LME Next Day XML Feed Developer Guide

Version 1.12

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Document History

Version	Date	Description of change
1.2	3rd November 2017	Initial version for distribution
1.3	21st November 2017	Clarified what the format of file names is for chart images
1.4	29th November 2017	Clarified url for accessing the PingFederate token endpoint.
1.5	6th December 2017	Extra detail on access – code sample included in Appendix B
1.6	20th December 2017	Chart images not accessible
1.7	8th January 2018	Corrected URL in section 2
1.8	17th July 2018	Molybdenum enabled LMEprecious added
1.9	29th August 2018	Amsterdam warehouse added
1.10	22nd October 2018	New Products
1.11	30th January 2019	New Products name changes
1.12	12th March 2019	Moly (MO) delisted

TABLE OF CONTENTS

1 INTRODUCTION 5

2 ACCESS 6

2.1 Requesting an access token 7

2.2 Making a request of the XML Feed using the access token 8

3 HTTPS REQUESTS 9

3.1 Request Format 9

3.2 Parameters 9
3.2.1 Parameter - type 9
3.2.2 Parameter - contract 10
3.2.3 Parameter - date (optional) 12
3.2.4 Parameter – size (optional, only valid for CH or ALL) 12

4 HTTPS RESPONSES - XML DATA CONTENT 14

4.1 Common Response Items 14

4.2 Chart Data (CH) 15
4.2.1 Description 15
4.2.2 XML Output Example (CH) 15
4.2.3 XML Elements 16

4.3 Final Evening Evaluations (FE) 18
4.3.1 Description 18
4.3.2 XML Output Example (FE) 18
4.3.3 XML Elements 20

4.4 Futures Trading Volume Summary (FTS) 21
4.4.1 Description 21
4.4.2 XML Output Example (FTS) 21
4.4.3 XML Elements 22

4.5 Official FOREX Rates (FX) 23
4.5.1 Description 23
4.5.2 XML Output Example (FX) 23
4.5.3 XML Elements 24

4.6 Monthly Averages (MAP) 25
4.6.1 Description 25

4.6.2 XML Output Example (MAP) 25
4.6.3 XML Elements 26

4.7 Official and Settlement prices (OFS) 29
4.7.1 Description 29
4.7.2 XML Output Example (OFS) 29
4.7.3 XML Elements 30

4.8 Warehouse Stocks Movements Data 32
4.8.1 Descriptions 32
4.8.2 XML Output Example (WSM) 32
4.8.3 XML Elements 35
4.8.4 WSM Grades 36
4.8.5 WSM Stock Status 38
4.8.6 WSM Locations 40

5 APPENDIX A – ERROR TEXT 42

6 APPENDIX B – CODE EXAMPLE 43

1 Introduction

This document is aimed at system and website developers for use in integrating the LME XML Next Day Data Feed into IT systems.

The LME XML Data Feed is available daily from 00:10 (xml server time) GMT. Requests can be made throughout the day until 00:10 GMT for the previous day's data, the previous day minus one data or the previous day minus two data. A single user can request data up to four times daily.

All xml subscribers will have access to all XML data based on the http request parameters.

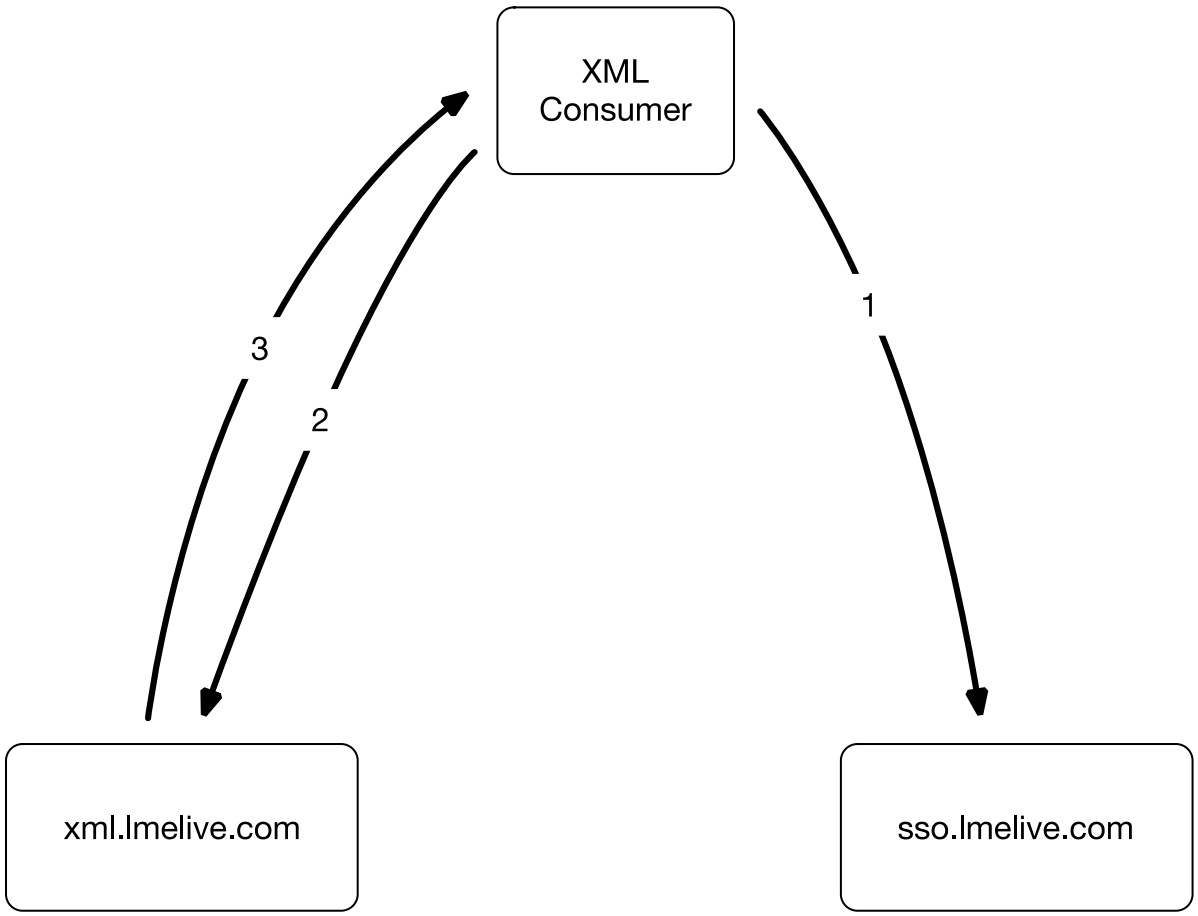
This document is divided into the following sections:

- Access – how to register for the XML Feed and access it using the correct authentication mechanism
- HTTPS Requests – the format of requests that can be made
- HTTPS Responses – the format of responses returned by the feed

2 Access

In order to access the LME Next Day XML Feed the user must first register on the LME's Online Licensing Portal (OLP)

Once the user has registered then when attempting to access the XML feeds (API endpoints) the authentication flow is as outlined in the diagram and table below (with more detail given on steps 1 and 2 in the following sections).



Step	Description
1	Application makes a call to the PingFederate token endpoint passing username and password and receives an access token in exchange. See section 2.1 for further information.
2	Application makes a https request to the XML Feed for data (e.g. https://ndxml.lmelive.com/XMLFeed.svc/lme.xml?contract=NFG&type=OFS) passing the access token received in step 1 as the Authorization header (bearer token). See section 3 for further information.
3	Content returned to user

2.1 Requesting an access token

A HTTP POST must be made to retrieve an access token, the details are:

URL: https://sso.lmelive.com/as/token.oauth2

content-type: application/x-www-form-urlencoded

Body:

Attribute	Value
grant_type	Password
client_id	xmlfeeds
username	<your username>
password	<your password>

For example:

```
POST /as/token.oauth2 HTTP/1.1
Host: sso.lmelive.com:443
Cache-Control: no-cache
Content-Type: application/x-www-form-urlencoded
grant_type=password&username=test@example.com&password=YourPassword&cli
ent_id=xmlfeeds
```

On successful credential validation the return status will be HTTP 200 with a return body containing a JSON document including an access token and number of seconds for which the token is valid, e.g.

```
{
    "access_token": "eyJhbGciOiJSUzI1NiIsImtpZCI6IlNQMSJ9”,
    "token_type": "Bearer",
    "expires_in": 86400
}
```

The access_token will used to access the XML interface for the next 24 hours.

A code example for retrieving the access token is provided in Appendix B.

2.2 Making a request of the XML Feed using the access token

A HTTP GET must be made to send requests to the XML Feed. When making requests to the XML Feed the access token received in the previous step must be provided in each request as an authorization header, this takes the format of:

```
Authorization: Bearer <access_token>
```

For example:

```
Authorization: Bearer eyJhbGciOiJSUzI1NiIsImtpZCI6IlNQMSJ9
```

https://ndxml.lmelive.com/XMLFeed.svc/lme.xml?contract=NFG&type=OFS

A code example for making a request is provided in Appendix B.

3 HTTPS Requests

3.1 Request Format

An example of the format of a request is given below, with details of the individual parameters given in the following sections:

```
Authorization: Bearer eyJhbGciOiJSUzI1NiIsImtpZCI6IlNQMSJ9
```

https://ndxml.lmelive.com/XMLFeed.svc/lme.xml?contract=NFG&type=OFS&date=2

3.2 Parameters

There are four parameters allowed on a request (these can be in any order):

- type (mandatory)
- contract (mandatory)
- date (optional)
- size (optional, valid only for CH or ALL requests)

Each of these is discussed in more detail below, but some common points to note:

- Each parameter is specified as parameter=value, e.g. contract=NFG
- Different parameters are separated by the & sign
- Parameter values can be combined by using the pipe '|' symbol as a separator, e.g. contract=CA|AH
- Parameter names and values are case insensitive
- Required parameters must be provided (but in some cases can be left empty, e.g. contract=)

3.2.1 Parameter - type

The following types are available:

Value	Description
ALL	All data sets below will be included
CH	Closing price (last trading price) for the last 300 days
FE	Final Evening Evaluations (Futures)
FTS	Futures Traded Volume Summary Report
FX	Official FOREX Rates
MAP	Monthly Averages Prices
OFS	Official and Settlement Prices
WSM	Warehouse Stocks Movement Report

There are the following error codes that can be returned in relation to this parameter:

Error Text	Description
type is a required parameter	The type parameter was missing from the request completely. This parameter is mandatory.
Missing type value	The type parameter was included in the request, but no value was specified (i.e. type= was sent). A type value needs to be included
'type' value: XXX is incorrect	An incorrect value was provided in the type= parameter of the request (where XXX is the value the user provided)

3.2.2 Parameter - contract

Some points to note about the use of the contract parameter:

- If the contract parameter contains the same contract more than once (either explicitly or implied by the use of a grouping code) then it will only be returned once in the response, e.g. contract=AH|NFG will only contain AH once in the response.
- Since the contract parameter is mandatory it must be provided on all requests. However, for the type=FX request the parameter can be left with an empty value, e.g. type=FX&contract= (since the FX rates do not apply to a specific contract)
- Not all report types are applicable to all contracts, e.g. Ferrous contracts do not have official prices. The table indicates which reports are applicable to which contracts. The user can still request these contracts, but no data will be returned for that report type.

Contract	Description	CH	FE	FTS	MAP	OFS	WSM
ALL	All contracts (from below groups)	Y	Y	Y	Y	Y	Y
NFG	All non-ferrous contracts	Y	Y	Y	Y	Y	Y
MFG	All monthly futures contracts	Y	Y	Y	Y	Y	Y
FSG	All cash settled futures contracts	Y	Y	Y	N	N	N
PRE	All precious contracts	Y	Y	Y	N	N	N
• **Non Ferrous (NFG)**							
AA	Aluminium Alloy	Y	Y	Y	Y	Y	Y
AH	Aluminium	Y	Y	Y	Y	Y	Y

Contract	Description	CH	FE	FTS	MAP	OFS	WSM
CA	Copper	Y	Y	Y	Y	Y	Y
CO	Cobalt	Y	Y	Y	Y	Y	Y
NA	NASAAC	Y	Y	Y	Y	Y	Y
NI	Nickel	Y	Y	Y	Y	Y	Y
PB	Lead	Y	Y	Y	Y	Y	Y
SN	Tin	Y	Y	Y	Y	Y	Y
ZS	Zinc	Y	Y	Y	Y	Y	Y
• **Monthly Futures (MFG)**							
AE	Premium Aluminium E Asia	Y	Y	Y	Y	Y	Y
AS	Premium Aluminium SE Asia	Y	Y	Y	Y	Y	Y
AN	Premium Aluminium US	Y	Y	Y	Y	Y	Y
AW	Premium Aluminium W Europe	Y	Y	Y	Y	Y	Y
• **Cash Settled Futures (FSG)**							
AM	LME Alumina (CRU/Fastmarkets MB)	Y	Y	Y	N	N	N
CB	LME Cobalt (Fastmarkets MB)	Y	Y	Y	N	N	N
EA	LME Aluminium Premium Duty Unpaid European (Fastmarkets MB)	Y	Y	Y	N	N	N
HC	LME Steel HRC FOB China (Argus)	Y	Y	Y	N	N	N
HE	LME Steel HRC N.Europe (Platts)	Y	Y	Y	N	N	N
HU	LME Steel HRC N.America (Platts)	Y	Y	Y	N	N	N
MD	LME Molybdenum (Platts)	Y	Y	Y	N	N	N
UP	LME Aluminium Premium Duty Paid US Midwest (Platts)	Y	Y	Y	N	N	N
SC	Steel Scrap	Y	Y	Y	N	N	N
SR	Steel Rebar	Y	Y	Y	N	N	N
• **Precious (PRE)**							
AU	LME Gold	Y	Y	Y	N	N	N
AG	LME Silver	Y	Y	Y	N	N	N

The following error reasons can be returned in relation to this parameter:

Text	Comment
Contract is a required parameter	The contract parameter was missing from the request completely. This parameter is mandatory.
Missing contract value	The contract parameter was included in the request, but no value was specified (i.e. contract= was sent). A contract value needs to be included (unless the type=FX)
'contract' value: XXX is incorrect	An incorrect value was provided in the contract= parameter of the request (where XXX is the value the user provided)

3.2.3 Parameter - date (optional)

Valid values are as follows:

Date Values	Description
1	Data from the previous business day from the current date, e.g. if the current date is Friday 3rd November 2017 then sending date=1 on this date will return data for Thursday 2nd November 2017.
2	Data from 2 business days from current date, e.g. if the current date is Friday 3rd November 2017 then sending date=2 on this date will return data for Wednesday 1st November 2017.
3	Data from 3 business days from current date, e.g. if the current date is Friday 3rd November 2017 then sending date=3 on this date will return data for Tuesday 31st October 2017.

Some notes on this parameter:

- Only one value is allowed at a time. (i.e. date=1|2 is invalid)
- If this parameter is omitted the default is a request for yesterday's data (date=1)
- If a request is made on the XML Feed on a non-business day (i.e. a weekend or bank holiday) then the same rules as above will be applied. For example, if a request was made on Sunday 5th November 2017 with date=1 then this would return data for the previous business day from that date, i.e. Friday 3rd November 2017.
- WSM and FTS reports provide the "previous day's data" so in case where date=1 the date of those reports would actually be from two business day's previously. For example, using the dates given in the examples above, sending date=1 on Friday 3rd November would provide report dates of Wednesday 1st November for the WSM and FTS reports.

3.2.4 Parameter – size (optional, only valid for CH or ALL)

This parameter can be included if the type is CH or ALL. For other types this parameter is not allowed. If this parameter is not provided for the CH or ALL type requests then a default size of L (Large) will be used.

Chart size valid values are as follows:

Size Values	Description
S	Small (250px wide)
M	Medium (450px wide)
L	Large (650px wide)

4 HTTPS Responses - XML Data Content

4.1 Common Response Items

All responses have the following common elements:

Element	Description
lme	Element that marks the start and end of the response
status (attribute of lme element)	Request status: “0” = Request was in valid format “2” = Error with request format Note: if error then explanation will be displayed in tag “reason” Possible values for the “reason” element are given in appendix A.
reason	Will display and contain a value only if the “status” parameter contains a “2” e.g. <reason>Invalid contract</reason> Possible values for the “reason” element are given in appendix A.
date	Date that the reported data is for

For example:

```
<lme status="0">
<date>20100920</date>

-specific response data-

</lme>
```

For any prices given in responses, these will show the number of decimal places allowed for the commodity in question, e.g. prices for Copper (CA) are to two decimal places.

4.2 Chart Data (CH)

4.2.1 Description

- Provides a URL for a downloadable image of a chart showing the last trade price (close) per day for a specific prompt:
  - NFG – 3M
  - FSG – M3
  - MFG – M1
  - PRE - SPOT
- The chart image shows up to 300 days of data per contract
- **Note: in the current version of the Next Day XML Feed the chart URLs are not accessible to users, i.e. chart images cannot be downloaded**
- Also included in the response is a “Last Trade Summary” which gives the last closing price for the contract

4.2.2 XML Output Example (CH)

```
<lme status="0">

<date>20100920</date>

<summary status="0">
  <row_summary status="0" code="AH" type="M">
    <prompt_date>3M</prompt_date>
    <netchange>20.0</netchange>
    <last>2202.0</last>
    <indicator>1</indicator>
  </row_summary>
</summary>

<charts status="0">
  <row_chart status="0" code="AH">
    <prompt_date>3M</prompt_date>
    <charturl>https:/…/charts/AH_100920_1.png</charturl>
  </row_chart>
</charts>

</lme>
```

4.2.3 XML Elements

The chart response is made up of two key elements:

- Summary – provides the chart data, row by row
- Charts – provides a link to an image of the chart

4.2.3.1 Summary

This element has a single status attribute and then multiple “row_summary” elements embedded within it (one for each commodity). The row_summary element has the following attributes and sub-elements:

Tag	Description
status (attribute)	Data status “0” = Data available “1” = Data requested not available “2” = error Note: if error then explanation will be displayed in tag “reason”
code (attribute)	LME commodity code (see 3.1.2 for a list of these)
Type (attribute)	Always M
prompt_date	NFG – 3M FSG – M3 (actual date is shown) MFG – M1 (actual date is shown) PRE – SPOT (actual date is shown)
netchange	Net Change; raw number value. Calculated: difference between report date and the business date prior to this.
last	Last trade price (close) for the report date. Select trade prices
indicator	Indicates price movement, above: possible values: -1, 0, 1 ; where: -1=down, 0=no change, 1=up

4.2.3.2 Charts

This element has a single status attribute and then a number of “row_chart” elements embedded within it (one for each commodity). Each row_chart element has the following attributes and sub-elements:

Tag	Description
status (attribute)	Data status “0” = Data available “1” = Data requested not available
code (attribute)	LME commodity code (see 3.1.2 for a list of these)
prompt_date	NFG – 3M FSG – M3 (actual date is shown) MFG – M1 (actual date is shown) PRE – SPOT (actual date is shown)
Charturl	Link to a chart for this product

4.3 Final Evening Evaluations (FE)

4.3.1 Description

- Currency: Finals - USD, GBP, EUR, JPY
- Future outrights only (i.e. no options or carries)

4.3.2 XML Output Example (FE)

Note: In this example only two prompt dates are shown for AH (with the four currencies for these prompt dates). The full response would show all valid prompts for the contract(s) requested.

```
<lme status="0">
<date>20171101</date>

<final_evaluation status="0">

   <futures status="0" ctrct_type="F">

      <row_futures status="0" code="AH" type="M">

        <ff_item>
          <prompt_date>20171103</prompt_date>
          <currency>EUR</currency>
          <close>1481.71</close>
        </ff_item>

        <ff_item>
          <prompt_date>20171103</prompt_date>
          <currency>GBP</currency>
          <close>1152.45</close>
        </ff_item>

        <ff_item>
          <prompt_date>20171103</prompt_date>
          <currency>JPY</currency>
          <close>139771.0</close>
        </ff_item>

        <ff_item>
          <prompt_date>20171103</prompt_date>
          <currency>USD</currency>
          <close>1787.0</close>
        </ff_item>
```

```
        <ff_item>
          <prompt_date>20171106</prompt_date>
          <currency>EUR</currency>
          <close>1481.76</close>
        </ff_item>

        <ff_item>
          <prompt_date>20171106</prompt_date>
          <currency>GBP</currency>
          <close>1153.45</close>
        </ff_item>

        <ff_item>
          <prompt_date>20171106</prompt_date>
          <currency>JPY</currency>
          <close>138771.0</close>
        </ff_item>

        <ff_item>
          <prompt_date>20171106</prompt_date>
          <currency>USD</currency>
          <close>1789.0</close>
        </ff_item>

      </row_futures>
    </futures>
</final_evaluation>

</lme>
```

4.3.3 XML Elements

The final evening evaluations report is bounded by the final_evaluation element. Within this element there are the following key sub-elements:

- futures – one of these elements that encapsulates all futures evening evaluations
- row_futures – one of these elements for each contract, within which are ff_item elements.
- ff_item – individual evening evaluations for a given prompt

The row_futures element has the following attributes:

Tag	Description
status (attribute)	Data status "0" = Data available "1" = Data requested not available "2" = error Note: if error then explanation will be displayed in tag "reason"
code (attribute)	LME commodity code (see 3.1.2 for a list of these)
Type (attribute)	always 'M'

The elements under the ff_item are:

Tag	Description
prompt_date	Prompt Date; Maturity: MonthYear; i.e. CASH, 3M
currency	Indicates type of currency. Valid values: NFG: USD, GBP, EUR, JPY MFG, FSG and PRE: USD
close	Final Evening Evaluation price

4.4 Futures Trading Volume Summary (FTS)

4.4.1 Description

- Previous days official volumes (turnovers) in lots
- Note that since this report provides the “previous day’s data” this is data from the report published on that previous day, which actually contains a report date from two business day’s previously. For example if the request was made on 04/10/2017 (Wednesday) then:

  <date>20171003</date>
  report_date="20171002"

4.4.2 XML Output Example (FTS)

Note: this example shows data for AH only. If more than one contract was requested then the data would be grouped by contract, i.e. all the rows for AH would be together.

```
<lme status="0">
<date>20170105</date>

<ftsreport status="0">

<identification report_code="FTS" report_name="Futures Trading Volume
Summary" report_date="20170103" report_time="1000" report_version="100" />
<datafts>

     <row_fts code="AH">
     <currency_desc>EUR</currency_desc>
     <qualifier>PT</qualifier>
     <futures_trading_volume>003548</futures_trading_volume>
     </row_fts>

     <row_fts code="AH">
     <currency_desc>GBP</currency_desc>
     <qualifier>PT</qualifier>
     <futures_trading_volume>000036</futures_trading_volume>
     </row_fts>

     <row_fts code="AH">
     <currency_desc>JPY</currency_desc>
     <qualifier>PT</qualifier>
     <futures_trading_volume>000386</futures_trading_volume>
     </row_fts>

     <row_fts code="AH">
     <currency_desc>USD</currency_desc>
     <qualifier>PT</qualifier>
     <futures_trading_volume>206940</futures_trading_volume>
</row_fts>

</datafts>
</ftsreport>
</lme>
```

4.4.3 XML Elements

The FTS report is bounded by the fts_report element. Within this element there are the following key sub-elements:

- identification – this provides general report-wide details (see below for attributes)
- datafts – one of these elements that contains multiple row_fts elements
- row_fts – individual FTS data for a given commodity

The identification element has the following attributes:

Tag	Description
report_code	Always “FTS”
report_name	Always “Futures Trading Volume Summary”
report_date	Date of the report in YYYYMMDD format
report_time	Time of the report in HHMM format
report_version	Version of the report

The row_fts element has the following attributes and elements:

Tag	Description
code (attribute)	LME commodity code (see 3.1.2 for a list of these)
currency_desc	Currency USD, GBP, JPY, EUR
qualifier	LME trading sector = PT (Previous Trading Day) valid value
futures_trading_volume	Actual volume total number

4.5 Official FOREX Rates (FX)

4.5.1 Description

- 3 data types are included
    - FX rates – Spot: cash only
    - FX rates – Daily monthly moving average (MMAP)
    - FX rates – Monthly average - published on the last trading day of the month (MAP). The response will show the last month's published average until the new one becomes available (on the first day of a new month since the feed is for previous day data).
- FX rates currency: EUR, GBP, JPY (all cross currencies with USD)
- Note: The "contract" value for this data set for all data is contract=FXG

4.5.2 XML Output Example (FX)

```
<lme status="0">
<date>20100920</date>
<forex status="0">
  <row_fx status="0" pq="S" type="X">
    <fx_item currency="EUR/USD">
    <last>1.3081</last>
    </fx_item>
    <fx_item currency="GBP/USD">
    <last>1.5606</last>
    </fx_item>
    <fx_item currency="USD/JPY">
    <last>85.66</last>
    </fx_item>
  </row_fx>
  <row_fx status="0" pq="MAP" type="X">
    <fx_item currency="EUR/USD">
    <last>1.2908</last>
    </fx_item>
    <fx_item currency="GBP/USD">
    <last>1.5662</last>
    </fx_item>
    <fx_item currency="USD/JPY">
    <last>85.36</last>
    </fx_item>
  </row_fx>
  <row_fx status="0" pq="MMAP" type="X">
    <fx_item currency="EUR/USD">
    <last>1.2865</last>
    </fx_item>
    <fx_item currency="GBP/USD">
    <last>1.5458</last>
    </fx_item>
    <fx_item currency="USD/JPY">
    <last>84.4</last>
    </fx_item>
  </row_fx>
</forex>
</lme>
```

4.5.3 XML Elements

The FX report is bounded by the forex element. Within this element there are the following key sub-elements:

- row_fx – FX data for a given FX type (Spot, MAP or MMAP). This has multiple fx_item elements within it.
- fx_item – individual FX data for a given currency

The row_fx element has the following attributes and elements:

Tag	Description
status	Data status “0” = Data available “1” = Data requested not available “2” = error Note: if error then explanation will be displayed in tag “reason”
pq (attribute)	Valid Values: S-spot, MAP - monthly moving average, MMAP-Daily monthly moving average
type (attribute)	LME Exchange rate; Valid value: X

The fx_item element has the following attributes and elements:

Tag	Description
currency (attribute)	Indicates type of currency, against the US dollar; Valid values: EUR/USD GBP/USD USD/JPY
Last	FX rate EUR/USD – four decimal places GBP/USD – four decimal places USD/JPY – two decimal places

4.6 Monthly Averages (MAP)

4.6.1 Description

- Two types of averages:
    - Daily - moving averages - calculated based on daily official prices for the month so far.
    - Monthly - published on the last business day of the month. The report includes all monthly values that have been published for the year so far. For example on the 12th April 2017 the values for Jan 17, Feb 17, Mar 17 would be returned.
- Prompt dates
    - For NFG daily and monthly averages for cash, 3M, 15M, DEC1, DEC2 & DEC3.
    - For MFG daily and monthly averages for M1, M4 and M14/M15. There are two special notes about the data returned for the MFG group:
        - Daily averages will be an average for the prompt dates on the date of request. E.g. if the request is made for the 30th October 2017 then for 15th November 2017 prompt (M1 on that date) the response will return the average of all official prices in the month of October where the prompt date was 15th November 2017.
        - When the DEC1 and DEC2 prompts are the same as the 15M and 27M prompts then 15M and 27M will be returned in the Monthly averages section (rather than DEC1 and DEC2).

4.6.2 XML Output Example (MAP)

Note: in this example only data for AA is shown and only two months are shown in the monthlies section (Jan and Feb) as the request was made in March.

```
<lme status="0">
<date>20170308</date>

<averages status="0">

   <daily>
      <row_daily status="0" code="AA" type="M">
        <currency>USD</currency>
        <avg_item prompt_date="CASH">
          <bid>1662.0</bid>
          <ask>1672.0</ask>
        </avg_item>
        <avg_item prompt_date="3M">
          <bid>1674.0</bid>
          <ask>1684.0</ask>
        </avg_item>
        <avg_item prompt_date="DEC1" pd_value="20181219">
          <bid>1679.0</bid>
          <ask>1689.0</ask>
        </avg_item>
      </row_daily>
    </daily>
```

```
<monthly>
      <row_monthly status="0" code="AA" type="M" pq="MAP">
        <month value="Jan">
          <currency>USD</currency>
          <avg_item prompt_date="CASH">
            <bid>1619.5</bid>
            <ask>1629.5</ask>
          </avg_item>
          <avg_item prompt_date="3M">
            <bid>1632.0</bid>
            <ask>1642.0</ask>
          </avg_item>
          <avg_item prompt_date="DEC1" pd_value="20181219">
            <bid>1655.5</bid>
            <ask>1665.5</ask>
          </avg_item>
        </month>
        <month value="Feb">
          <currency>USD</currency>
          <avg_item prompt_date="CASH">
            <bid>1689.09</bid>
            <ask>1698.7</ask>
          </avg_item>
          <avg_item prompt_date="3M">
            <bid>1698.26</bid>
            <ask>1708.26</ask>
          </avg_item>
          <avg_item prompt_date="DEC1" pd_value="20181219">
            <bid>1718.26</bid>
            <ask>1728.26</ask>
          </avg_item>
        </month>
      </row_monthly>
    </monthly>
  </averages>
</lme>
```

4.6.3 XML Elements

The MAP report is bounded by the “averages” element. Within this element there are the following key sub-elements.

Daily:

- daily – single element containing multiple row_daily elements
- row_daily – contains the daily data for a single commodity, one avg_item element for each prompt
- avg_item – represents the actual average data for a given prompt

Monthly:

- monthly – single element containing multiple row_monthly elements
- row_monthly - contains the monthly data for a single commodity, one month element for each month in the current year

- month – represents the average data for a single month, contains one avg_item element for each prompt
- avg_item – represents the actual average data for a given prompt

The row_daily element has the following attributes and elements:

Tag	Description
“status” (attribute)	Data status “0” = Data available; “1” = Data requested not available, “2” = error Note: explanation (text) will be displayed in tag: “reason”
“code” (attribute)	LME commodity code (see 3.1.2 for a list of these)
“type” (attribute)	Always ‘M’
currency	Indicates type of currency: USD only i.e. currency=USD

The row_monthly element has the following attributes and elements:

Tag	Description
“status” (attribute)	Data status “0” = Data available; “1” = Data requested not available, “2” = error Note: explanation (text) will be displayed in tag: “reason”
“code” (attribute)	LME commodity code (see 3.1.2 for a list of these)
“type” (attribute)	Always ‘M’
“pq” (attribute)	Valid Values: MAP- monthly average,
“month” (attribute)	Current month; format: Text; for monthly averages Valid values: 'Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', Dec' i.e. month=Sep
currency	Indicates type of currency: USD only i.e. currency=USD

The avg_item element has the following attributes and elements:

Tag	Description
“prompt_date” (attribute)	The prompt code, i.e. one of CASH, 3M, 15M, DEC1, DEC2, DEC3
"pd_value"(attribute)	The actual date of the prompt_date in yyyymmdd format, e.g. 20121219
Bid	Bid price
Ask	Ask price

4.7 Official and Settlement prices (OFS)

4.7.1 Description

- Daily only
- prompt dates
    - NFG - Cash, 3M, 15M, DEC1, DEC2 & DEC3
    - MFG – M1, M4 and M14/M15 (dates only are returned rather than prompt codes)
- buyer and seller (bid & ask) values at each prompt date
- Settlement price (Cash Ask for NFG and M1 Ask for MFG). Note the MFG settlement price is only included on the settlement date, i.e. the Monday before the 3rd Wednesday in the month. On all other days “no data available for selected date” will be reported for the settlement price for MFG contracts)

4.7.2 XML Output Example (OFS)

The example below only includes data for two contracts – AA and AE. The full response would show all contract(s) requested.

```
<lme status="0">

<date>20171002</date>
<officials status="0">

     <date>20171002</date>

     <row_official status="0" code="AA" type="M">
      <currency>USD</currency>
      <settlement>1720.0</settlement>

     <of_item prompt_date="CASH">
      <bid>1710.0</bid>
      <ask>1720.0</ask>
     </of_item>

     <of_item prompt_date="3M">
      <bid>1720.0</bid>
      <ask>1730.0</ask>
     </of_item>

     <of_item prompt_date="DEC1" pd_value="20181219">
      <bid>1725.0</bid>
      <ask>1735.0</ask>
     </of_item>

     </row_official>

     <row_official status="0" code="AE" type="M">
      <currency>USD</currency>
      <settlement>No data available for selected date</settlement>

     <of_item pd_value="20171018">
      <bid>80.00</bid>
      <ask>110.00</ask>
     </of_item>
```

```
      <of_item pd_value="20180117">
        <bid>80.00</bid>
        <ask>110.00</ask>
      </of_item>

      <of_item pd_value="20181219">
        <bid>80.00</bid>
        <ask>110.00</ask>
      </of_item>

      </row_official>
</officials>
</lme>
```

4.7.3 XML Elements

The Officials report is bounded by the “officials” element. Within this element there are the following key sub-elements.

- row_official – one element per commodity, contains multiplt of_item elements for each prompt
- of_item – officials data for a given prompt

The row_official element has the following elements/attributes:

Tag	Description
“status” (attribute)	Data status “0” = Data available; “1” = Data requested not available, “2” = error Note: explanation will be displayed in tag “reason”
“code” (attribute)	LME commodity code (see 3.1.2 for a list of these)
“type” (attribute)	Always ‘M’
currency	Valid value: USD
settlement	NFG - Cash ask price MFG – M1 ask price. Note this is only included in responses for a date that is equivalent to the Monday before the 3rd Wednesday in a month, i.e. when the settlements price for MFG contracts are published. On all other request dates “no data available for selected date” will be reported for the settlement price for MFG contracts)

The of_item element has the following elements/attributes:

Tag	Description
“prompt_date” (attribute)	Prompt Date: Maturity: Month Year; i.e. CASH, 3M 15M, DEC1, DEC2, DEC3 This attribute is only provided for the NFG group.
"pd_value" (attribute)	Description: Date (YYYYMMDD) for December prompt dates i.e. 20121219 This attribute is provided for the DEC prompts in the NFG group and all prompts in the MFG group (giving the absolute date)
bid	Bid price
ask	Ask price

4.8 Warehouse Stocks Movements Data

4.8.1 Descriptions

- The Warehouse stock movements Report provides the stock movements data by commodity, location reported in metric tonnes.
- Report provides previous day's stock movement figures
- Note that this report provides the "previous day's data" so in case where date=1 the date of the report would actually be from two business day's previously, i.e. the data is for the previous business day (as per the date=1 parameter), but on that day the reports would be from a day prior to that.

4.8.2 XML Output Example (WSM)

There can be different combinations of location, grade_code and stock_status in the row elements in the report:

- Stock_status only (location and grade_code are empty) – total for this commodity and stock_status, e.g. total closing stock for AH.
- Stock_status and grade_code (location is empty) – total for this commodity, stock_status and grade_code, e.g. total closing stock for AH Ingots
- Stock_status, grade_code and location – total for this commodity, stock_status, grade_code and location, e.g. total closing stock for AH Ingots in Rotterdam

The report is grouped by commodity (i.e. all AH rows come together) and then within the commodity the rows are ordered as above, i.e. all the stock_status only rows first, then the stock_status and grade_code rows etc.

The example below only shows some sample rows for AH and is not the full report. It shows all the stock_status only rows for AH and the stock_status and grade_code combinations for AH (where the grade_code is INGO).

```
<lme status="0">

<wsmreport status="0">
<identification report_code="WSM" report_name="Warehouse Stock Movements"
report_date="20170103" report_time="0900" report_version="100" />

<datawsm>
     <row_wsm code="AH">
     <location/>
     <grade_code/>
     <stock_status>S</stock_status>
     <stock_qty>2196475</stock_qty>
     <expiry/>
     </row_wsm>

     <row_wsm code="AH">
     <location/>
     <grade_code/>
     <stock_status>L</stock_status>
```

```
<stock_qty>-5700</stock_qty>
<expiry/>
</row_wsm>

<row_wsm code="AH">
<location/>
<grade_code/>
<stock_status>I</stock_status>
<stock_qty>2202175</stock_qty>
<expiry/>
</row_wsm>

<row_wsm code="AH">
<location/>
<grade_code/>
<stock_status>J</stock_status>
<stock_qty>75</stock_qty>
<expiry/>
</row_wsm>

<row_wsm code="AH">
<location/>
<grade_code/>
<stock_status>K</stock_status>
<stock_qty>5775</stock_qty>
<expiry/>
</row_wsm>

<row_wsm code="AH">
<location/>
<grade_code/>
<stock_status>f</stock_status>
<stock_qty>672750</stock_qty>
<expiry/>
</row_wsm>

<row_wsm code="AH">
<location/>
<grade_code/>
<stock_status>e</stock_status>
<stock_qty>1523725</stock_qty>
<expiry/>
</row_wsm>

<row_wsm code="AH">
<location/>
<grade_code>INGO</grade_code>
<stock_status>S</stock_status>
<stock_qty>1095250</stock_qty>
<expiry/>
</row_wsm>

<row_wsm code="AH">
<location/>
<grade_code>INGO</grade_code>
<stock_status>L</stock_status>
<stock_qty>-2825</stock_qty>
<expiry/>
</row_wsm>
```

```
    <row_wsm code="AH">
    <location/>
    <grade_code>INGO</grade_code>
    <stock_status>I</stock_status>
    <stock_qty>1098075</stock_qty>
    <expiry/>
    </row_wsm>

    <row_wsm code="AH">
    <location/>
    <grade_code>INGO</grade_code>
    <stock_status>J</stock_status>
    <stock_qty>25</stock_qty>
    <expiry/>
    </row_wsm>

    <row_wsm code="AH">
    <location/>
    <grade_code>INGO</grade_code>
    <stock_status>K</stock_status>
    <stock_qty>2850</stock_qty>
    <expiry/>
    </row_wsm>

    <row_wsm code="AH">
    <location/>
    <grade_code>INGO</grade_code>
    <stock_status>f</stock_status>
    <stock_qty>267175</stock_qty>
    <expiry/>
    </row_wsm>

    <row_wsm code="AH">
    <location/>
    <grade_code>INGO</grade_code>
    <stock_status>e</stock_status>
    <stock_qty>828075</stock_qty>
    <expiry/>
    </row_wsm>
</datawsm>
</wsmreport>
</lme>
```

4.8.3 XML Elements

The WSM report is bounded by the wsm_report element. Within this element there are the following key sub-elements:

- identification – this provides general report-wide details (see below for attributes)
- datawsm – one of these elements that contains multiple row_wsm elements
- row_wsm – individual wsm data

The identification element has the following attributes:

Tag	Description
report_code	Always “WSM”
report_name	Always “Warehouse Stocks Movement”
report_date	Date of the report in YYYYMMDD format
report_time	Time of the report in HHMM format
report_version	Version of the report

The row_wsm element has the following attributes and elements:

Tag	Description
“code” (attribute)	LME commodity code (see 3.1.2 for a list of these)
grade_code	Grade of the commodity SEE 4.8.4 for complete details
stock_status	Stock Status SEE 4.8.5 for complete details
location	Location where the commodity exists SEE 0 for complete details
stock_qty	Integer, i.e. 76240
expiry	Always empty

4.8.4 WSM Grades

Metal	Grade	Grade Code
Cobalt	Briquettes	BRIQ
Cobalt	Cathodes	CATS
Cobalt	Ingots	INGO
Cobalt	Rounds	ROUN
Cobalt	Coarse Grain Powder	CGPO
Copper	Cathodes	CATS
Aluminium	Ingots	INGO
Aluminium	T-Bar	TBAR
Aluminium	Sows	SOWS
Nickel	Bagged Briquettes	BBRI
Nickel	Briquettes	BRIQ
Nickel	Cathodes	CAT1 -(100x100mm)
Nickel	Cathodes	CAT2 -(25x25mm)
Nickel	Cathodes	CAT5 -(50x50mm)
Nickel	Pellets	PLTS
Nickel	Full plate cathode	FPCS
Nickel	Bagged Pellets	BPEL
Tin	No grade	No code
Lead	No grade	No code
Zinc	No grade	No code
Aluminium Alloy	Ingots	IN12 (typeD12S)
Aluminium Alloy	Ingots	IN26 (type 226)
Aluminium Alloy	Ingots	IN80 (type A380)
Aluminium Alloy	Ingots	I121 (type AD12.1)

Aluminium Alloy	Large sows	LS12 (type D12S)
Aluminium Alloy	Large sows	LS26
Aluminium Alloy	Large sows	LS80
Aluminium Alloy	Large sows	L121 (type AD12.1)
Aluminium Alloy	Small sows	SS12 (type D12S)
Aluminium Alloy	Small sows	SS26
Aluminium Alloy	Small sows	SS80
Aluminium Alloy	Small sows	S121 (type AD12.1)
Aluminium Alloy	Tbars	TB12 (type D12S)
Aluminium Alloy	Tbars	TB26
Aluminium Alloy	Tbars	TB80
Aluminium Alloy	Tbars	T121 (type AD12.1)
NASAAC	A380	INGO
NASAAC	A380	LSOW (Large sow)
NASAAC	A380	SSOW (Small sow)
NASAAC	T-Bar	TBAR
Steel	Billet	G5SP (3805sp)
Steel	Billet	G3SP (3803sp)
Steel	Billet	20MN (20MnSi)
Steel	Billet	Q235
Steel	Billet	AS60 (A61560)
Steel	Billet	4449 (BS4449)
Steel	Billet	GO3S (3803S)
Steel	Billet	GO3P (3803P)

Steel	Billet	GO5S (3805S)
Steel	Billet	GO5P (3805P)
Steel	Billet	LME1 (LME Grade 1)
Steel	Billet	LME2 (LME Grade 2)
Steel	Billet	LME3 (LME Grade 3)
Steel	Billet	LME4 (LME Grade 4)
Steel	Billet	LME5 (LME Grade 5)
Steel	Billet	LME6 (LME Grade 6)
Steel	Billet	LME7 (LME Grade 7)
Steel	Billet	LME8 (LME Grade 8)
Steel	Billet	LME9 (LME Grade 9)

4.8.5 WSM Stock Status

Stock Status	Description
S	Closing Stock Totals for all Commodities
I	Opening Stock Totals for all Commodities
J	Stock delivered In Totals for all Commodities
K	Stock delivered out Totals for all Commodities
L	Stock movements Totals for all Commodities
e	Closing stock on warrant totals for all Commodities
f	Closing stock on cancelled warrant totals for all Commodities
• **Location Level Information**	
S	Closing Stock by location for all Commodities
I	Opening Stock by location for all Commodities
J	Stock delivered In by location for all Commodities

K	Stock delivered out by location for all Commodities
L	Stock movements by location for all Commodities
e	Closing stock on warrant by location for all Commodities
f	Closing stock on cancelled warrant by location for all Commodities
• **Grade Level Information**	
S	Closing Stock by Grade for all Commodities
I	Opening Stock by Grade for all Commodities
J	Stock delivered In by Grade for all Commodities
K	Stock delivered out by Grade for all Commodities
L	Stock movements by Grade for all Commodities
e	Closing stock on warrant by Grade for all Commodities
f	Closing stock on cancelled warrant by Grade for all Commodities
• **Location And Grade Level Information**	
S	Closing Stock by location by Grade for all Commodities
I	Opening Stock by location by Grade for all Commodities
J	Stock delivered In by location by Grade for all Commodities
K	Stock delivered out by location by Grade for all Commodities
L	Stock movements by location by Grade for all Commodities
e	Closing stock on warrant by location by Grade for all Commodities
f	Closing stock on cancelled warrant by location by Grade for all Commodities

4.8.6 WSM Locations

Country	Location	Location Description	Delivery Point for
Belgium	ANTW	Antwerp	AA, AH, CA, CO, NI, PB, SN, ZS
Germany	BREM	Bremen	AA, AH, NI, PB, ZS
	HAMB	Hamburg	AA, AH, CA, NI, PB, SN, ZS
Italy	GENO	Genoa	AA, AH, CA, NI, PB, SN, ZS
	LEGH	Leghorn	AA, AH, CA, NI, PB, ZS
	TRIE	Trieste	AA, AH, CA, NI, PB, SN, ZS
Japan	NAGO	Nagoya	AH
	YOKO	Yokohama	AH
Korea	BUSA	Busan	AA, AH, CA, NI, SN
	GWAN	Gwangyang	AA, AH, CA, NI, SN
	INCH	Incheon	AA, AH, CA, FM, NI
Malaysia	JOHO	Johor	AA, AH, CA, NI, PB, SN, ZS
	POKL	Port Klang	AA, AH, CA, NI, PB, ZS
Netherlands	AMST	Amsterdam	AA, AH, PB, NI, SN, ZS
	ROTT	Rotterdam	AA, AH, CA, CO, NI, PB, SN, ZS
	VLIS	Vlissingen	AA, AH, CA, NI, PB, SN, ZS
Panama	PANA	Panama City	CA
Singapore	SING	Singapore	AA, AH, CA, NI, PB,SN, ZS
Spain	BARC	Barcelona	AA, AH, CA, NI, PB, SN, ZS
	BILB	Bilbao	AA, AH, CA, NI, PB, SN, ZS
Sweden	GOTH	Gothenberg	AH, NI
	HELS	Helsingborg	AH, CA, NI, PB, ZS
Turkey	ISKE	Iskenderun	tbc

	ISTA	Istanbul	tbc
	IZMI	Izmir	tbc
	KOCA	Kocaeli	tbc
	MOER	Moerdijk	AA, CA, NI, PB, SN, ZS
	TEKI	Tekirdag	tbc
Taiwan	KAOH	Kaohsiung	AH, AA, CA, NI, PB, SN, ZS
United Kingdom	HULL	Hull	AA, AH, CA, NI, PB, SN, ZS
	LIVE	Liverpool	AA, AH, CA, NI, PB, SN, ZS
	TYNW	Tyne and Wear	AA, AH, NI, PB, SN, ZS
UAE	DUBA	Dubai	CA, NI, PB, ZS
USA	BALT	Baltimore	AH, CA, CO, NI, NA, PB, SN, ZS
	CHIC	Chicago	AH, CA, NI, NA, PB, ZS
	DETR	Detroit	AH, NI, NA, PB, ZS
	LONG	Long Beach	AH, NI, NA, PB, SN, ZS
	LOSA	Los Angeles	AH, NI, NA, PB, SN, ZS
	LOUV	Louisville	NA
	MOBI	Mobile	AH, CA, NI, NA, PB, SN, ZS
	NEWO	New Orleans	AH, CA, NI, NA, PB, SN, ZS
	OWEN	Owensboro	NA
	STLO	St. Louis	AH, CA, NI, NA, PB, ZS
	TOLE	Toledo	AH, NI, NA, PB, ZS

5 Appendix A – Error Text

If there is an error response (status=2) then the following errors can be given in the reason element:

Text	Comment
Contract is a required parameter	The contract parameter was missing from the request completely. This parameter is mandatory.
Missing contract value	The contract parameter was included in the request, but no value was specified (i.e. contract= was sent). A contract value needs to be included (unless the type=FX)
'contract' value: XXX is incorrect	An incorrect value was provided in the contract= parameter of the request (where XXX is the value the user provided)
type is a required parameter	The type parameter was missing from the request completely. This parameter is mandatory.
Missing type value	The type parameter was included in the request, but no value was specified (i.e. type= was sent). A type value needs to be included
'type' value: XXX is incorrect	An incorrect value was provided in the type= parameter of the request (where XXX is the value the user provided)
'date' value: XXX is incorrect	An incorrect value was provided in the date= parameter of the request (where XXX is the value the user provided)
'size' value: XXX is incorrect	An incorrect value was provided in the size= parameter of the request (where XXX is the value the user provided)
'size' parameter given (value: XXX)	The size= parameter is only valid on a type=CH request
Either bid or ask is missing	Bid and/or Ask data could not be found for the given prompt
No data available for selected date	No data could be found for the requested date
System error	Contact the LME for more details if this persists

6 Appendix B – Code Example

The following is a C# code example for retrieving an access token and calling the XML Feed.

```
HttpClient client = new HttpClient();

// setup the content for the http post to request for an access token
// Note: the “yourusername” and “yourpassword” items should be set
// with your specific credentials. Everything else is as is here.
var values = new Dictionary<string, string>
{
        { "grant_type", "password" },
        { "client_id", "xmlfeeds" },
        { "username", "yourusername"  },
        { "password", "yourpassword"  }
};

var content = new FormUrlEncodedContent(values);

// setup the http post request for an access token
var authRequest = new HttpRequestMessage()
{
        RequestUri = new Uri("https://sso.lmelive.com/as/token.oauth2"),
        Content = content,
        Method = HttpMethod.Post
};

// send the http post request for an access token
var authResponse = await client.SendAsync(authRequest);

// read the response
var authResponseContent = await authResponse.Content.ReadAsStringAsync();

// parse the response into a json object
var json = JObject.Parse(authResponseContent);

// Get the access token from the response
var accessToken = json["access_token"].ToObject<string>();

// Set the access token in the header for the GET request
// of the feed itself, preceded by text “Bearer”
client.DefaultRequestHeaders.Authorization = new
AuthenticationHeaderValue("Bearer", accessToken);

// Send the Get request to the XML Feed (in this example a
// request for the FE report for ALL contracts)
var response = await
client.GetAsync("https://ndxml.lmelive.com/XMLFeed.svc/lme.xml?type=FE&contrac
t=ALL");

// Read the response
var responseContent = await response.Content.ReadAsStringAsync();
```