannot be combined with the current one.

Cardinality	Mandatory
Data type	<a href="#">int</a>

### 5.1.2.3. Data structure bidDetail: Detail information for a bid

#### 5.1.2.3.1. Synopsis

Field	Cardinality	Data type	Description
<a href="#">R3Type</a>	Mandatory	<a href="#">string</a>	Flex or Standard R3 type product
<a href="#">price</a>	Mandatory	<a href="#">decimal</a>	Specifies the price per MWH. Max 2 decimal is allowed
<a href="#">volume</a>	Mandatory	<a href="#">int</a>	Specifies the power volume.

#### 5.1.2.3.1.1 Field R3Type

This information describes the R3Type used for the associated volume and price.

Cardinality	Mandatory
Data type	<a href="#">string</a>

*The following table indicates the valid values:*

Value	Description
Flex	R3 type is Flex
Standard	R3 Type is Standard

### 5.1.2.3.2. Detailed fields information

#### 5.1.2.3.2.1 Field price

This field indicates the price per MW/H for applicable for this bid. Max 2 decimals are accepted.

The price value must be greater than 0.

Cardinality	Mandatory
Data type	<a href="#">decimal</a>

### 5.1.2.3.2.2 Field volume

This field indicates the volume of power applicable for this bid.

The volume value must be greater than 0.

Cardinality	optional
Data type	<a href="#">int</a>

This field indicates the volume of power applicable for this bid

## 5.2. R3BidDocumentResponse structure.

### 5.2.1. Data structure R3BidDocumentResponse

#### 5.2.1.1. XSD structure

The structure can be found in the following XSD:



R3DocumentResponse.xsd

#### 5.2.1.2. Synopsis

Field	Cardinality	Data type	Description
<a href="#">bidder</a>	Mandatory	<a href="#">Partner</a>	Identifies the bidder based on its login
<a href="#">deliveryPeriod</a>	Mandatory		
<a href="#">bidDocumentStatus</a>	Mandatory	<a href="#">boolean</a>	Indicates if the R3BidDocument has been accepted or not
<a href="#">reason</a>	1 <= n	<a href="#">Reason</a>	

#### 5.2.1.3. Detailed Fields information

##### 5.2.1.3.1. Field bidder

This information represents the identification of the bidder based on the login used when the R3BidDocument has been sent.

Cardinality	Mandatory
Data type	<a href="#">Partner</a>

##### 5.2.1.3.2. Field deliveryPeriod

This information represents the delivery period for which the R3BidDocument message has been accepted (or rejected).

This information gives the start and end date period for the current tender.

Cardinality	Mandatory
Data type	<a href="#">Period</a>

#### 5.2.1.3.3. Field bidDocumentStatus

If the R3BidDocument is accepted, this field will return "True" else "False".

Cardinality	mandatory
Data type	<a href="#">boolean</a>

#### 5.2.1.3.4. Field reason

Cardinality	1 <= n
Data type	<a href="#">reason</a>

This contains the reason accepted or rejected R3BidDocument.

### 5.3. Generic message parts

#### 5.3.1. Data structure Partner: Partner identifier

XML Namespace: <http://www.elia.be/namespaces/public/Star/b2bmsg>

This data structure is used to identify a partner in a transaction. It forms part of several message structures.

The fact that the code type must be specified in addition to the code itself, allows users to use their preferred code type, provided it is recognised by the system.

In addition, the identity of a partner can be indicated in words to make messages easier to read for humans.

##### 5.3.1.1. Synopsis

Field	Cardinality	Data type	Description
<a href="#">code</a>	mandatory	<a href="#">string</a> (16 characters)	Code
<a href="#">codeType</a>	mandatory	<a href="#">string</a> (3 characters)	Code type
<a href="#">friendlyName</a>	optional	<a href="#">string</a>	Friendly name

##### 5.3.1.2. Detailed fields information

###### 5.3.1.2.1. Field code

Code

Cardinality	mandatory
Data type	<a href="#">string</a> (16 characters)
Min len.	1

### 5.3.1.2.2. Field codeType

Code type

Cardinality	mandatory
Data type	<a href="#">string</a> (3 charcaters)
Min len.	1

The following table indicates the valid values:

Value	Description
C03	EIC code

### 5.3.1.2.3. Field friendlyName

Friendly name

Cardinality	optional
Data type	<a href="#">string</a>
Min len.	1

This field is optional and not used by the system which is processing the messages. It is only there to facilitate human reading of the message.

## 5.3.2. Data structure Reason: Reason identifier

XML Namespace: <http://www.elia.be/namespaces/public/Star/b2bmsg>

This data structure is used to identify the reason for message rejection. It forms part of several message structures.

### 5.3.2.1. Synopsis

Field	Cardinality	Data type	Description
<a href="#">reasonCode</a>	mandatory	<a href="#">string</a> (3 characters)	Reason code
<a href="#">reasonText</a>	mandatory	<a href="#">string</a>	

### 5.3.2.2. Detailed fields information

#### 5.3.2.2.1. Field reasonCode

Cardinality	mandatory
Data type	<a href="#">string</a>
Len	3

The following table indicates the valid values:

Value	ReasonText	Comment
A01	Message fully accepted. All received bids are added in the STAR database	That means that bidDocumentStatus is set to true
A02	Message fully rejected.	That means that bidDocumentStatus is set to true This code is always sent when at least one error occurred during the validation process.
A05	The contract reference %s% is no valid for the delivery period.	That means that the identified bidder has specified in the' contract reference for the given delivery period
A57	Gate for the given delivery period is not open.	The <a href="#">deliveryPeriod</a> is a valid field but for which the gate is not open; This can occurs if the gate is already closed or not already open.
A71	MNBCW refers to an unknown bid number	Some offer numbers in MNBCW are not recognized
A81	The introduced delivery period is invalid.	The delivery period of one or more offers does not correspond to the delivery period that is currently being auctioned in STAR".
B18	Failure during the R3BidDocument process	A failure occurred at STAR application.
Z01	XSD validation fails: %S	The XSD validation has failed. The parameter "%s" gives the error(s) returned by this validation.
Z02	Contract reference does not match the user login	That means there the link with login used and bidder identification done using the contractReference has failed.
Z03	Login failure: the user %login% has no access to STAR application.	The login used has no access to the STAR application.
Z04	The received bid number is invalid or not unique	All bid number must be unique
Z07	MNBCW column cannot include its own offer number: Offer Nr %s%.	
Z08	MNBCW for Offer Nr %s is not symmetric with the one defined in OfferNr %s	If Offer1 may not be combined with offer 2, then offer 23 may not be combined with offer 1
Z10	Within one bid each R3 type can only be offered once.	A bid cannot contain 2 times the same R3Type (Flex or Standard)

Value	ReasonText	Comment
Z11	MNBCW column is incorrect: All BASE offers are non-combinable with other BASE offers of the same contract type	
Z12	Lot with R3 Type is not valid.	R3type Flex or Standard can only be specified in BidDetail if Lot available

### 5.3.2.2.2. Field reasonText

Reason Text

Cardinality	Mandatory
Data type	<a href="#">string</a>
Min len.	1

See the list of valid reasoncode to see the associated ReasonText.

## 5.4. Data types

The following table describes all the datatypes allowed in XML data structure specifications.

Data type	Typical XML representation	Lexical pattern	Comments
string		.*	The following constraints can be expressed: minimum length, maximum length, pattern, choice of valid values
int	-1, 0, 126789675, +100000	[+]?[0-9]+	The following constraints can be expressed: minimum value, maximum value. Values must be between 2147483647 and -2147483648 inclusive.
decimal	-1.23, 12678967.543233, +100000.00, 210	[+]?[0-9]+(\.[0-9]+)?	The following constraints can be expressed: minimum value, maximum value. Values must have at most 28 digits, with.
boolean	1, 0, true, false	1 0 true false	
code		.*	This is similar to string, but allowed values must be part of a documented "code table". The actual signification of the code table constraint is application-dependent
datetime	To indicate 1:20 pm on May the 31st, 1999 in Brussels which is 2 hours ahead of UTC, one would write: 1999-05-	[0-9]{4}-[0-9]{2}-[0-9]{2}T[0-9]{2}:[0-9]{2}:[0-9]{2}?(?:[+-][0-9]{2})?([+-][0-9]{2})?([+-][0-9]{2})?([+-][0-9]{2})?	Represents a time instant. UTC notation is required. See also the example below for daylight saving time handling.



Data type	Typical XML representation	Lexical pattern	Comments
	31T11:20:00Z	9]{2})?)?	
time	13:20:00Z	[0-9]{2}(:[0-9]{2}(:[0-9]{2})?)?([+][0-9]{2}(:[0-9]{2})?)?)?	Represents a time instant in the day. UTC notation is required. See also the example below for daylight saving time handling.
date	To indicate May the 31st, 1999, one would write: 1999-05-31	[0-9]{4}-[0-9]{2}-[0-9]{2}	Represents a calendar date.
Period	2015-04-01/2015-04-30	[0-9]{4}-[0-9]{2}-[0-9]{2}/[0-9]{4}-[0-9]{2}-[0-9]{2}	Represent the start date and an end date.
binary		Encoded binary data (the default encoding is base64)	Used to transfer data that is not unicode text.

## Chapter 6. Sample message

### 6.1. R3BidDocument.

```
<?xml version="1.0" encoding="UTF-8"?>
<R3BidDocument>
  <deliveryPeriod v="2015-12-01/2015-12-31"/>
  <bid>
    <bidNumber v="1"/>
    <contractReference v="R3CIPU-xxxx-2017"/>
    <mayNotBeCombinedWithAll v="true"/>
    <tariffPeriod v="A01"/>
    <divisible v="true"/>
    <!--YES-->
    <bidDetail>
      <R3Type v="Flex"/>
      <price v="15.23"/>
      <volume v="10"/>
    </bidDetail>
    <bidDetail>
      <R3Type v="Standard"/>
      <price v="10.23"/>
      <volume v="10"/>
    </bidDetail>
  </bid>
  <bid>
    <bidNumber v="2"/>
    <contractReference v="R3NonCIPU-xxxx-2017"/>
    <mayNotBeCombinedWithAll v="false"/>
    <mayNotBeCombinedWith>
      <bidNumber v="3"/>
    </mayNotBeCombinedWith>
    <tariffPeriod v="A02"/>
    <divisible v="false"/>
    <bidDetail>
      <R3Type v="Flex"/>
      <price v="40.23"/>
```

```

    <volume v="24"/>
  </bidDetail>
</bid>
<bid>
  <bidNumber v="3"/>
  <contractReference v="R3NonCIPU-xxxx-2017"/>
  <mayNotBeCombinedWithAll v="false"/>
  <mayNotBeCombinedWith>
    <bidNumber v="2"/>
  </mayNotBeCombinedWith>
  <tariffPeriod v="A02"/>
  <divisible v="true"/>
  <bidDetail>
    <R3Type v="Standard"/>
    <price v="40.23"/>
    <volume v="24"/>
  </bidDetail>
</bid>
</R3BidDocument>

```

## 6.2. R3BidDocumentResponse

```

<?xml version="1.0" encoding="UTF-8"?>
<R3BidDocumentResponse>
  <bidder>
    <code v="12TESTARPXXX--Z"/>
    <codeType v="C03"/>
    <friendlyName v="TESTARP"/>
  </bidder>
  <deliveryPeriod v="2015-12-01/2015-12-31"/>
  <bidDocumentStatus v="false"/>
  <reason>
    <reasonCode v="A01"/>
    <reasonText v=" Message fully accepted. All received bids are added in the STAR
database."/>
  </reason>
</R3BidDocumentResponse>

```