

Elia B2B Flex Activation system using CIM - Implementation Guide

This document describes all aspects of Elia B2B Flex Activation system implementation of International CIM message format.

This manual should be read by:

- *FSP operational staff
who need to understand how the concepts and processes related to the current Elia B2B Flex Activation system are treated in the Elia implementation of CIM standard*
- *FSP IT staff
who need to develop or adapt business applications to generate and receive CIM XML Scheduling messages using Elia B2B Flex Activation system API*
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Chapter 1. Introduction

The Elia B2B Flex Activation system can be used by the FSP to submit new Activations and to retrieve information about existing Activations using the CIM ESS Scheduling system automatically from his system.

This implementation guide provides all the information you need to understand and adapt your systems in order to communicate with the Elia B2B Flex Activation system using the CIM standard.

Before to read this document, Elia suggests to the reader to read the document Flex Activation B2C Guide that explains all the business concepts about the Activations at Elia.

Note! Both protocols (B2C and B2B) are fully compatible: It is possible to enter an Activation via the B2B and see his values and details on the B2C. or to modify , update or confirm an Activation via the B2B or the B2C. .

Note! No Application Programming Interface (API) are provided and thus its up to the FSP to implement both XML handling and the connection with the Elia B2B Flex Activation system. (See "3.6 HTTP communication through VB Script " p 9 for example of how implement XML handling and connection).

The principal aim of the CIM Scheduling system is to provide a standard form of information exchange between FSP s and TSOs across Europe. The development of a standard messaging system will enable the implementation of business applications that can communicate balancing requirements between all involved parties in all European countries.

1.1. CIM – Electronic Scheduling System (ESS)

This implementation guide explains the use of the CIM Scheduling messages in order to submit Activations to the Elia B2B Flex Activation system.

Additional information is available from IEC Standard Implementation Guides: These documents define the adopted standard for the different Message structures. They provide reference for all parts of the document.

They can be bought on the IEC Web Store: <https://www.iec.ch/>

IEC reference	CIM XML message defined	Title	Short description
62325-301	None	Framework for energy market communications - Part 301: Common information model (CIM) extensions for markets	This Standard specifies the common information model (CIM) for energy market communications
62325-351	None	Framework for energy market communications - Part 351: CIM European market model exchange profile (ESMP)	This Standard specifies a package which provides a logical view of the functional aspects of European style market management within an electricity market.
62325-451-1	Acknowledge	Framework for energy market communications - Part 451-1: Acknowledgment business process and contextual model for CIM European market	This Standard specifies a package for the acknowledgment business process and its associated message contextual model, assembly model and XML Schema for use within the

			European style electricity markets
62325-451-2	Schedule, Confirmation	Framework for energy market communications - Part 451-2: Scheduling business process and contextual model for CIM European market	This Standard specifies a package for the scheduling business process and its associated message contextual models, assembly models and XML Schemas for use within the European style electricity markets

Additional information: ENTSO-E is responsible for the CIM standard for European part:
<https://www.entsoe.eu/digital/common-information-model/>

1.2. Related documents

Document	Short description
Flex Activation B2C guide	The existing "B2C" application (Elia Flex Activations website) used for submitting, reviewing and modifying Activations in a web browser. Elia recommends strongly to have this document while using the present implementation guide to have a better understanding of the different business concepts used by Elia. It is freely available on Elia.be

Chapter 2. Glossary

Term	Description
Activation	A Activation is the announce of Energy available from an FSP. The Activation contains one or many Delivery Points@@@FJA
B2B	In this document "Business to business". This is the Electronic interface used by FSP that allows to access the Elia B2B Flex Activation system directly from the FSP's technical system.
FSP	The Flexibility Service Provider (FSP) is responsible to provide flexible energy. To do so, he has to submit Activations. The FSP is therefore the company who uses Elia B2B Flex Activation system.
CIM	Common Information Model
CDS	Closed Distribution System
Common Information Model	The Common Information Model (CIM) is an international standard used for modelling the information exchanges required in electric utilities. CIM is independent of any individual application, middleware, or message protocols used for data exchange. More information on "1.1 CIM – Electronic Scheduling System (ESS)" p 4
Delivery Point	The Contractual Point where the energy is put at disposal or offtaken. It can be on the Elia grid or on the DGO grid.
DST	Daylight Saving Time
DTD	Document Type Definition. These documents are no longer provided nor supported by Elia. Only the XML Schema (XSD) are available. See "Schemas and namespaces " p 35
EIC	Energy Identification Code
Element	This term is also used to describe a message "field", but in a more technical sense in relation to the structure of the CIM XML message.
Elia	Belgian TSO. For details, see www.elia.be
Elia B2B Flex Activation system	The subject of this implementation guide: The system of Elia that receives the automated HTTP/XML Activation requests from the FSP
ESS	Electronic Scheduling System
Execution date	The delivery day when the Activation is delivered
Flex Activation website	Elia website where FSP can submit Activations manually via a web browser (so called "B2C"), consult the states and history of the Activations and check if their FSP obligations are fulfilled The document @@@ (freely available) explains all the business concepts about the Activations at Elia and how to use the FlexActivation website.
IEC	International Electrotechnical Commission https://www.iec.ch/

Message field	This refers to the element in the CIM XML message that describes a particular parameter associated with the message. See also "Element" in this glossary
MW	Unit of active power: megawatt (1 000 000 W).
Period	The 3 Periods (Period0, Period1, Period2) during which the Activation is made
Offtake	An Offtake (Load) Activation refers to the physical energy off take from the Elia grid to an Access Point, a Distribution grid, an Offshore or a CDS access point.
Schedule message	This refers to the conceptual equivalent of a Activation which uses the message format set "Schedule_MarketDocument" from the IEC 62325-451-2 standard defined in section "1.1 CIM – Electronic Scheduling System (ESS)" p 4 The word "message" is used to indicate the 'content' of the communication between a FSP and Elia
TSO	Transmission System Operator. TSOs are responsible for the bulk transmission of electric power on the main high voltage electric networks. TSOs provide grid access to the electricity market players (i.e. generating companies, traders, suppliers, distributors and directly connected customers) according to non-discriminatory and transparent rules. In order to ensure the security of supply, they also guarantee the safe operation and maintenance of the system. In many countries, TSOs are in charge of the development of the grid infrastructure too. TSOs in the European Union internal electricity market are entities operating independently from the other electricity market players.
UTC	Coordinated Universal Time, which is the international standard for civil time and the Internet.
XML	Extensible Markup Language They are also called "CIM XML" in this document. A very short description of XML is given in 4.2 "XML messages" p 17
XSD	XML Schema

Chapter 3. HTTP Communication with Elia B2B Flex Activation system

This section describes how to use the Elia B2B Flex Activation system by sending and receiving CIM XML messages directly over HTTPS.

3.1. Connecting to the Elia B2B Flex Activation system

Elia B2B Flex Activation system API address to use by FSP application are:

Address	Remark
https://flexactivationdemo.elia.be/b2b/activations/upload	EndPoint Address To Elia Demo environment
https://flexactivation.elia.be/b2b/activations/upload	EndPoint Address To Elia Exploitation environment

3.2. Creating CIM XML document per datatype

The CIM XML Messages that are sent to the Elia B2B Flex Activation system must observe the specifications documented in the Chapter 5. "Messages sent from the FSP to Elia" p 23 . The fields must be mapped to XML tags in the following way:

- A field with a simple datatype (simple datatypes are listed in the section "6.5 Data types " p 31) is mapped to an xml tag with the same name and the field content becomes the content of the tag. For example, the version field in a 'revisionNumber' is mapped to:

```
<Schedule_MarketDocument ...>
[... ]
<revisionNumber>609</revisionNumber>
[... ]
</Schedule_MarketDocument >
```

- A field where the datatype is another structure is mapped to an xml tag with the same name, taking over the child tags of that other structure. For example, the schedule_Time_Period.timeInterval field in a Schedule_MarketDocument is mapped to:

```
<Schedule_MarketDocument ...>
[... ]
<schedule_Time_Period.timeInterval>
  <start>2020-07-21T22:00Z</start>
  <end>2050-07-22T22:00Z</end>
</schedule_Time_Period.timeInterval>
[... ]
</ Schedule_MarketDocument >
```

- A field where the datatype is a list is mapped to an xml tag repeated:

```
<CrossBorderNom>
[... ]
<TimeSeries>
  <Point>
    <position>1</position>
    <quantity>142.9</quantity>
  </Point>
  <Point>
    <position>2</position>
    <quantity>307.1</quantity>
```



```
</Point>  
</TimeSeries>  
</CrossBorderNom>
```

3.3. Error handling

In case of an error (invalid request, internal error or else that arrives to the Elia B2B Flex Activation system), each page return

- *an Error message and*
- *an HTTP status of 510, 400, 401, etc*

instead of their normal output.

3.4. XML Namespace

The namespace for all XML elements is urn:iec62325.351:tc57wg16:451-2:scheduledocument:5:0

Please note that standards namespaces are also advised :

- *xmlns:xsd="http://www.w3.org/2001/XMLSchema"*
- *xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"*

3.5. Handling the connection to the Elia B2B Flex Activation system

To establish an Internet connection with the Elia B2B Flex Activation system, the following rules must be observed:

- *For data security reasons, HTTPS must be used with the userid and password given by Elia.*
- *All messages must be sent by HTTP(s) POST method*
- *The content type should be "text/xml"*
- *The HTTPS body should only consist of the XML string, beginning directly with the root tag.*

3.6. HTTP communication through VB Script

Here is an example of how to communicate with the Elia B2B Flex Activation system with a VB Script code.

This method is compatible with Windows 10.

```
'This script calls the Flex demo B2B Address in order to send an Activation or a  
specific command on this Activation
```

```
Remark: This script has been created in Excel Visual basic. Some differences could be  
retrived if it runs as a VBS file.
```

```
Sub ActivationScript()  
Dim objReq As XMLHTTP60  
Dim baseUrl As String  
Dim postData As String  
Dim user As String  
Dim Password As String  
Dim EIC As String
```

```
baseUrl = " https://flexactivationdemo.elia.be/b2b/activations/upload"  
user = "Your User ID"  
Password = "Your password"  
EIC = "Your EIC"
```

```
postData = "<Schedule_MarketDocument xmlns='urn:iec62325.351:tc57wg16:451-2:scheduledocument:5:2' " & _
"xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
xsi:schemaLocation='urn:iec62325.351:tc57wg16:451-2:scheduledocument:5:2
https://nedil.elia.be/namespaces/public/scheduling/iec62325-451-2-schedule_v5_2.xsd'"
& _
"<mRID>FSPACTIVATIONREFERENCE</mRID><revisionNumber>13</revisionNumber>" & _
"<type>B30</type><process.processType>A17</process.processType><process.classificationType>A01</process.classificationType><sender_MarketParticipant.mRID codingScheme='A01'"
& _
EIC & _
"</sender_MarketParticipant.mRID><sender_MarketParticipant.marketRole.type>Z01</sender_MarketParticipant.marketRole.type><receiver_MarketParticipant.mRID codingScheme='A01'"
">10X1001A1001A094</receiver_MarketParticipant.mRID><receiver_MarketParticipant.marketRole.type>A04</receiver_MarketParticipant.marketRole.type><createdDateTime>2021-02-02T16:03:03Z</createdDateTime><schedule_Time_Period.timeInterval><start>2021-02-27T04:00Z</start>" & _
"<end>2021-02-27T04:30Z</end></schedule_Time_Period.timeInterval><domain.mRID codingScheme='A01'"
">10YBE-----2</domain.mRID><TimeSeries><mRID>22X20131125----S|20210120541453118420943077</mRID><version>1</version><businessType>A04</businessType><product>8716867000016</product><objectAggregation>A06</objectAggregation><marketEvaluationPoint.mRID codingScheme='A10'"
">541453118420943077</marketEvaluationPoint.mRID><marketAgreement.mRID>22X20131125----S|20210120</marketAgreement.mRID><measurement_Unit.name>MAW</measurement_Unit.name><Period><timeInterval><start>2021-02-27T04:00Z</start><end>2021-02-27T04:30Z</end></timeInterval><resolution>PT15M</resolution><Point><position>1</position><quantity>4</quantity></Point><Point><position>2</position><quantity>1</quantity></Point></Period></TimeSeries></Schedule_MarketDocument>"
```

```
Set objReq = New XMLHTTP60
objReq.Open "PUT", baseUrl, False
objReq.setRequestHeader "Authorization", "Basic " & rfc1521Base64Encode(user & ":" & Password)
objReq.setRequestHeader "Content-Type", "application/xml; charset=UTF-8"
objReq.setRequestHeader "Accept", "application/xml"
```

```
objReq.send postData
```

```
MsgBox "HTTP STATUS : " & objReq.status
MsgBox "HTTP response text: " & objReq.responseText
```

```
End Sub
```

!Here below, an example of a "Base64Encode" functuon

```
Function rfc1521Base64Encode(inData)
'rfc1521
'2001 Antonin Foller, Motobit Software, http://Motobit.cz
Const Base64 = "ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789+/"
Dim cOut, sOut, I
```

```
'For each group of 3 bytes
For I = 1 To Len(inData) Step 3
    Dim nGroup, pOut, sGroup

    'Create one long from this 3 bytes.
    nGroup = &H10000 * Asc(Mid(inData, I, 1)) + _
        &H100 * MyASC(Mid(inData, I + 1, 1)) + MyASC(Mid(inData, I + 2, 1))

    'Oct splits the long To 8 groups with 3 bits
    nGroup = Oct(nGroup)

    'Add leading zeros
    nGroup = String(8 - Len(nGroup), "0") & nGroup

    'Convert To base64
    pOut = Mid(Base64, CLng("&o" & Mid(nGroup, 1, 2)) + 1, 1) + _
        Mid(Base64, CLng("&o" & Mid(nGroup, 3, 2)) + 1, 1) + _
        Mid(Base64, CLng("&o" & Mid(nGroup, 5, 2)) + 1, 1) + _
        Mid(Base64, CLng("&o" & Mid(nGroup, 7, 2)) + 1, 1)

    'Add the part To OutPut string
    sOut = sOut + pOut

    'Add a new line For Each 76 chars In dest (76*3/4 = 57)
    'If (I + 2) Mod 57 = 0 Then sOut = sOut + vbCrLf
Next
Select Case Len(inData) Mod 3
    Case 1: '8 bit final
        sOut = Left(sOut, Len(sOut) - 2) + "=="
    Case 2: '16 bit final
        sOut = Left(sOut, Len(sOut) - 1) + "="
End Select
rfc1521Base64Encode = sOut
End Function
```

Each main command is described here below:

```
Set objReq = New XMLHTTP60
```

We create an instance of the ServerXMLHTTP object that serves to establish HTTPS connection to the Elia B2B FlexActivation system.

```
o.open "PUT", baseUrl, 0, user, password
```

We initialize an XMLHTTP request and specify the method, URL and authentication of the information for the request.

```
objReq.setRequestHeader "Authorization", "Basic " & rfc1521Base64Encode(user & ":" & Password)
```

```
objReq.setRequestHeader "Content-Type", "application/xml; charset=UTF-8"
```

```
objReq.setRequestHeader "Accept", "application/xml"
```

We specify that the content type of the request is XML and the length of the data we transmit to the called page and the fact that authentication is Basic Authentication.

Please note that this authentication is based on a "base64 text. An example of such a function to encode in base 64 is given here below.

```
o.send postData
```

We send the HTTPS request to the Elia B2B Flex Activation system (defined by the variable `baseUrl`) and receive the response.

```
MsgBox "HTTP STATUS : " & objReq.status
```

We display the HTTP status of this call to the Elia Flex Activation system. If no issue, the value should be 200

```
MsgBox "HTTP response text: " & objReq.responseText
```

We display the message answer of this call from the Elia B2B Flex Activation system.

If no issue, the return should be an acknowledge message

```
<Acknowledgement_MarketDocument xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="urn:iec62325.351:tc57wg16:451-
1:acknowledgementdocument:8:0">
  <mRID>FSPACTIVATIONREFERENCE_A</mRID>
  <createdDateTime>2021-02-02T15:16:19Z</createdDateTime>
  <sender_MarketParticipant.mRID
codingScheme="A01">10X1001A1001A094</sender_MarketParticipant.mRID>
  <sender_MarketParticipant.marketRole.type>A04</sender_MarketParticipant.marketRole.type>
  <receiver_MarketParticipant.mRID codingScheme="A01"> {Your EIC Code}
</receiver_MarketParticipant.mRID>
  <receiver_MarketParticipant.marketRole.type>Z01</receiver_MarketParticipant.marketRole.type>
  <received_MarketDocument.mRID>FSPACTIVATIONREFERENCE</received_MarketDocument.mRID>
  <received_MarketDocument.revisionNumber>12</received_MarketDocument.revisionNumber>
  <received_MarketDocument.type>A17</received_MarketDocument.type>
  <Reason>
    <code xmlns="urn:iec62325.351:tc57wg16:451-2:scheduledocument:5:2">A01</code>
    <text xmlns="urn:iec62325.351:tc57wg16:451-2:scheduledocument:5:2">Message fully
accepted</text>
  </Reason>
</Acknowledgement_MarketDocument>
```

Note! This code can also be run within Microsoft Excel VBA

Chapter 4. Submitting Activations

This chapter describes the terms and concepts associated with submitting Activations in the terminology of the IEC CIM adopted standards.

The Elia terminology used in the management of Activations is set out in the FlexActivations B2C guide available freely on Elia Web at the address @@@

A description of the general principles in terms of the CIM standard are set out in the IEC Standard Implementation Guides (see section 1.1 "CIM – Electronic Scheduling System (ESS)").

This chapter is of interest to FSP *operational staff* who want to understand how familiar concepts are treated in the CIM standard for Elia Activations.

Activations submitted to the Elia B2B Flex Activation system must be written as XML (eXtensible Markup Language) files, so this chapter also contains an introduction to XML.

4.1. Schedule message

This section contains a review of the general principles involved in submitting Activations and relates the terms and parameters used by Elia in the FlexActivation web site to the terms that are expressed in the IEC 62325-451-2 (see section 1.1 "CIM – Electronic Scheduling System (ESS)")

The characteristics that define the different actions to make on an Activation are determined by a collective group of fields and attributes within a single message type.

The actual Activation i.e. the series of energy quantities forms just a part of the Schedule message. This is referred to as the "Time Series". A single Schedule message can contain several Time Series.

The Schedule message itself contains a set of 'header' lines. All of these header lines define attributes that are common to all the time series.

Similarly each time series has a set of headers in addition to the actual energy values. These headers distinguish between the different time series in the same message.

Details on the parameters that can be specified for each time series are given in Chapter 6.



- Each Schedule message is identified by a **mRID** field. The mRID field is stored as the FSPReference and must be used in any Schedule message concerning this Activation

This message **mRID** must be unique for any particular day and Activation. This means that you must use different identification/Reference for messages that are submitted on different days.

Similarly each time series within the message must have a unique identification.

- Each Schedule Time Series is identified by a **mRID** field

This is only required to be unique within this message.

4.1.1. The Parties involved

A Schedule (or Status Request) message must of course be submitted by a **FSP**, who is referred to as **Flexibility Service Provider (FSP)** in European documents.

- The **FSP** submitting a Activation is identified by the **sender_MarketParticipant.mRID** field.
- Only the EIC is allowed to identify the sender_MarketParticipant.mRID and receiver_MarketParticipant.mRID

The FSP who is submitting a message is defined in the header of the message.

The receiver of the message is always Elia (EIC : 10X1001A1001A094)

A FSP is also associated with a business area (or domain). This is discussed in more detail in section 4.1.2 below.

4.1.2. The Domains - business areas

All FSP s are associated with a business area in which they operate.

- The **domain** (*domain.mRID*) defines the business area associated with the message

The domain or Area is a concept that does apply in the Elia B2B Flex Activation system. It defines the nature of the Schedule message as well as the business areas involved. Because all the messages concern Belgium: the CIM element "domain.mRID" is always "10YBE-----2".

4.1.3. Dates and times

4.1.3.1. Created Date and Time

All messages must indicate when there where created on the sending FSP System.

- The **Message creation date and time** is referred to as a **createdDateTime**

The element 'createdDateTime' must be expressed in UTC with the format: *YYYY-MM-DDThh:mm:ssZ*

Where

- YYYY refers to the year,
- MM refers to the month
- DD refers to the day
- T is a fixed entry and indicates the start of the time definition
- hh refers to the hour
- mm refers to the minutes and must be always 00
- Z is a fixed entry indicating that the Time Coordinate is UTC.

Example 1: 2020-05-10T13:00Z means then 10th of may 2020 at 15h in Belgian summer local time

4.1.3.2. Daylight Saving Time

The daylight saving times (DST) issue is solved by the use of UTC time

Example 1: summer time to winter time in Belgium in 2020.

ISO	Local time	UTC
2020-10-25 00:00+02	0h	2020-10-24T22:00Z
2020-10-25 01:00+02	1h	2020-10-24T23:00Z
2020-10-25 02:00+02	2h	2020-10-25T00:00Z
2020-10-25 02:00+01	at 3h it is 2h	2020-10-25T01:00Z
2020-10-25 03:00+01	3h	2020-10-25T02:00Z

Example 3: winter time to summer time in Belgium in 2020.

ISO	Local time	UTC
2020-03-29 00:00+01	0h	2020-03-28T23:00Z
2020-03-29 01:00+01	1h	2020-03-29T00:00Z
2020-03-29 03:00+02	at 2h it is 3h	2020-03-29T01:00Z
2020-03-29 04:00+02	4h	2020-03-29T02:00Z

4.1.3.3. Execution date

A Activation always refers to a particular period: a period exactly part of one Day (The 'Execution date' or 'Delivery date' or 'Delivery period' or 'operational period' or 'schedule_Time_Period') on which the energy will be transferred. It appears in different places in the CIM XML file.

- The **period of the Activation** is referred to as a **schedule_Time_Period.timeInterval**

All dates are referred to not by a single calendar date but by a Start time and an End time that are defined in UTC.

The time interval for the schedule must be defined as a

{start-date-time} and {end-date-time}

with both date-times being expressed in UTC.

The date to which the Schedule refers is the complete day in local time. i.e. starting at 0.00h local time and ending at 24:00 h (excluded). The corresponding start and end time expressed in UTC depend therefore on whether it is summer time or winter time.

- In summer time UTC time is Local time – 2 hours, therefore 0.00h local time in Belgium is 22.00h UTC on the previous day.
- In winter time UTC time is Local time – 1 hour, therefore 0.00 h local time in Belgium is 23.00h UTC on the previous day.

So to submit a Schedule for 27th february 2021 the following value would be required:

```
<schedule_Time_Period.timeInterval>
    <start>2021-02-27T04:00Z</start>
    <end>2021-02-27T04:30Z</end>
</schedule_Time_Period.timeInterval>
```

Such timeInterval indicates this Activation contains exactly 2 quarters:

Quarter position	Quarter start time (UTC)	Quarter start time (winter local time)	Quarter end time (UTC)	Quarter end time (winter local time)
1	24/2/2021 at 4h00	24/2/2021 at 5h00	24/2/2021 at 4h15	24/2/2021 at 5h15
2	24/2/2021 at 4h15	24/2/2021 at 5h15	24/2/2021 at 4h30	24/2/2021 at 5h30

The Same time interval but for a month in summer time

```
<schedule_Time_Period.timeInterval>
    <start>2021-05-27T04:00Z</start>
    <end>2021-05-27T04:30Z</end>
</schedule_Time_Period.timeInterval>
```

Would be understood as:

Quarter position	Quarter start time (UTC)	Quarter start time (summer local time)	Quarter end time (UTC)	Quarter end time (summer local time)
1	24/5/2021 at 4h00	24/5/2021 at 6h00	24/5/2021 at 4h15	24/5/2021 at 6h15
2	24/5/2021 at 4h15	24/5/2021 at 6h15	24/5/2021 at 4h30	24/5/2021 at 6h30

Each Schedule Time Series corresponds most closely to the current Activation on one specific Delivery point . It contains not only the energy values for every quarter of the Activation for this Delivery point, but a set of data fields that describe the nature of the time series. A number of time series are contained within a single message and each time series must relate to the common values that are defined in the message header. Thus every time series must refer to the same 'schedule_Time_Period.timeInterval' or 'execution date'.

The same date / time period must be used for each of the Time series that are contained in the Schedule message

4.1.3.4. Time interval for a value

The time interval for which the energy transfer values are defined is hourly for international schedules and 15 minutes for others schedules.

- The **Time interval** for a value is referred to as a **resolution**
-

See also sections "6.3.3 Period elements" p 28 and "6.3.4 Number of "Point" " p 28

4.1.4. Access points: Injection point or Offtake point

The Access Points can be:

- *DSO Access Points*
- *CDS Access Points*
- *Access Points directly connected on the Elia grid*
- *Offshore Interconnection Point*

An injection or an offtake point, used in Injection or Offtake Activation is defined within the Schedule Time series.

- The **Injection point** and **Offtake point** are referred to by the CIM Element **marketEvaluationPoint.mRID**.
 - This element contains only the EAN of the Injection or Offtake Point.
-

The `marketEvaluationPoint` should thus be different for each time series contained within the message for the same type of Activation.

4.2. XML messages

Messages as created by a business application must be written in eXtensible Markup Language (XML). This section contains a basic introduction to XML documents and their structure. This is not an extensive description of XML, but aims to provide operational staff with enough information to understand the important aspects of using XML in relation to CIM XML Messages.

4.2.1. XML overview

"XML" stands for eXtensible Markup Language and represents a simple but effective means of transferring data in an easily understandable and usable fashion. An XML message consists of a number of "elements" (set between tags) that define the nature of the data to be communicated. So for example a Schedule Time Series ("TimeSeries") contains elements called `<Point>` (within `Period`), which define each time interval contained in the time series.

4.2.2. A well-formed message

Each `<Point>` contains two other elements that define the position of the time interval in the entire time series as well as the quantity of power to be transferred during this interval.

```
<Point>
  <position>1</position>
  <quantity>11</quantity>
</Point>
```

The start of the information is indicated by the opening tag `<Point>` and the end by the closing tag `</Point>` with the "/" in front

All the tags must be correctly opened and closed: Then the message is said to be “well-formed”. The use of properly nested start and end tags is essential if the XML message is to be read and interpreted correctly.

4.2.3. A valid message

In order to be universally understood, an XML file must follow a predefined structure. The structure of the message is set out in a “Schema”. A Schema is also a type of XML message with the file extension “.XSD”. The Schema for a Schedule message dictates that an <Point> element must contain a <position> element followed by a <quantity> element. If one of these elements is missing or they are not presented in the correct order then the message is termed “invalid”; it does not comply with the Schema. An invalid message will always be rejected using an Acknowledgement message by the Elia B2B Flex Activation system.

The Schema that is used to control the content and structure of a XML message is indicated in the header of the message

```
<Schedule_MarketDocument xmlns="urn:iec62325.351:tc57wg16:451-2:scheduledocument:5:1"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
```

Details on the Schemas and the namespace are given in Chapter 9.

XML files are basically very simple and can be created in a text editor, but since the resulting message must be both valid (complying with the Schema) and well-formed (has matching start and end tags), it is recommended that a dedicated XML editor is used, that makes reference to the Schema and guides the user in creating valid messages.

Note! The Elia B2B Flex Activation system does not return the difference: a message which is ‘invalid’ or ‘not well formed’ will receive an Acknowledge message indicating that it is “not well formed”

4.2.4. A correct message

The fact that your XML Schedule message is “valid” i.e. complies to all the rules of the Schema, does not necessarily mean that it is “correct” in terms of specifying your intended Activation. Not all the requirements of the XML message can be defined simply in terms of the elements it contains. This is illustrated by considering the example below:

```
<Period>
  <timeInterval>
    <start>2012-09-18T22:00Z</start>
    <end>2012-09-19T22:00Z</end>
  </timeInterval>
  <resolution>PT15M</resolution>
  <Point>
    <position>1</position>
    <quantity>11</quantity>
  </Point>
</Period>
```

This sample of the file is well-formed (all the opening tags are matched with closing tags) and valid since it obeys all the rules of the Schema. But it is not correct from an operational point of view since only one interval of 15 minutes and one corresponding energy quantity is defined when the time series is defined for 24 hours (between 22:00h UTC time on 18th of September and the same time on the 19th of September 2012).

There are a number of “business” rules that must be applied to the Schedule message that are not controlled by the Schema. The Schema is an international standard and is being implemented in many European countries, it allows for a range of options that will satisfy all the European TSOs. In some cases Elia applies specific constraints on the messages that it will accept. For example Elia only accepts energy quantities specified in the units MAW, whereas the Schema allows for MWH, KWH and others.

As mentioned above there is only one Schedule message used for all types of Activations. The distinction between different types is managed by a combination of related and dependent fields.

Information on how the various elements are related is given in "Messages sent from the FSP to Elia" p23

Chapter 5. Activation process

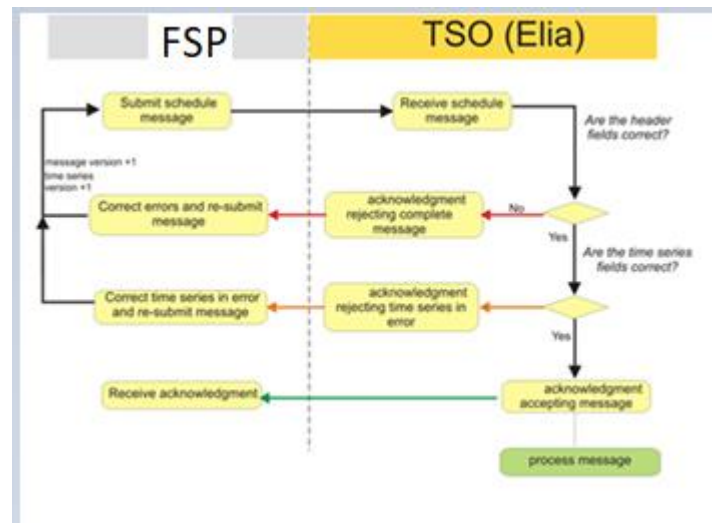
Schedule messages detailing energy transfer requirements (see Chapter 4) must be submitted to the Elia just as Activations must be submitted via the Elia FlexActivation B2C web site. When Elia B2B Flex Activation system receives the CIM XML Schedule message, an Acknowledgement message is returned. The Acknowledgement indicates whether the message has been accepted (completely or partially) or rejected. This can only be regarded as a message delivery receipt. This constitutes phase 1 as described in section 5.1.

Once the Schedule message has been accepted, the accepted time series are stored as "Activations" in the Elia B2B Flex Activation system, the assessment of the balance requirements can begin. If there is a problem in satisfying the requested transfers, a FSP can make a specific request for information on the status of their Activations. The FSP can then take corrective action before the end of the related Period).

The FSP can request a Confirmation Report for a Specific execution date: See "Messages sent from the FSP to Elia " p 23

5.1. Acceptance of the Schedule

This phase constitutes an initial assessment of the structure and syntax of the Schedule message. It checks that the message is well-formed, valid and that all the rules relating to the message type have been correctly applied. It does not assess the energy quantities and does not imply a confirmation of the requested energy transfers.



When an FSP submits a Schedule message to Elia the message is checked to see that it is well-formed, valid (conforms to the Schema) and correct (satisfies the business rules laid down by Elia) (See section 4.2.) and can be accepted.

If an error is detected in the header fields of the Schedule message the whole message is rejected, nothing is saved in the Elia B2B Flex Activation system and an Acknowledgement message is returned indicating the problem. The FSP must correct the error and re-submit the message, with a higher message version number.

If the header fields are correct but an error is detected in one of the time series, the message is 'partially' rejected, the correct Activations are saved and an Acknowledgement message is returned indicating the reference of the time series within the message where the problems exist. Once again the FSP must correct the error and re-submit the message. The version number of the time series in error and the version number of the message must be increased.

Remark: If the message contains many time series, the time series that are valid and satisfy the business rules are accepted and saved in the Elia B2B Flex Activation system.

When no errors are detected and the message is both well-formed, valid and correct, the message will be accepted. An Acknowledgement message is sent to indicate this. At this point the second phase can begin and an assessment of the balance situation can begin.

Details on the structure and content of Acknowledgment messages are given in section 7.2.

5.2. Possible <types> of Schedule

The process is specified in the FlexActivation B2C guide @@@. It is therefore not repeated here:

First the FSP must create an Activation or modify the quarters or values during the Period 0: he then use the header type "B30" and must specify all the TimeSeries containing the quarter hourly values for each Delivery point.

If the FSp sends a version 2 during period 0 with less Time Series than the version 1, then the related Delivery points are also deleted

Next the FSP must confirm the Activation at each period (0, 1, 2): in this case, he sends only a header with a code type "A18". Note that no TimeSeries may be sent in case of the type is A18

During period 2, the FSP may take a "photo" or an "Update" : in this case, he sends only a header with a code type "A07". Note that no TimeSeries may be sent in case of the type is A07

If the FSP wishes to delete an Activation, , he sends only a header with a code type "A07". Note that no TimeSeries may be sent in case of the type is Z01

Summary

Description	<type>	TimeSeries
Create or modify an Activation or quarter hourly values	B30	Mandatory
Confirm an existing Activation for the current period	A18	Forbidden
Update an existing Activation during period 2	A07	Forbidden
Delete an Activation at any time	Z01	Forbidden

Example where the FSP identified by the EIC 22XFSP-EXAMPLE2G confirms an existing Activation having the reference "ACTIVATIONREFERENCE". This is the complete message where no TimeSeries is present.

```
<Schedule_MarketDocument xmlns='urn:iec62325.351:tc57wg16:451-2:scheduledocument:5:2'
xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
xsi:schemaLocation='urn:iec62325.351:tc57wg16:451-2:scheduledocument:5:2
https://ned11.elia.be/namespaces/public/scheduling/iec62325-451-2-schedule_v5_2.xsd'>
  <mRID>ACTIVATIONREFERENCE</mRID>
  <revisionNumber>2</revisionNumber>
  <!-- A18-confirm--><type>A18</type>
  <process.processType>A17</process.processType>
  <process.classificationType>A01</process.classificationType>
  <sender_MarketParticipant.mRID codingScheme='A01'>
    22XFSP-EXAMPLE2G
  </sender_MarketParticipant.mRID>
  <sender_MarketParticipant.marketRole.type>
    Z01
  </sender_MarketParticipant.marketRole.type>
  <receiver_MarketParticipant.mRID codingScheme='A01'>
    10X1001A1001A094
  </receiver_MarketParticipant.mRID>
  <receiver_MarketParticipant.marketRole.type>
    A04
</Schedule_MarketDocument>
```

```
</receiver_MarketParticipant.marketRole.type>  
<createdDateTime>2021-02-02T16:03:03Z</createdDateTime>  
<schedule Time_Period.timeInterval>  
  <start>2021-02-27T04:00Z</start>  
  <end>2021-02-27T04:30Z</end>  
</schedule Time_Period.timeInterval>  
<domain.mRID codingScheme='A01'>10YBE-----2</domain.mRID>  
</Schedule_MarketDocument>
```

Chapter 6. Messages sent from the FSP to Elia

This chapter describes the CIM XML elements that are contained within the Schedule_MarketDocument.

It lists each of the elements and indicates particular conditions that relate to each of them specifically in the Elia context.

More information can be found in the CIM Implementation guides from IEC: See 1.1 "CIM – Electronic Scheduling System (ESS)" p4.

This chapter is aimed primarily at developers of business applications to generate Schedule_MarketDocument described in section 6.3.

Note! *Elia B2B Flex Activation system never sends on its own initiative CIM XML messages. It always and only answers to the Schedule messages sent by the FSP.*

6.1. The Schemas

Details about the CIM XML Schemas (XSD) used to create this message are listed in Chapter 9.

Note! *It is important that a copy of the Schemas referenced in Chapter 9 are used, since these contain essential specific codes required by Elia.*

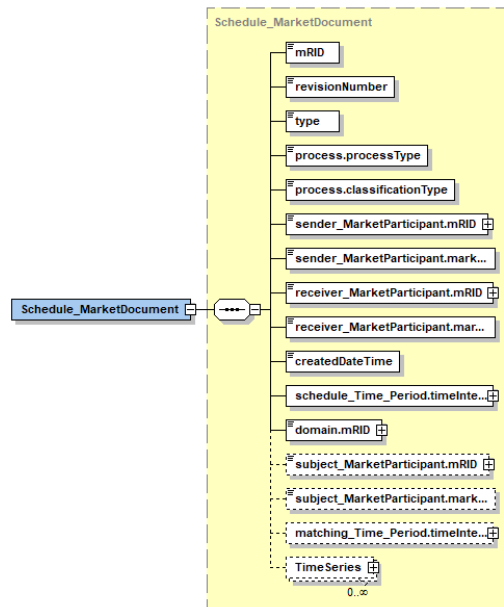
6.2. General rules

Here below some general rules that apply to all exchanged messages:

- All messages must have a "UTF-8" encoding.
- Only following characters are allowed:
 - 26 letters (uppercase or lowercase)
 - 10 digits
 - Special characters: <, >, -, _, &, ;
- Only the EIC are accepted for the MarketParticipant.
- Only the EAN is accepted for the marketEvaluationPoint.mRID for the Delivery point.
- Any field indicated as optional in the section below can be:
 - Omitted completely
 - Only the element and no value
 - Defined completely with any data
- It is not treated by the Elia B2B Flex Activation system

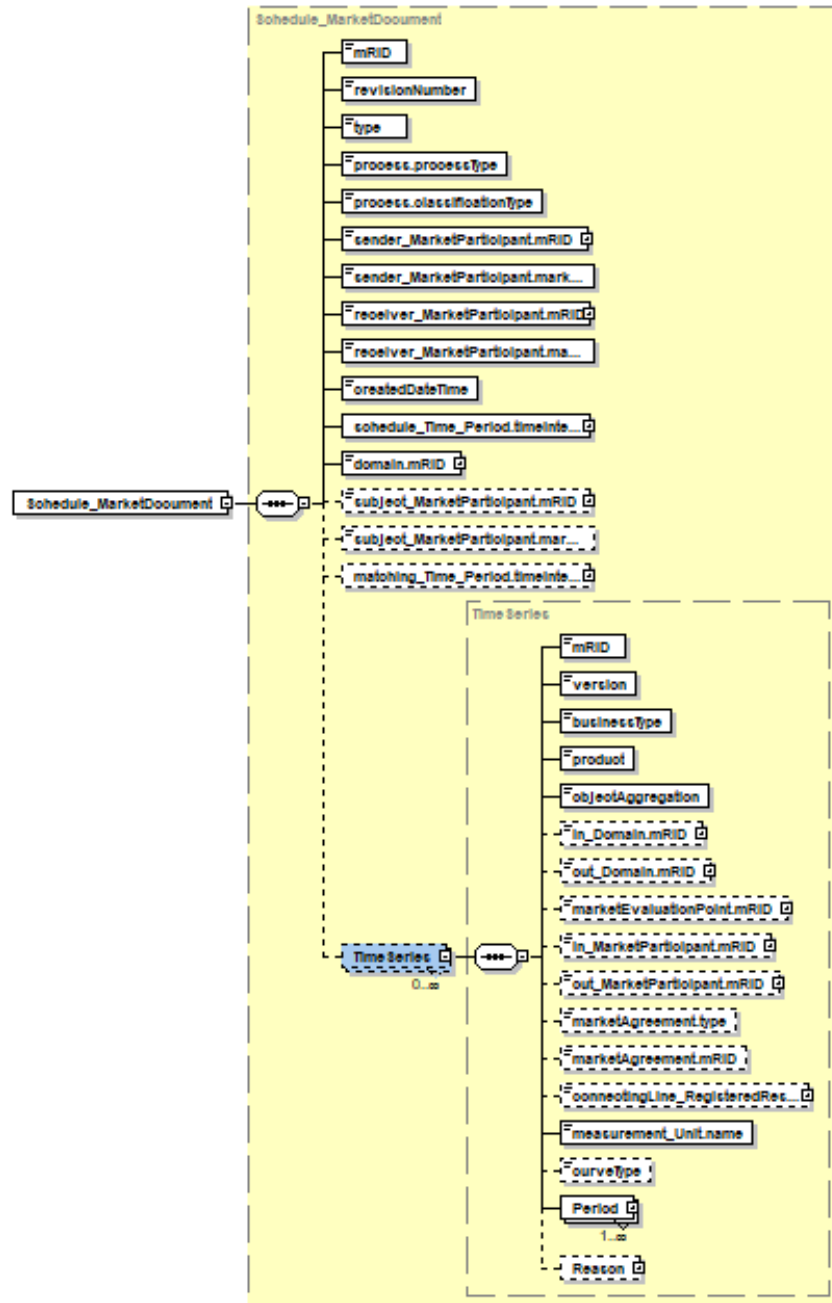
6.3. Schedule_MarketDocument

A Schedule_MarketDocument is the CIM XML message that must be used in order to submit the Activations or to submit orders. The structure of this message is described in detail in the IEC 62325-451-2 (see section 1.1 "CIM – Electronic Scheduling System (ESS)"); A schematic representation is shown below. It consists of a number of message header fields and a list of Time series



The message header elements apply to all the time series that are contained within the message. Many of these header elements are mandatory and need to be expressed using pre-defined attribute values. The header elements are listed and described in section 6.3.1.

A Schedule message can contain a number of time series (see related remark in 6.2 "General rules"). In addition to the actual series of energy values that comprise the Activation, the time series also contains a series of general header elements. The information contained within the time series header elements can be varied within each time series. The overall structure is shown below.



The header elements for the schedule time series are listed and described in section 6.3.2. The elements used for the Period element of the message are listed and described in section 6.3.3

6.3.1. Schedule message header elements

This section lists the elements that are used in the Schedule message header, shown in Figure above.

Note!

- All the values indicated here below are specific for a Activation submitted to Elia B2B Flex Activation system by a FSP.

- Each of these elements are described in the IEC 62325-451-2 (see section 1.1 “CIM – Electronic Scheduling System (ESS)”).
- Lists of the enumerated attribute values that the elements are available in the related Schema document. See appendix A.

Element name	Meaning	Remarks															
mRID	Unique identifier for the message.	<p>This element is Mandatory.</p> <p>It must be unique for any day.</p> <p>This is a free string with maximum of 60 characters</p> <p>Only following characters are accepted: lowercase ASCII letters, uppercase ASCII letters, digits and “ ” and “-”.</p> <p>This mRID is treated as the reference of the FSp for this Activation. The same mRID must be indicated for each other message</p>															
revisionNumber	Version number for the message.	<p>This element is Mandatory. It must be an increasing integer starting at 1.</p> <p>The version number of the message must match the highest version of a time series contained in the message</p> <p>This number can be maximum 999</p>															
type	Code for the type of message.	<p>This element is Mandatory.</p> <p>Possible values are:</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Description</th> <th>TimeSeries</th> </tr> </thead> <tbody> <tr> <td>B30</td> <td>Create or modify an Activation value</td> <td>Mandatory</td> </tr> <tr> <td>A18</td> <td>Confirm an existing Activation</td> <td>Forbidden</td> </tr> <tr> <td>A07</td> <td>Update an existing Activation</td> <td>Forbidden</td> </tr> <tr> <td>Z01</td> <td>Delete an Activation</td> <td>Forbidden</td> </tr> </tbody> </table> <p>Business explanation can be found in section 5.2 "Possible <types> of Schedule" p21</p>	Value	Description	TimeSeries	B30	Create or modify an Activation value	Mandatory	A18	Confirm an existing Activation	Forbidden	A07	Update an existing Activation	Forbidden	Z01	Delete an Activation	Forbidden
Value	Description	TimeSeries															
B30	Create or modify an Activation value	Mandatory															
A18	Confirm an existing Activation	Forbidden															
A07	Update an existing Activation	Forbidden															
Z01	Delete an Activation	Forbidden															
process.processType	Code for the process type.	<p>This element is Mandatory.</p> <p>Fixed. This value must always be “A17”</p>															
process.classificationType	Defines whether the schedule is an aggregation or a classification.	<p>This element is Mandatory.</p> <p>Fixed. This value must always be “A01”.</p>															
sender_MarketParticipant.mRID	It consists of a unique identifier for	<p>This element is Mandatory.</p> <p>The value scheme must be “A01”.</p>															

	the sender of the message (BRP)	The value must be the EIC of the FSP. Only the EIC is accepted.
sender_MarketParticipant.marketRole.type	Identifies the role of the sender	This element is Mandatory. The value must be "Z01".
receiver_MarketParticipant.mRID	Identifies the receiver of the message. This element is Mandatory. It consists of a coding scheme entry and a unique identifier for the receiver (Elia).	The value must be "10X1001A1001A094" The value of the coding scheme must be "A01".
receiver_MarketParticipant.marketRole.type	Identifies the role of the receiver	This element is Mandatory. The value must be "A04"
createdDateTime	Date and time at which the message was submitted	This element is Mandatory. Time values must be expressed in UTC See section "4.1.3.1 Created Date and Time " p 15
schedule_Time_Period.timeInterval	The Execution date: The start and end times to which the current schedule refers	This element is Mandatory. Both the start and end time must be expressed in UTC. See section "4.1.3.3 Execution date " p 16
domain.mRID	The domain to which the current schedule refers	This element is Mandatory. The value must be "10YBE-----2" The value of the coding scheme must be "A01".

Table 1 - Schedule message header elements

6.3.2. Schedule TimeSeries elements

This section lists the elements that are used in the ScheduleTimeSeries header, shown in Figure above

Note!

- Each of these elements are described in the IEC 62325-451-2 (see section 1.1 "CIM – Electronic Scheduling System (ESS)")
- Lists of the enumerated attribute values that the elements are available. See appendix A.
- The TimeSeries must and may only be present in the message only when the message type = B30:
 - a. If the TimeSeries elements are present when the type \leq B30, then the message is refused.
 - b. If no TimeSeries is present in the message when the type \equiv B30 then the message is also refused

Element name	Meaning	Remarks
mRID	Sender's identification of the time series.	This element is Mandatory. It must be unique for the day and all messages. This can be a free string with max of 60 characters.

version	The version number of the time series	This element is Mandatory. It must be an increasing integer starting at 1. It must be the same version as the header revisionNumber. This number can be maximum 999
businessType	Identifies the trading nature of the time series	It must always be "A01"
product	Identifies the type of energy	This element is Mandatory. The value must be "8716867000016"
objectAggregation	Identifies how the object is aggregated	This element is Mandatory. The value must be "A06"
marketEvaluationPoint.mRID	EAN code identifying the Delivery point.	This element is Mandatory when the schedule corresponds to an This value must be the EAN code of the Delivery point.
measurement_Unit.name	Unit in which the quantities are expressed	This element is Mandatory. The value must be "MAW"

Table 2 - Schedule message time series elements

6.3.3. Period elements

This section lists the elements that are used in the Period element of the ScheduleTimeSeries.

Note! Each of these elements are described in the IEC 62325-451-2 (see section 1.1 "CIM – Electronic Scheduling System (ESS)")

Element name	Meaning	Remarks
timeInterval	The start and the end time for the series	This must be equal to the Schedule time interval (see section 6.3.1 See section "4.1.3.3 Execution date " p 16)
resolution	Amount of time for each interval in which a data value is defined	The resolution must be 15 minutes: The value must therefore be; "PT15M"
Point	One Point is required for each quarter	See "6.3.4 Number of "Point" " p 28
position	Relative position of the quarter in the schedule time interval	A series of integer values for each of the intervals. Starts at 1 for the first quarter of the Activation
quantity	The quantity of the product	The quantity must be expressed in MAW.

Table 3 Schedule message period elements

6.3.4. Number of "Point"

For all Activations, the interval must be a quarter of an hour (15 minutes).

Daylight saving must be taken into account which means that the following cases are possible.

Type of day	Number of quarter-hour values
Normal day	Maximum 96 'Point' with 'position' values 1 to 96 i
Day light change from summer to winter	Maximum 96 100 'Point' with 'position' values 1 to 100
Day light change from winter to summer	Maximum 96 92 'Point' with 'position' values 1 to 92

Table 4 Number of intervals in a day

6.4. Schedule_MarketDocument example

Following example describes a Schedule message with time series for Execution date 27/03/2022 (Daily Switching time from winter to summer time) concerning FSP 22XFSP-EXAMPLE2G who creates an Activation from 1 o'clock (local winter time) until 4 o'clock (local summer time) (excluded)

Due to the fact that one hour is lost, this message contains only 2 hours.

The relative time are therefore for this DST day:

UTC	Local	"type" of local time
0	1	winter
1	3	summer
2	4	summer

Therefore the timeInterval is from 0 o'clock (UTC) until 2 o'clock (UTC) and contain the following quarters:

Quarter position	UTC	Local	"type" of local time
1	[00:00-00:15[	[01:00-01:15[	winter
2	[00:15-00:30[	[01:15-01:30[	winter
3	[00:30-00:45[	[01:30-01:45[	winter
4	[00:45-01:00[	[01:45-03:00[	winter
5	[01:00-01:15[	[03:00-03:15[	summer
6	[01:15-01:30[	[03:15-03:30[	summer
7	[01:30-01:45[	[03:30-03:45[	summer
8	[01:45-02:00[	[03:45-04:00[	summer

The complete message with example quantities for one Delivery point whose EAN is 541453118420943077 is therefore:

```
<Schedule MarketDocument xmlns='urn:iec62325.351:tc57wg16:451-2:scheduledocument:5:2'
xmlns:xsi='http://www.w3.org/2001/XMLSchema-instance'
xsi:schemaLocation='urn:iec62325.351:tc57wg16:451-2:scheduledocument:5:2
https://ned11.elia.be/namespaces/public/scheduling/iec62325-451-2-schedule_v5_2.xsd'>
  <mRID>DSTWINTERTOSUMMER</mRID>
  <revisionNumber>4</revisionNumber>
  <!-- B30-New Version-->
  <type>B30</type>
  <process.processType>A17</process.processType>
  <process.classificationType>A01</process.classificationType>
  <sender_MarketParticipant.mRID codingScheme='A01'>
```

```
22XFSP-EXAMPLE2G
</sender_MarketParticipant.mRID>
<sender_MarketParticipant.marketRole.type>Z01</sender_MarketParticipant.marketRole.type>
<receiver_MarketParticipant.mRID codingScheme='A01'>
  10X1001A1001A094
</receiver_MarketParticipant.mRID>
<receiver_MarketParticipant.marketRole.type>A04</receiver_MarketParticipant.marketRole.type>
<createdDateTime>2022-03-26T18:12:30Z</createdDateTime>
<schedule_Time_Period.timeInterval>
  <start>2022-03-27T00:00Z</start>
  <end>2022-03-27T02:00Z</end>
</schedule_Time_Period.timeInterval>
<domain.mRID codingScheme='A01'>10YBE-----2</domain.mRID>
<TimeSeries>
  <mRID>22X20131125----S|20210120541453118420943077</mRID>
  <version>1</version>
  <businessType>A01</businessType>
  <product>8716867000016</product>
  <objectAggregation>A06</objectAggregation>
  <marketEvaluationPoint.mRID codingScheme='A10'>
    541453118420943077
  </marketEvaluationPoint.mRID>
  <marketAgreement.mRID>22X20131125----S|20210120</marketAgreement.mRID>
  <measurement_Unit.name>MAW</measurement_Unit.name>
  <Period>
    <timeInterval>
      <start>2022-03-27T00:00Z</start>
      <end>2022-03-27T02:00Z</end>
    </timeInterval>
    <resolution>PT15M</resolution>
    <Point>
      <position>1</position>
      <quantity>9</quantity>
    </Point>
    <Point>
      <position>2</position>
      <quantity>10</quantity>
    </Point>
    <Point>
      <position>3</position>
      <quantity>6</quantity>
    </Point>
    <Point>
      <position>4</position>
      <quantity>1</quantity>
    </Point>
    <Point>
      <position>5</position>
      <quantity>5</quantity>
    </Point>
    <Point>
      <position>6</position>
      <quantity>7</quantity>
    </Point>
    <Point>
      <position>7</position>
      <quantity>3</quantity>
    </Point>
    <Point>
      <position>8</position>
      <quantity>9</quantity>
    </Point>
  </Period>
</TimeSeries>
</Schedule_MarketDocument>
```

6.5. Data types

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

Data type	Typical XML representation	Lexical pattern	Comments
int	-1, 0, 126789675, +100000	<code>[+-]?[0-9]+</code>	The following constraints can be expressed: minimum value, maximum value. Values must be between -2147483648 and 2147483647.
decimal	-1.23, 12678967.543233, +100000.00, 210	<code>[+-]?[0-9]+(\.[0-9]+)?</code>	The following constraints can be expressed: minimum value, maximum value. Values must have at most 28 digits
boolean	1, 0, true, false	<code>true|false</code>	
Code enumeration		<code>.*</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 and described with the code type
Date and time	See "4.1.3 Dates and times " p 15		

Chapter 7. Messages response from Elia to the BRP

This chapter describes the messages that Elia sends back to FSP s during the Activation submission and acceptance process. Details on the overall process are given in Chapter 5.

Note! *Elia B2B Flex Activation system never sends on its own initiative CIM XML messages. It always and only answers to the Schedule or Status Request messages sent by the BRP*

7.1. Dependency matrix on returned messages

Based on the request, only one message is returned synchronously

Message sent from FSP to Elia	Is the message sent well-formed, valid and correct?	Message returned by Elia B2B Flex Activation system
Schedule	Yes	Acknowledgement with code A01
Schedule	No	Acknowledgement with code A02
Schedule	Partially: the message is well-formed and valid but at least one Time Series is incorrect	Acknowledgement with code A03

7.2. Acknowledgement message

Acknowledgement messages are issued when an assessment of the Schedule message has been made. They are issued by the Elia B2B Flex Activation system as part of the normal Activation process. The process involved in acknowledging messages is shown in section 5.1.

Acknowledgement message are also CIM XML files; they can be viewed in some browsers or in a text editor such as Notepad.

The structure of all Acknowledgement messages are identical. The Schema used to generate them is referenced in Chapter 9. They consist of a set of header elements and "reasons". The header elements identify the sender, receiver and original Message, and a full list is given in section Chapter 8 "List of reasons" p33

Note! *Never acknowledge an Acknowledgement message!*

Chapter 8. List of reasons

8.1. Acknowledge message header reasons

Table of reasons given below

Code	Description
A01	The message is fully accepted
A02	User not known
Z30	Message not well-formed or does not respect the related Schema (XSD).
Z47	Sender participant is not the FSP EIC associated with the user id
Z50	Activation version number is incorrect
	incorrect Type code
Z10	Request made at a too high frequency
Z11	Returned message size is too large. Narrow your request. This cover mainly returned Confirmation document.
Z31	Invalid message. For example, if the document sent is empty or is not a Schedule or StatusRequest document
Z33	Another Header error like a specific value not accepted. See related reason text
Z40	Current time not in the period 0 for given first quarter
Z43	Incorrect Time Interval. For example covers more than 1 day
Z45	Header domain is incorrect
Z46	Header process.processType is incorrect
Z48	Header role(s) are incorrect
Z51	Internal Timeout error. The Activations can have been saved or not
A03	At least one time series has an error <i>Note! even if all Time series are in error then A03 is used</i>

8.2. Acknowledge time series error reasons

Table of reasons given below

Code	Description
Z41	Incorrect number of <Point> elements for the given period
Z42	Value incorrect. Must be within [-9999.999.. 9999.999].
Z44	Energy quantities not specified in the unit MAW
Z54	Error in the TimeSeries businessType
Z70	marketEvaluationPoint.mRID is not present within a TimeSeries to define the DeliveryPoint EAN
Z80	Status Request document has an incorrect Criteria element name or value
Z90	Schedule document contains too many TimeSeries

Z99	Any other business TimeSeries error (described in the associated reason text)
999	Technical error occurred within the Elia B2B Flex Activation system. Some reason can be indicated in the Reason text

Chapter 9. Schemas and namespaces

The messages structure reference is listed in section 1.1 “CIM – Electronic Scheduling System (ESS)”

The Schedule message is constructed on the basis of a single Schema that is used for all types of Activations. The distinction between the various types of Activations is made using different combinations of values and attributes for the elements set out in the Schema: See chapter 6 “Messages sent from the FSP to Elia” p 23

Since this Schema is designed to be used by all European TSO, it is by nature rather general. This has the advantage that it can be used to create Schedule messages that can ultimately be processed by any European operator. However each TSO has different business rules, and while a Schedule message may be valid according to the general Schema, that does not necessarily mean that it can be processed by a particular TSO.

As an example: in the general Schema, the marketEvaluationPoint.mRID element is optional but for an Injection or an Offtake Schedule message Elia requires that these elements are mandatory.

To facilitate the validation of Schedule messages for particular types of Activations, Elia provides an additional set of Schemas tailored to specific types. The different Schemas can be used to validate each type of messages and can be found at: <http://nedi1.elia.be/namespaces/public/Scheduling>

Message	URL	Version	Reference in this document
acknowledgement	https://nedi1.elia.be/namespaces/public/scheduling/ELIA-iec62325-451-1-acknowledgement_v8_0.xsd	8.0	7.2 Acknowledgement message p 32
schedule	https://nedi1.elia.be/namespaces/public/scheduling/ELIA-iec62325-451-2-schedule_v5_1.xsd	5.1	6.3 Schedule_MarketDocument p 23

Note! Even if XML recommends to refer to a Schema, Elia does not recommend to use the Elia URI directly in the CIM XML message sent to Elia. Because many tools make a call to this address and Elia does not guarantee that the URL to this Schema is always available.

The Schemas indicated here above import codes values from the following files:

File	URL
List of standards codes	https://nedi1.elia.be/namespaces/public/Scheduling/urn-entsoe-eu-wgedi-codelists.xsd
List of codes existing only for the Elia B2B Flex Activation system	https://nedi1.elia.be/namespaces/public/Scheduling/urn-entsoe-eu-local-extension-types.xsd