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SOAP DATA INTERFACES PROGRAMMER'S MANUAL

VERSION 1.6

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Distribution List

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Table of Contents

1	OVERVIEW	6
1.1	DOCUMENT PURPOSE	6
1.2	SCOPE OF THIS RELEASE	6
1.3	DEFINITIONS, ACRONYMS AND ABBREVIATIONS	6
1.4	DOCUMENT CONVENTIONS	7
1.5	REFERENCES.....	7
2	SERVICE DISCOVERY AND LOCATION	7
3	DEVELOPER’S GUIDE.....	8
3.1	GENERAL GUIDELINES	8
3.2	APPLICATION SERVICES & OPERATION CODES.....	9
3.2.1	Exchange Statistics Interface (intf-ExchangeStats)	9
4	API REFERENCE.....	10
4.1	EXCHANGE STATISTICS SERVICE (INTF-EXCHANGESTATS)	10
4.1.1	Instrument Information (OpInstruments).....	10
4.1.2	Index & Market Information (OpQEIndex).....	12
4.1.3	NAV & INAV Information for ETFs (OpETFiNAV)	14
	APPENDIX A – ERROR CODES	16
	APPENDIX B – WSDL	17
	APPENDIX C – XSD	20
	APPENDIX D – TYPE OF MARKET & INSTRUMENT.....	24
	APPENDIX E – OPRESULT XML STRUCTURE - FIELD DESCRIPTIONS.....	25

1 Overview

Qatar Exchange provides a set of web services to Data Vendors for retrieving latest information pertaining to the activities of the exchange.

Current version of the interfaces provides the following functionality:

- Exchange Statistics

QE exposes following Service to perform the above mentioned functions.

- intf-ExchangeStats: This is the interface service name that provides the exchange statistics. Exchange statistics comprises of Instrument trade and QE Index statistics

Refer to Programmer’s Guide section for more technical details.

1.1 Document Purpose

This document seeks to provide the essential information to enable Data Vendor developers to successfully consume the Interfaces.

1.2 Scope of this Release

Scope of this document is limited to Data Interfaces Release 1.0.

1.3 Definitions, Acronyms and Abbreviations

Terms	Description
QE	Qatar Exchange
WSDL	Web Service Description Language W3C standard to describe the web service.
WSIL	Web Service Inspection Language W3C standard for web services discovery hosted by a site.
XML	Extensible Markup Language
SOAP	Simple Object Access Protocol

1.4 Document Conventions

Terms	Description

1.5 References

Requirements are being received from Product & Market Development department.

2 Service Discovery

Application developers must browse to the following URL for the available web services hosted by QE.

Testing/Development:

<http://www.qe.com.qa:4555/Process/WSInterfaces/intf-ExchangeStats.serviceagent?wsdl>

Production:

<http://www.qe.com.qa/Process/WSInterfaces/intf-ExchangeStats.serviceagent?wsdl>

Developers can import the testing WSDL into their development environment to start building their application using these services and migrate to production WSDL when deploying the application on their production systems.

Optionally developers can use the WSDL provided in Appendix B –WSDL.

3 Developer’s Guide

3.1 General Guidelines

In general, the usage semantics for all these web services are much similar. However based upon the required input and output each one has some slightly different variations which developers need to understand before consuming them.

Each request to any service comprises of the following common set of inputs:

1. Logon Credentials (UserID / Password)
2. List of operation parameters to be provided with the request

Section 3.2 details the operations codes and the parameters expected for each service/operation code.

Response from the web service includes:

1. Status field. It’s a mandatory field through which developers can check whether the requested operation to the service is successful or not. It includes either ‘**PASS**’ or ‘**FAIL**’ string.
2. OPResult field. It’s a mandatory field contains output of the service in a form of XML string. The structure of XML is based on the operation.
3. In case of an error, OPResult field contains an Error code and description in a form of following XML string:

Refer to Appendix – A for complete details of Error codes and their descriptions.

3.2 Application Services & Operation Codes

This section describes the services and their corresponding operation codes that are offered through the Data Interfaces, following sub-sections define each of the service interfaces in detail:

3.2.1 Exchange Statistics Interface (intf-ExchangeStats)

Purpose of this service is to provide the instrument prices, trading statistics and QE Index, exchange statistics. There are two operation codes supported by this service.

3.2.1.1 Instrument Information (OpInstruments)

With the use of this operation code the service returns the statistics for the instrument eg. Current Price, Volume, Value etc.

Operation specific parameters:

- MarketType
- InstrumentType

Please see Appendix C for the valid values for MarketType and InstrumentType.

3.2.1.2 Index & Market Information (OpQEIndex)

With the use of this operation code the service returns the QE index and other market statistics eg. Total Traded Volume, Values etc.

Operation specific parameters: *None*

3.2.1.3 NAV & INAV Information for ETFs (OpETFiNAV)

With the use of this operation code the service returns the NAV and iNAV for all the ETFs listed on Qatar Exchange.

Operation specific parameters: *None*

4 API Reference

4.1 Exchange Statistics Service (intf-ExchangeStats)

4.1.1 Instrument Information (OpInstruments)

Input Schema

Field Name	Mandatory	Description
USERID	Yes	User ID as provided by the exchange
PASSWORD	Yes	Password as provided by the exchange
MARKETTYPE	Yes	See Appendix C
INSTRUMENTTYPE	Yes	See Appendix C

Output schema

Field Name	Mandatory	Description
STATUS	Always Provided	Status of the request. Valid Values: <ul style="list-style-type: none"> • PASS • FAIL
OPRESULT	Always Provided	Xml structure, see below.

The output in OPRESULT will be a well structured XML String, but will vary in case of successful or failed execution, as below:

Successful execution

In case of a successful execution, the operation returns following structure of XML string encapsulated in the SOAP envelope:

```

<?xml version="1.0" encoding="UTF-8" ?>
<outputMessage>
<ns0:EXSTATRESPONSE xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd">
<ns0:STATUS>PASS</ns0:STATUS>
<ns0:OPRESULT><?xml version="1.0" encoding="UTF-8" ?>
  <ns0:BAG xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsDetails.xsd">
    <ns0:INSTRUMENT>
      <ns0:SYM>QTEL</ns0:SYM>
      <ns0:PCL>170</ns0:PCL>
      <ns0:OPN>0</ns0:OPN>
      <ns0:OFR>0</ns0:OFR>
      <ns0:OFRVOL>0</ns0:OFRVOL>
      <ns0:PID>187</ns0:PID>
      <ns0:PIDVOL>100</ns0:PIDVOL>
      <ns0:CUR>170</ns0:CUR>
      <ns0:TRD>0</ns0:TRD>
      <ns0:VOL>0</ns0:VOL>
      <ns0:VAL>0</ns0:VAL>
      <ns0:HIGH>0</ns0:HIGH>
      <ns0:LOW>0</ns0:LOW>
      <ns0:NCHN>0</ns0:NCHN>
      <ns0:PCHN>0</ns0:PCHN>
      <ns0:TRND>=</ns0:TRND>
      <ns0:W52H>190.5</ns0:W52H>
      <ns0:W52L>95</ns0:W52L>
      <ns0:MCAP>1000000</ns0:MCAP>
      <ns0:STATTIME>2012-02-07T03:55:17+03:00</ns0:STATTIME>
    </ns0:INSTRUMENT>
  </ns0:BAG></ns0:OPRESULT>
</ns0:EXSTATRESPONSE>
</outputMessage>

```

The INSTRUMENT element is a repeating group which will be repeated for each of the instruments. For a description of each of the Fields in the Instrument repeating group please see [Appendix D](#).

Failed Execution

In case of a failed execution, the operation returns following structure of XML string encapsulated in the SOAP envelope:

```

<?xml version="1.0" encoding="UTF-8" ?>
- <ns0:EXSTATRESPONSE xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd">
<ns0:STATUS>FAIL</ns0:STATUS>
<ns0:OPRESULT><?xml version="1.0" encoding="UTF-8" ?>
  <ns0:ERROR xmlns:ns0="http://www.qe.com.qa/schemas/error/ERROR.xsd">
    <ns0:ERRCODE>DIS-200-123456</ns0:ERRCODE>
    <ns0:ERRDESC>ExchangeStats--OpInstruments--Invalid Market
  </ns0:ERROR>
  <ns0:ERRDESC> </ns0:ERRDESC>
</ns0:OPRESULT>
</ns0:EXSTATRESPONSE>

```

4.1.2 Index & Market Information (OpQEIndex)

Input Schema

Field Name	Mandatory	Description
USERID	Yes	User ID as provided by the exchange
PASSWORD	Yes	Password as provided by the exchange

Output schema

Field Name	Mandatory	Description
STATUS	Always Provided	Status of the request. Valid Values: <ul style="list-style-type: none"> PASS FAIL
OPRESULT	Always Provided	Xml structure, see below.

The output in OPRESULT will be a well structured XML String, but will vary in case of successful or failed execution, as belows:

Successful execution

In case of a successful execution, the operation returns following structure of XML string encapsulated in the SOAP envelope:

```
<?xml version="1.0" encoding="UTF-8" ?>
- <outputMessage>
- <ns0:EXSTATRESPONSE xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
  xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd">
  <ns0:STATUS>PASS</ns0:STATUS>
  <ns0:OPRESULT><?xml version="1.0" encoding="UTF-8"?>
  <ns0:QEINDEX xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsDetails.xsd">
    <ns0:CIDX>8815.44</ns0:CIDX>
    <ns0:PIDX>8815.44</ns0:PIDX>
    <ns0:NCHN>0</ns0:NCHN>
    <ns0:PCHN>0</ns0:PCHN>
    <ns0:TRND>=</ns0:TRND>
    <ns0:TRD>29</ns0:TRD>
    <ns0:VOL>5169</ns0:VOL>
    <ns0:VAL>622182.5</ns0:VAL>
    <ns0:ASC>4</ns0:ASC>
    <ns0:DSC>0</ns0:DSC>
    <ns0:UCH>0</ns0:UCH>
    <ns0:STATUS>17</ns0:STATUS>
    <ns0:STATTIME>2012-02-08T10:36:03.883+03:00</ns0:STATTIME>
  </ns0:QEINDEX></ns0:OPRESULT>
</ns0:EXSTATRESPONSE>
</outputMessage>
```

Failed Execution

In case of a failed execution, the operation returns following structure of XML string encapsulated in the SOAP envelope:

```
<?xml version="1.0" encoding="UTF-8" ?>
- <ns0:EXSTATRESPONSE xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd">
  <ns0:STATUS>FAIL</ns0:STATUS>
  <ns0:OPRESULT><?xml version="1.0" encoding="UTF-8" ?>
    <ns0:ERROR xmlns:ns0="http://www.qe.com.qa/schemas/error/ERROR.xsd">
      <ns0:ERRCODE>DIS-200-123456</ns0:ERRCODE>
      <ns0:ERRDESC>ExchangeStats--OpQEIndexs--Invalid User Id or Password
    </ns0:ERRDESC> </ns0:ERROR>
  </ns0:OPRESULT>
</ns0:EXSTATRESPONSE>
```

4.1.3 NAV & INAV Information for ETFs (OpETFiNAV)

Input Schema

Field Name	Mandatory	Description
USERID	Yes	User ID as provided by the exchange
PASSWORD	Yes	Password as provided by the exchange

Output schema

Field Name	Mandatory	Description
STATUS	Always Provided	Status of the request. Valid Values: <ul style="list-style-type: none"> • PASS • FAIL
OPRESULT	Always Provided	Xml structure, see below.

The output in OPRESULT will be a well-structured XML String, but will vary in case of successful or failed execution, as belows:

Successful execution

In case of a successful execution, the operation returns following structure of XML string encapsulated in the SOAP envelope:

```
<?xml version="1.0" encoding="UTF-8" ?>
- <outputMessage>
- <ns0:EXSTATRESPONSE xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd">
  <ns0:STATUS>PASS</ns0:STATUS>
  <ns0:OPRESULT><?xml version="1.0" encoding="UTF-8"?>
    <ns0:EBAG xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsDetails.xsd">
      <ns0:ETF xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsDetails.xsd">
        <ns0:SYM>ETF1</ns0:SYM>
        <ns0:NAV>91.11</ns0:NAV>
        <ns0:iNAV>91.11</ns0:iNAV>
        <ns0:UPDTIME>18062013-113250</ns0:UPDTIME>
      </ns0:ETF>
      <ns0:ETF xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsDetails.xsd">
        <ns0:SYM>ETF2</ns0:SYM>
        <ns0:NAV>156.13</ns0:NAV>
        <ns0:iNAV>0.00</ns0:iNAV>
        <ns0:UPDTIME>27082013-092432</ns0:UPDTIME>
      </ns0:ETF>
    </ns0:EBAG></ns0:OPRESULT>
  </ns0:EXSTATRESPONSE>
</outputMessage>
```

Failed Execution

In case of a failed execution, the operation returns following structure of XML string encapsulated in the SOAP envelope:

```
<?xml version="1.0" encoding="UTF-8" ?>
- <ns0:EXSTATRESPONSE xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd">
  <ns0:STATUS>FAIL</ns0:STATUS>
  <ns0:OPRESULT><?xml version="1.0" encoding="UTF-8"?>
    <ns0:ERROR xmlns:ns0="http://www.qe.com.qa/schemas/error/ERROR.xsd">
      <ns0:ERRCODE>DIS-200-123456</ns0:ERRCODE>
      <ns0:ERRDESC> DIS-TRKID-130828-104540 --Op: OpETF --Msg: Invalid logon
        credentials.</ns0:ERROR>
    </ns0:OPRESULT>
  </ns0:EXSTATRESPONSE>
```

Appendix A – Error Codes

List of error codes and their descriptions are as follows:

Codes	Description
DIS-200-<TKID>	<Module>--<Operation>--<Msg>Invalid Market Type
DIS -201-<TKID>	
DIS -202-<TKID>	
DIS -300-<TKID>	
DIS -301-<TKID>	
DIS -302-<TKID>	
DIS -303-<TKID>	
DIS -304-<TKID>	
DIS -305-<TKID>	
DIS -306-<TKID>	
DIS -401-<TKID>	
DIS -402-<TKID>	
DIS -403-<TKID>	
DIS -404-<TKID>	
DIS -405-<TKID>	
DIS -500-<TKID>	<TKID>--<Operation>--<Msg>An internal error has occurred within the service. Please note error code and description to report at "info@qe.qa"

Appendix B – WSDL

Exchange Statistics Service (intf-ExchangeStats)

```

<?xml version="1.0" encoding="UTF-8"?>
<!--Created by TIBCO WSDL-->
<wSDL:definitions xmlns:wSDL="http://schemas.xmlsoap.org/wSDL/"
xmlns:tNS="http://www.qe.com.qa/dis/exchangestats/intfws"
xmlns:SOAP="http://schemas.xmlsoap.org/wSDL/soap/"
xmlns:ns0="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd" name="Untitled"
targetNamespace="http://www.qe.com.qa/dis/exchangestats/intfws">
  <wSDL:types>
    <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd"
targetNamespace="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd" elementFormDefault="qualified"
attributeFormDefault="unqualified">
      <xs:element name="ETFREQUEST">
        <xs:complexType>
          <xs:sequence>
            <xs:element ref="ns0:USERID"/>
            <xs:element ref="ns0:PASSWORD"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="EXSTATRESPONSE">
        <xs:complexType>
          <xs:sequence>
            <xs:element ref="ns0:STATUS"/>
            <xs:element ref="ns0:OPRESULT"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="INDXREQUEST">
        <xs:complexType>
          <xs:sequence>
            <xs:element ref="ns0:USERID"/>
            <xs:element ref="ns0:PASSWORD"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
      <xs:element name="INSTREQUEST">
        <xs:complexType>
          <xs:sequence>
            <xs:element ref="ns0:USERID"/>
            <xs:element ref="ns0:PASSWORD"/>
            <xs:element ref="ns0:MARKETTYPE"/>
          </xs:sequence>
        </xs:complexType>
      </xs:element>
    </xs:schema>
  </wSDL:types>

```

```

        <xs:element ref="ns0:INSTRUMENTTYPE"/>
    </xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="INSTRUMENTTYPE" type="xs:string"/>
<xs:element name="MARKETTYPE" type="xs:string"/>
<xs:element name="OPRESULT" type="xs:string"/>
<xs:element name="PASSWORD" type="xs:string"/>
<xs:element name="STATUS" type="xs:string"/>
<xs:element name="USERID" type="xs:string"/>
</xs:schema>
</wsdl:types>
<wsdl:service name="intf-ExchangeStats">
    <wsdl:port name="intf-ExchangeStatsEp" binding="tns:intf-ExchangeStatsEpBinding">
        <soap:address location="http://localhost:4554/Process/WSInterfaces/intfExchangeStatsEnquiry-
service.serviceagent/intf-ExchangeStatsEp"/>
    </wsdl:port>
</wsdl:service>
<wsdl:portType name="portType">
    <wsdl:operation name="OpQEIndex">
        <wsdl:input message="tns:INDXREQUEST"/>
        <wsdl:output message="tns:EXSTATRESPONSE"/>
    </wsdl:operation>
    <wsdl:operation name="OpInstruments">
        <wsdl:input message="tns:INSTREQUEST"/>
        <wsdl:output message="tns:EXSTATRESPONSE"/>
    </wsdl:operation>
    <wsdl:operation name="OpETFiNAV">
        <wsdl:input message="tns:ETFREQUEST"/>
        <wsdl:output message="tns:EXSTATRESPONSE"/>
    </wsdl:operation>
</wsdl:portType>
<wsdl:binding name="intf-ExchangeStatsEpBinding" type="tns:portType">
    <soap:binding style="document" transport="http://schemas.xmlsoap.org/soap/http"/>
    <wsdl:operation name="OpQEIndex">
        <soap:operation style="document" soapAction="/Process/WSInterfaces/intf-ExchangeStats.serviceagent/intf-
ExchangeStatsEp/OpQEIndex"/>
        <wsdl:input>
            <soap:body use="literal" parts="parameters"/>
        </wsdl:input>
        <wsdl:output>
            <soap:body use="literal" parts="parameters"/>
        </wsdl:output>
    </wsdl:operation>
    <wsdl:operation name="OpInstruments">
        <soap:operation style="document" soapAction="/Process/WSInterfaces/intfExchangeStatsEnquiry-
service.serviceagent/intf-ExchangeStatsEp/OpInstruments"/>
        <wsdl:input>
            <soap:body use="literal" parts="parameters"/>
        </wsdl:input>
        <wsdl:output>
            <soap:body use="literal" parts="parameters"/>
        </wsdl:output>
    </wsdl:operation>

```

```
</wsdl:operation>
<wsdl:operation name="OpETFiNAV">
  <soap:operation style="document" soapAction="/Process/WSInterfaces/intf-ExchangeStats.serviceagent/intf-ExchangeStatsEp/OpETFiNAV"/>
  <wsdl:input>
    <soap:body use="literal" parts="parameters"/>
  </wsdl:input>
  <wsdl:output>
    <soap:body use="literal" parts="parameters"/>
  </wsdl:output>
</wsdl:operation>
</wsdl:binding>
<wsdl:message name="INDXREQUEST">
  <wsdl:part name="parameters" element="ns0:INDXREQUEST"/>
</wsdl:message>
<wsdl:message name="EXSTATRESPONSE">
  <wsdl:part name="parameters" element="ns0:EXSTATRESPONSE"/>
</wsdl:message>
<wsdl:message name="INSTREQUEST">
  <wsdl:part name="parameters" element="ns0:INSTREQUEST"/>
</wsdl:message>
<wsdl:message name="ETFREQUEST">
  <wsdl:part name="parameters" element="ns0:ETFREQUEST"/>
</wsdl:message>
</wsdl:definitions>
```

Appendix C – XSD

ExchangeStatsInOut.xsd

```

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd"
  targetNamespace="http://www.qe.com.qa/dis/schemas/ExchangeStatsInOut.xsd"
  elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <xs:element name="USERID" type="xs:string"/>
  <xs:element name="PASSWORD" type="xs:string"/>
  <xs:element name="STATUS" type="xs:string"/>
  <xs:element name="OPRESULT" type="xs:string"/>
  <xs:element name="MARKETTYPE" type="xs:string"/>
  <xs:element name="INSTRUMENTTYPE" type="xs:string"/>
  <xs:element name="INSTREQUEST">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="USERID"/>
        <xs:element ref="PASSWORD"/>
        <xs:element ref="MARKETTYPE"/>
        <xs:element ref="INSTRUMENTTYPE"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="EXSTATRESPONSE">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="STATUS"/>
        <xs:element ref="OPRESULT"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="INDXREQUEST">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="USERID"/>
        <xs:element ref="PASSWORD"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
  <xs:element name="ETFREQUEST">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="USERID"/>
        <xs:element ref="PASSWORD"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>

```

ERROR.xsd

```

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://www.qe.com.qa/schemas/error/ERROR.xsd"
  targetNamespace="http://www.qe.com.qa/schemas/error/ERROR.xsd"
  elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <xs:element name="ERRCODE" type="xs:string"/>
  <xs:element name="ERRDESC" type="xs:string"/>
  <xs:element name="ERROR">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="ERRCODE"/>
        <xs:element ref="ERRDESC"/>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>

```

ExchangeStatsDetails.xsd

```

<?xml version="1.0" encoding="UTF-8"?>

<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
  xmlns="http://www.qe.com.qa/dis/schemas/ExchangeStatsDetails.xsd"
  targetNamespace="http://www.qe.com.qa/dis/schemas/ExchangeStatsDetails.xsd"
  elementFormDefault="qualified"
  attributeFormDefault="unqualified">
  <xs:element name="SYM" type="xs:string"/>
  <xs:element name="PCL" type="xs:string"/>
  <xs:element name="OPN" type="xs:string"/>
  <xs:element name="OFR" type="xs:string"/>
  <xs:element name="OFRVOL" type="xs:string"/>
  <xs:element name="BID" type="xs:string"/>
  <xs:element name="BIDVOL" type="xs:string"/>
  <xs:element name="CUR" type="xs:string"/>
  <xs:element name="TRD" type="xs:string"/>
  <xs:element name="VOL" type="xs:string"/>
  <xs:element name="VAL" type="xs:string"/>
  <xs:element name="HIGH" type="xs:string"/>
  <xs:element name="LOW" type="xs:string"/>
  <xs:element name="NCHN" type="xs:string"/>
  <xs:element name="PCHN" type="xs:string"/>
  <xs:element name="TRND" type="xs:string"/>
  <xs:element name="W52H" type="xs:string"/>
  <xs:element name="W52L" type="xs:string"/>
  <xs:element name="MCAP" type="xs:string"/>
  <xs:element name="STATTIME" type="xs:string"/>
  <xs:element name="INSTRUMENT">
    <xs:complexType>
      <xs:sequence>
        <xs:element ref="SYM"/>
        <xs:element ref="PCL"/>
        <xs:element ref="OPN"/>

```

```

    <xs:element ref="OFR"/>
    <xs:element ref="OFRVOL"/>
    <xs:element ref="BID"/>
    <xs:element ref="BIDVOL"/>
    <xs:element ref="CUR"/>
    <xs:element ref="TRD"/>
    <xs:element ref="VOL"/>
    <xs:element ref="VAL"/>
    <xs:element ref="HIGH"/>
    <xs:element ref="LOW"/>
    <xs:element ref="NCHN"/>
    <xs:element ref="PCHN"/>
    <xs:element ref="TRND"/>
    <xs:element ref="W52H"/>
    <xs:element ref="W52L"/>
    <xs:element ref="MCAP"/>
    <xs:element ref="STATTIME"/>
  </xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="BAG">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="INSTRUMENT" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="ASC" type="xs:string"/>
<xs:element name="DSC" type="xs:string"/>
<xs:element name="UCH" type="xs:string"/>
<xs:element name="CIDX" type="xs:string"/>
<xs:element name="PIDX" type="xs:string"/>
<xs:element name="QEINDEX">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="CIDX"/>
      <xs:element ref="PIDX"/>
      <xs:element ref="NCHN"/>
      <xs:element ref="PCHN"/>
      <xs:element ref="TRND"/>
      <xs:element ref="TRD"/>
      <xs:element ref="VOL"/>
      <xs:element ref="VAL"/>
      <xs:element ref="ASC"/>
      <xs:element ref="DSC"/>
      <xs:element ref="UCH"/>
      <xs:element ref="STATUS"/>
      <xs:element ref="STATTIME"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
<xs:element name="STATUS" type="xs:string"/>
<xs:element name="NAV" type="xs:string"/>
<xs:element name="iNAV" type="xs:string"/>
<xs:element name="ETF">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="SYM"/>

```

```
<xs:element ref="NAV"/>
<xs:element ref="iNAV"/>
<xs:element ref="UPDTIME" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="UPDTIME" type="xs:string"/>
<xs:element name="EBAG">
  <xs:complexType>
    <xs:sequence>
      <xs:element ref="ETF" maxOccurs="unbounded"/>
    </xs:sequence>
  </xs:complexType>
</xs:element>
</xs:schema>
```

Appendix D – Type of Market & Instrument

S #	Expected Value	Description
Market Type		
1	510	Regular Market
2	511	OTC Market
Instrument Type		
1	A	Equity Instruments (Stocks)
2	O	Debt Instruments (Bonds, T-bills)
3	T	ETF Instruments

Appendix E – OPRESULT XML Structure - Field Descriptions

This appendix describes the list of fields that will be received in the OPRESULT xml structure upon successful execution.

Tag Name	Description
SYM	Symbol Code of the Instrument
PCL	Previous Close Price
OPN	Opening Price
OFR	Offer Price. Special Values: 42949672.94 : Indicates the price is Market (MP)
OFRVOL	Offer Volume
BID	Bid Price. Special Values: 42949672.94 : Indicates the price is Market (MP)
BIDVOL	Bid Volume
CUR	Current / Last Trade Price
TRD	Total Number of Trades
VOL	Total Traded volume
VAL	Total traded value
HIGH	Highest Price of current day
LOW	Lowest Price of current day
NCHN	Net Change in Units, will be an absolute value. Combine with TRND to determine the direction of change
PCHN	Percentage Change in Units, will be an absolute value. Combine with TRND to determine the direction of change
TRND	Trend / Direction. Valid values: ‘+’ : Up ‘-’ : Down ‘=’ : No Change
W52H	52 week highest price
W52L	52 week lowest price
MCAP	Market capitalization
STATTIME	Date & time in GMT+3 of last update in statistics
CIDX	Current QE index value
PIDX	Previous day QE index value
ASC	Number of traded companies that elevated
DSC	Number of traded companies that declined
UCH	Number of traded companies with no change in their price
STATUS	QE Market Status. Valid Values: 1 : Pre Open 2 : Open 4 : Initialized (Ready for Pre-Open) 17: Closed
NAV	Net Asset Value for the ETF, calculated at the end of day. Note: There is a possibility that the Fund Manager may update the NAV for current date at any time from close of trading of current day and start of trading the next day.

INAV	Indicative Net Asset Value for the ETF, calculated intraday. If this value appears as 0.00 then the ETF does not support INAV.
UPDTIME	Date & time in GMT+3 of last update in Net Asset Value (note this does not indicate update of INAV)