

**S&P Capital IQ Real-Time Solutions**

## **FeedOS™ Developer's Notice**

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### **DIRECT EDGE – Feed Update**

Reference n°: 20141125 – 21251 – 23752

**Effective as of: 12 January 2015\***

**Action required from users: MANDATORY ACTION**



\* For the actual day when the changes to your custom feed handler take effect, please contact your QuantFEED® project manager.

S&P Capital IQ Real-Time Solutions  
FeedOS™ Developer's Notice: DIRECT EDGE – Feed Update  
Reference 20141125 – 21251 – 23752  
December 05, 2014

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# UPDATE OF THE DIRECT EDGE MARKET DATA STREAM

To reflect the changes caused by the dissemination of new values on the DIRECT EDGE market data stream, S&P Capital IQ Real-Time Solutions has decided to enhance the content of FeedOS.

This developer's notice contains late-breaking information about the implementation of this modification in your applications, which may not be included otherwise in the published documentation. The topics this notice covers include:

- [1. Update Summary](#)
- [2. FeedOS Technical Implementation](#)
- [3. Finding the Latest Information.](#)

## 1. Update Summary

Table 1 Current update summary

Notice Reference	20141125 – 21251 – 23752
Exchanges	DIRECT EDGE
Concerned MICs	EDGA, EDGX
Internal Source ID	149, 157
Effective Date	2015-01-12*
Impact	<ul style="list-style-type: none"><li>• Update of the Referential Tags</li><li>• Update of the Quotation Tags</li><li>• Update of the Level1 Market Data Kinematics – OPEN &amp; CLOSE</li></ul>
Action required	<b>MANDATORY ACTION</b> - see sections: <ul style="list-style-type: none"><li>• <a href="#">2.1.6. SecurityType</a></li><li>• <a href="#">2.1.7. CFICode</a></li><li>• <a href="#">2.4. Update of the Level1 Market Data Kinematics – OPEN &amp; CLOSE.</a></li></ul>

## 2. FeedOS Technical Implementation

Effective Monday, **January 12<sup>\*</sup> 2014**, S&P Capital IQ Real-Time Solutions enhances the referential, quotation and quotation context data, and updates the Level1 Market Data Kinematics to accommodate the information disseminated on the DIRECT EDGE market data stream, as described below:

- [2.1. Changes to the Referential Data](#)
- [2.2. Changes to the Quotation Data](#)
- [2.3. Changes to the Quotation Context Data](#)
- [2.4. Update of the Level1 Market Data Kinematics – OPEN & CLOSE.](#)

### 2.1. Changes to the Referential Data

S&P Capital IQ Real-Time Solutions **introduces** the referential tags below to accommodate the information disseminated on the DIRECT EDGE market data stream:

**Table 2** Referential tags added on the DIRECT EDGE market data stream

Tag Name	Numeric ID	Type
<a href="#">SecurityGroup</a>	1151	String
<a href="#">PriceIncrement_dynamic_TableId</a>	9522	UInt32
<a href="#">UMTF</a>	9526	String
<a href="#">SegmentMIC</a>	9533	String
<a href="#">SegmentMIC</a>	9534	String

Moreover, S&P Capital IQ Real-Time Solutions **updates** the values of the referential tags below:

**Table 3** Referential tags disseminating updated values on the DIRECT EDGE market data stream

Tag Name	Numeric ID	Type
<a href="#">SecurityType</a>	167	String
<a href="#">CFICode</a>	461	String

S&P Capital IQ Real-Time Solutions also **removes** the referential tags below:

**Table 4** Referential tags no longer disseminated on the DIRECT EDGE market data stream

Tag Name	Numeric ID	Type
<a href="#">RoundLot</a>	561	Float64
<a href="#">MinTradeVol</a>	562	Float64
<a href="#">ForeignFOSMarketId</a>	9501	UInt16
<a href="#">ForeignMarketId</a>	9502	UInt16

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\* This is the proposed day for the update of the standard version of the feed handler. For dedicated feed handlers, this date may differ. For the actual day when the changes to your custom feed handler take effect, please contact your FeedOS™ project manager.

### 2.1.1. SecurityGroup

The values of the referential tag **Security Group** conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Referential* to indicate an exchange specific name assigned to a group of related securities which may be concurrently affected by market events and actions.

FeedOS implementation of the tag SecurityGroup is described in the following table:

**Table 5 SecurityGroup – technical implementation in FeedOS**

Component	Value	Description
Tag Name	SecurityGroup	FeedOS tag name.
Numeric ID	1151	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	String	String data type.
Format / Possible Values	<i>[Exchange Specific Value]</i>	An <b>exchange specific percentile value</b> , indicating an exchange specific name assigned to a group of related securities which may be concurrently affected by market events and actions.

### 2.1.2. PriceIncrement\_dynamic\_TableId

The values of the referential tag **PriceIncrement\_dynamic\_TableId** conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Referential* to specify the table detailing the price increments for an instrument.

FeedOS implementation of the values currently available for the tag PriceIncrement\_dynamic\_TableId is described in the table below:

**Table 6 PriceIncrement\_dynamic\_TableId – technical implementation in FeedOS**

Component	Value	Description
Tag Name	PriceIncrement_dynamic_TableId	FeedOS tag name.
Numeric ID	9522	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	UInt32	UInt32 data type.
Format / Possible Values	<i>[Exchange Specific Value]</i>	An <b>exchange specific value</b> , specifying the table that details the price increments for an instrument.

### 2.1.3. UMTF

The values of the referential tag **UMTF** conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Referential* to specify the Universal Symbology code of a security.

FeedOS implementation of the values currently available for the tag UMTF is described in the table below:

**Table 7 UMTF – technical implementation in FeedOS**

Component	Value	Description
Tag Name	UMTF	FeedOS tag name.
Numeric ID	9526	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	String	String data type.
Format / Possible Values	<i>[Exchange specific value]</i>	An <b>exchange specific value</b> , specifying the Universal Symbology code of a security.

## 2.1.4. OperatingMIC

The values of the referential tag **OperatingMIC** conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Referential* to specify the parent MIC.

FeedOS implementation of the tag OperatingMIC is described in the table below:

**Table 8 OperatingMIC – technical implementation in FeedOS**

Component	Value	Description
Tag Name	OperatingMIC	FeedOS tag name.
Numeric ID	9533	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	String	String data type.
Format	<i>[Exchange specific value]</i>	An <b>exchange specific value</b> , specifying the parent MIC.
Possible Values	EDGE	Direct Edge

## 2.1.5. SegmentMIC

The values of the referential tag **SegmentMIC** conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Referential* to specify the child MIC.

FeedOS implementation of the tag SegmentMIC is described in the table below:

**Table 9 SegmentMIC – technical implementation in FeedOS**

Component	Value	Description
Tag Name	SegmentMIC	FeedOS tag name.
Numeric ID	9534	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	String	String data type.
Format	<i>[Exchange specific value]</i>	An <b>exchange specific value</b> , specifying the child MIC.
Possible Values	EDGA	EDGA Exchange
	EDGX	EDGX Exchange

### 2.1.6. SecurityType

The values of the referential tag **Security Type** conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Referential* to specify the type of security.

FeedOS implementation of the tag SecurityType is described in the table below (existing values are in black, newly added values are in green):

**Table 10 SecurityType – technical implementation in FeedOS**

Component	Value	Description
Tag Name	SecurityType	FeedOS tag name.
Numeric ID	167	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	String	String data type.
Format	<i>[Exchange specific value]</i>	An <b>exchange specific value</b> , detailing the type of security.
Possible Values	CS	Common Stock
	NONE	None
	PS	Preferred Stock
	WAR	Warrant

### 2.1.7. CFICode

The values of the referential tag **CFI Code** conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Referential* to specify the standardized identification code of an instrument.

FeedOS implementation of the tag CFICode is described in the table below (existing values are in black, newly added values are in green):

**Table 11 CFICode – technical implementation in FeedOS**

Component	Value	Description
Tag Name	CFICode	FeedOS tag name.
Numeric ID	461	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	String	String data type.
Format	<i>[Exchange specific value]</i>	An <b>exchange specific value</b> , detailing the standardized identification code of an instrument.
Possible Values	EPXXXX	Equities - Preferred Shares
	ESXXXX	Equities - Shares
	EUXXXX	Equities - Units
	RWXXXX	Rights - Warrants

The list below shows the possible combinations of FOSMarketIds, SecurityTypes and CFICodes, before and after the migration day:

BEFORE 2015-01-12	AFTER 2015-01-12
{ EDGA CS ESXXXX }	{ EDGA CS EPXXXX }
{ EDGA NONE EUXXXX }	{ EDGA NONE ESXXXX }
{ EDGX CS ESXXXX }	{ EDGA PS EUXXXX }
{ EDGA NONE EUXXXX }	{ EDGA WAR RWXXXX }
	{ EDGX CS EPXXXX }
	{ EDGX NONE ESXXXX }
	{ EDGX PS EUXXXX }
	{ EDGX WAR RWXXXX }

### Referential Data Sample

Below is an example of the current implementation of the newly added (in green) and updated (in blue) referential tags:

instr # 149/757913 = 313233561	
PriceCurrency	string{USD}
Symbol	string{WFC+}
SecurityType	string{WAR}
FOSMarketId	EDGA
CFICode	string{RWXXXX}
SecurityGroup	string{30}
InternalCreationDate	Timestamp{2014-11-14 15:07:46:644}
InternalModificationDate	Timestamp{2014-11-14 15:07:46:644}
InternalSourceId	uint16{149}
InternalEntitlementId	int32{1031}
LocalCodeStr	string{WFC+}
PriceIncrement_dynamic_TableId	uint32{4522084}
UMTF	string{WFC+}
OperatingMIC	string{EDGE}
SegmentMIC	string{EDGA}

## 2.2. Changes to the Quotation Data

S&P Capital IQ Real-Time Solutions **introduces** the quotation tags below to accommodate the information disseminated on the DIRECT EDGE market data stream:

Table 12 Quotation tags added on the DIRECT EDGE market data stream

Tag Name	Numeric ID	Type
RegSHOAction	9113	Enum
InternalDailyClosingPriceType	9155	Char

### 2.2.1. RegSHOAction

Each time a short sale price restriction occurs, the values of the quotation tag **RegSHOAction** conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Other Values*:

- in the callback carrying the Level1 event `notif_TradeEventExt()`, for C++



- in the event handler `TradeEventExtEventHandler`, for C#
- in the callback carrying the `Level1` event `quotNotifTradeEventExt`, for Java.

FeedOS implementation of the tag `RegSHOAction` is described in the table below:

**Table 13 RegSHOAction – technical implementation in FeedOS**

Component	Value	Description
<b>Tag Name</b>	<code>RegSHOAction</code>	FeedOS tag name.
<b>Numeric ID</b>	9113	FeedOS unique ID broadcast on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
<b>Type</b>	Enum	Enum data type.
<b>Format</b>	<i>[Exchange Specific Value]</i>	An <b>exchange specific value</b> , detailing the short sale restriction status.
<b>Possible Values</b>	1	Short sale restriction deactivated – No Price Test.
	2	Short sale restriction activated – Price Test in effect.
	3	Short sale restriction continued – Price Test remains in effect.

### 2.2.2. InternalDailyClosingPriceType

The values of the quotation tag `InternalDailyClosingPriceType` conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Other Values* to indicate the type of the internal daily closing price:

- in the callback carrying the `Level1` event `notif_TradeEventExt()`, for C++
- in the event handler `TradeEventExtEventHandler`, for C#
- in the callback carrying the `Level1` event `quotNotifTradeEventExt`, for Java.

FeedOS implementation of the tag `InternalDailyClosingPriceType` is described in the table below (the values disseminated as of 2015-01-12 are highlighted in green):

**Table 14 InternalDailyClosingPriceType – technical implementation in QuantFEED®**

Component	Value	Description
<b>Tag Name</b>	<code>InternalDailyClosingPriceType</code>	FeedOS tag name.
<b>Numeric ID</b>	9155	FeedOS unique ID disseminated on S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
<b>Type</b>	Char	Char data type.
<b>Format</b>	<i>[Internal Specific Value]</i>	An <b>internal specific value</b> , detailing the type of daily closing price, as described below.
<b>Possible Values</b>	0	<b>Undefined</b>
	a	<b>Official Close</b> – Explicit closing price value calculated and distributed by an exchange for the main trading session of a given trading day.
	b	<b>Official Indicative</b> – Exchange has provided an indicative price and marked it as indicative, however no trading activity is observed.

**Table 14 InternalDailyClosingPriceType – technical implementation in QuantFEED® (Continued)**

Component	Value	Description
<b>Possible Values</b>	c	<b>Official Carry Over</b> – Explicit Closing price value from a previous trading day carried forward by the exchange to the given trading day.
	d	<b>Last Price</b> – Final price disseminated by the exchange for the main trading session or dissemination period of a given trading day (for indices).
	e	<b>Last Eligible Price</b> – Execution price of the final trade (subject to trade qualifiers) accepted by the exchange for the main trading session of a given trading day.
	z	<b>Manual</b> – Price disseminated manually (in case of production correction).

## Quotation Data Sample

Below is an example showing the current implementation of the newly added (in green) quotation tags:

```
InstrumentStatusL1
-- 149/10783
    BID: 17.79      0      *NO ORDER*
    ASK: 29.78      0      *NO ORDER*
    LastPrice                float64{23.75}
    LastTradeQty              float64{100}
    DailyTotalVolumeTraded    float64{0}
    DailyTotalAssetTraded     float64{0}
    LastTradePrice            float64{23.75}
    RegSHOAction              enum{1}
    LastTradeTimestamp         Timestamp{2014-12-04 15:17:29:639}
    InternalDailyOpenTimestamp Timestamp{2014-12-05 13:00:00:924}
    InternalDailyCloseTimestamp Timestamp{2014-12-05 01:00:00:926}
    InternalDailyHighTimestamp Timestamp{2014-12-04 15:17:29:639}
    InternalDailyLowTimestamp  Timestamp{2014-12-04 15:15:53:793}
    InternalPriceActivityTimestamp Timestamp{2014-12-05 02:00:00:747}
    InternalDailyClosingPriceType char{d}
    TradingStatus              17=ReadyToTrade
    PreviousDailyTotalVolumeTraded float64{200}
    PreviousDailyTotalAssetTraded float64{4748}
    PreviousDailyClosingPrice   float64{23.75}
    PreviousBusinessDay         Timestamp{2014-12-04}
    CurrentBusinessDay          Timestamp{2014-12-05}
    PriceActivityMarketTimestamp Timestamp{2014-12-05 01:00:00:926}
```

## 2.3. Changes to the Quotation Context Data

S&P Capital IQ Real-Time Solutions **introduces** the quotation tags below to accommodate the information disseminated on the DIRECT EDGE market data stream:

**Table 15 Quotation tags added on the DIRECT EDGE market data stream**

Tag Name	Numeric ID	Type
TradeID	1003	String
AggressorSide	9356	Char

S&P Capital IQ Real-Time Solutions also **removes** the quotation tags below:

**Table 16** Quotation context tags no longer disseminated on the DIRECT EDGE market data stream

Tag Name	Numeric ID	Type
MARKET_DIRECTEDGE_HiddenLiquidityFlag	16220	Bool
<b>Note:</b> Before 2015-01-12, this tag indicated Hidden Quantity trades. After 2015-01-12, the hidden quantities will be highlighted by Off Book Trades.		

### 2.3.1. TradeID

Each time a trade occurs, the values of the quotation context tag **TradeID** conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Context* to detail the unique ID assigned to the trade entity once it is received or matched by the exchange or central counterparty:

- in the callback carrying the Level1 event `notif_TradeEventExt()`, for C++
- in the event handler `TradeEventExtEventHandler`, for C#
- in the callback carrying the Level1 event `quotNotifTradeEventExt`, for Java.

FeedOS implementation of the tag TradeID is described in the table below:

**Table 17** TradeID – technical implementation in FeedOS

Component	Value	Description
Tag Name	TradeID	FeedOS tag name.
Numeric ID	1003	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions data stream. This is the numeric equivalent of the tag name.
Type	String	String data type.
Format / Possible Values	<i>[Exchange Specific Value]</i>	An <b>exchange specific value</b> , detailing the unique ID assigned to the trade entity once it is received or matched by the exchange or central counterparty.

### 2.3.2. AggressorSide

Each time a trade occurs, the values of the quotation context tag **AggressorSide** conveyed on the DIRECT EDGE market data stream are disseminated via FeedOS data stream in *Context*, to indicate whether the aggressor is a buyer or a seller:

- in the callback carrying the Level1 event `notif_TradeEventExt()`, for C++
- in the event handler `TradeEventExtEventHandler`, for C#

- in the callback carrying the Level1 event `quotNotifTradeEventExt`, for Java.

FeedOS implementation of the tag `AggressorSide` is described in the following table:

**Table 18 AggressorSide – technical implementation in QuantFEED®**

Component	Value	Description
Tag Name	AggressorSide	FeedOS tag name.
Numeric ID	9356	FeedOS unique ID disseminated on the S&P Capital IQ Real-Time Solutions's data stream. This is the numeric equivalent of the tag name.
Type	Char	Char data type.
Format	<i>[Exchange specific value]</i>	An <i>exchange specific value</i> , indicating whether the aggressor is a buyer or a seller.
Possible Values	Space	No aggressor
	1	Buy Side
	2	Seller Side

## Quotation Context Data Sample

Below is an example showing the newly added (in **green**) and removed (in ~~**crossed-out-red**~~) quotation context tags:

```
"TE (TradeEvent) : MARKET_TIME INSTRUMENT LAST_PRICE TRADE_QTY BID_PRICE BID_QTY ASK_PRICE
ASK_QTY *CONTENT_MASK* *FLAGS*"
"VU (ValuesUpdate) : SERVER_TIME INSTRUMENT VALUES..."

TE 14:35:59:091.647 329263255 * * 67.34 100@1 * *
TE 14:35:59:658.794 329263255 67.59 100 * * * * H
MARKET_DIRECTEDGE_HiddenLiquidityFlag=bool{True}
TE 14:36:00:064.959 329263255 * * 67.3 200@1 * *
[...]
TE 13:43:18:815.361 931885499 114.31 100 * * * * f
TradeID=76261271427087
TE 13:43:40:102.536 931885499 * * 114.3 100@1 * *
TE 13:43:55:571.823 931885499 114.3 100 ! 0 * * HL
TradeID=91303925778, AggressorSide='2'=Sell
VU 13:43:55:571.823 931885499 DailyOpeningPrice=114.3
```

## 2.4. Update of the Level1 Market Data Kinematics – OPEN & CLOSE

In the Level1 Market Data Kinematics before 2015-01-12, the exchange sent the OPEN signal for all the instruments, including those on halt.

Moreover, the exchange sent the CLOSE signal for all instruments at 20:00 New York Time, as shown in the example below:

```
TE 2015-02-18 13:00:00:509 329263255 * * ! 0 ! 0
SI 2015-02-18 13:00:00:509 329263255 OPEN *
TE 2015-02-18 13:00:00:509 329263255 * * * * * * O
VU 2015-02-18 13:00:00:509 329263255 TradingStatus=17
TE 2015-02-18 13:00:01:086 329263255 * * * * 72.36 100@1
TE 2015-02-18 13:00:01:086 329263255 * * 52.5 300@1 * *
TE 2015-02-18 13:00:01:086 329263255 * * 55.5 100@1 * *
TE 2015-02-19 01:00:00:082 329263255 * * 62 300@1 * *
TE 2015-02-19 01:00:00:082 329263255 * * ! 0 * *
SI 2015-02-19 01:00:00:555 329263255 CLOSE 65.54
TE 2015-02-19 01:00:00:555 329263255 65.54 * * * * * C
VU 2015-02-19 01:00:00:555 329263255 TradingStatus=18
```

In the Level1 Market Data Kinematics after 2015-01-12, the exchange no longer sends the OPEN signal for halted instruments, as shown below:

```
VU 2015-02-18 09:22:26:844 330010630 RegSHOAction=2 TradingStatus=2
VU 2015-02-18 09:22:31:153 330010630 RegSHOAction=1
SI 2015-02-18 09:22:32:367 330010630 OPEN *
TE 2015-02-18 09:22:32:367 330010630 * * * * * * O
VU 2015-02-18 09:22:32:367 330010630 RegSHOAction=1 TradingStatus=17
VU 2015-02-18 09:22:37:821 330010630 TradingStatus=2
VU 2015-02-18 09:23:17:246 330010630 TradingStatus=17
SI 2015-02-18 10:22:03:385 330010630 CLOSE * Pourquoi ce timestamp ?
TE 2015-02-18 10:22:03:385 330010630 * * * * * * C
VU 2015-02-18 10:22:03:385 330010630 TradingStatus=18
VU 2015-02-18 13:01:00:463 330010630 TradingStatus=2
TE 2015-02-19 00:30:00:729 330010630 * * ! 0 ! 0
TE 2015-02-20 00:30:00:902 330010630 * * ! 0 ! 0
TE 2015-02-20 00:30:00:890 330010630 * * ! 0 ! 0
```

Moreover, the exchange will send the CLOSE signal for all instruments at 16:01 New York Time, as shown in the example below:

```
"TE (TradeEvent) : MARKET_TIME INSTRUMENT LAST_PRICE TRADE_QTY BID_PRICE BID_QTY ASK_PRICE
ASK_QTY *CONTENT_MASK* *FLAGS*"
"VU (ValuesUpdate) : SERVER_TIME INSTRUMENT VALUES..."

TE 2015-02-18 00:30:00:184.234 330011060 * * ! 0 ! 0
VU 2015-02-18 11:00:00:008.543 330011060 RegSHOAction=1
SI 2015-02-18 13:00:00:009.544 330011060 OPEN *
TE 2015-02-18 13:00:00:009.623 330011060 * * * * * * O
VU 2015-02-18 13:00:00:009.625 330011060 RegSHOAction=1 TradingStatus=17
VU 2015-02-18 15:50:27:620.657 330011060 TradingStatus=2
VU 2015-02-18 15:55:27:620.985 330011060 TradingStatus=17
TE 2015-02-18 15:58:43:709.325 330011060 * * 10.54 500@1 * *
TE 2015-02-18 15:59:24:323.458 330011060 * * ! 0 * *
SI 2015-02-18 21:01:00:663.034 330011060 CLOSE *
TE 2015-02-18 21:01:00:663.132 330011060 * * * * * * C
TE 2015-02-19 00:30:00:744.125 330011060 * * ! 0 ! 0
VU 2015-02-19 01:00:00:757.584 330011060 TradingStatus=18
```

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