

ActivContentGateway API Walkthrough

Introduction

The ActivContentGateway API (the *API*) is an API that can be used to programmatically retrieve and subscribe to content from the ACTIV Content Platform (ACP) by making a TCP connection to the Content Gateway (CG). The API is currently made available in 3 languages: C++, Java and C# and each one comes in a Software Development Kit (SDK) that contains header files, libraries, documents and sample applications. One of these samples (called “ActivContentGatewayApiSample”) has a console-based user interface (UI) that has a menu option for every method available in the API. Each menu option demonstrates the use of that particular method (you will be prompted to supply method parameters). By repeatedly choosing menu options (i.e. methods) and supplying parameters, you can experiment with the API without writing any code. As such, it’s a valuable tool for rapidly exploring the capabilities of the API and the concepts behind it. This document describes how to use this sample to make some example requests.

For an overview of the ActivContentGateway API and the rest of the ACP, we strongly recommend that you read the [ActivContentPlatformOverview.pdf](#) document. In addition, we also strongly recommend that you read the first 5 sections of the [ActivContentGatewayApi.pdf](#). These documents can be found in the “docs” directory of your SDK.

This document applies to the C++, Java and C# versions of the ActivContentGatewayApiSample. However, there are some slight user-interface changes between the C++ version and the Java / C# versions. The output below is taken from the C++ sample.

The ActivContentGatewayApiSample Application

This document makes most sense if you have a compiled version of the ActivContentGatewayApiSample in front of you that you can experiment with. You can choose to compile this sample yourself from the source code provided in the SDK or simply run one of the pre-built versions of the sample that we provide. For the C++ pre-built versions look in the PreBuiltSamples directory of the FTP site. The Java and C# pre-built samples are included in the Java and C# SDKs themselves.

Note that in most of the demo requests below, you will be asked to type in numeric values for Table Id’s, Relationship Id’s, Field Id’s etc. Software developers use symbolic constants instead of these numeric values.


```

6. Get content gateway info
7. Get subscription info
8. Get non-blocking response

    RECORD REQUESTS
9. Get first
10. Get last
11. Get next
12. Get previous
13. Get equal
14. Get multiple equal
15. Get multiple with pattern match
16. Get multiple with pattern match list
17. Get match
18. Get multiple match

    SYMBOL DIRECTORY
19. Get symbols (search)

    TIME SERIES
20. Get first time series
21. Get next time series

    NEWS
22. Get news stories
23. Display news query usage

    BULK SUBSCRIPTION
24. Subscribe to feed
25. Subscribe to table

    UNSUBSCRIPTION
26. Unsubscribe all
27. Unsubscribe by cookie list
28. Unsubscribe from source symbol list

    METADATA
29. Get permission info
30. Get table info list
31. Get table specification
32. Get relationship info list
33. Get universal field helper map
34. Get universal field helper from field id
35. Get universal field helper from code id
Q. Return to parent menu
#

```

You should now see a menu giving with a menu option for every method available in the API. Enter the number of the option you want and the UI will walk you through entering the appropriate parameters. The UI will usually offer you a default value for each parameter, shown inside angle brackets. If you are happy with the default value, just press <Enter> else type something else. In all of the console output shown in this document, we've highlighted any input you need to make in a larger, bolder, darker font.

API Info

The first method call we'll try is GetApiInfo (option 5). It shows some basic information about the API:

```

# 5
Api version ..... 1.8.0.0-beta3
Api build configuration ..... x86_win32_vc71_mds
Api compile date/time ..... Aug 31 2007 15:40:15

```

Connection

Let's see what our current connection state to the Content Gateway (CG) using the GetState API method:

```
# 2
Connection state ..... initialized
```

This is as expected – we have not yet established a connection to the CG. Now let's connect to the CG. You should have received your user Id and password with your SDK. If the logon was successful, you will see a line saying 'Received async connect'. Trying GetState again will now show that the sample is logged onto the CG:

```
# 3
Enter service id <Service.ContentGateway>:
Enter attribute query:
Confirm url <ams://69.64.204.104:9021/ContentGateway:Service,rxCompression=Rdc>:
Enter user id: myuserid
Enter password: mypassword
Enter information to pass to the server:
Search for alternative service if connection down (y/n) <n>:
Connect() returned success
# 11:46:26 [RouterService:0] Allocated connection component 6:9 to 69.64.204.104:9021 (
local 0.0.0.0), protocol ams using heap AnonymousHeap.10
11:46:26 [RouterService:9] Connection component 6:9 connected to 69.64.204.104:9021
11:46:28 [ContentGatewayApiSample:3] Received async connect
# 2
Connection state ..... logged on
Service location ..... ams://69.64.204.104:9021/ContentGateway:Service,r
xCompression=Rdc
```

Should your log on fail, check the error message to see what the cause of the failure is. If you receive "invalid user" then check that you entered your user Id correctly. Note that most user Id's for API evaluation end in "-beta". If you still cannot connect then your user Id may have expired or you may not have connectivity to our server through your firewall. Please contact your system administrator or your ACTIV account manager for assistance.

Content Gateway Info

Now we're connected, we can find out some basic information about the CG we're connected to and the services it offers:

```
# 6
GetContentGatewayInfo() returned success
Version ..... 1.5.0.0
System ..... CgSystem
Memory model ..... Shared
Started at ..... 2007-10-11 14:05:52 (UTC)
ActivMiddleware version ..... 1.8.1.0 (Aug 16 2007 12:48:50)
Boost version ..... 1.34.1.0
Uptime ..... 4 days, 02:40:51
Host ..... Missouri
Operating system ..... CentOS release 4.4 (Final), Linux 2.6.9-42.0.10.E
Lsmip
Scheduler info ..... SCHED_OTHER
Processor(s) ..... 2
Processor type ..... AMD Opteron(tm) Processor 250 2.4GHz
Physical memory ..... 2008 MB (1368 MB free)
History service available ..... Yes
Symbol directory service available .. Yes
News service available ..... Yes
```

```
Permission levels available ..... PERMISSION_LEVEL_REALTIME
#
```

The last few lines above indicate that the CG supports a history service (i.e. is connected to a Time Series Server), a symbol directory service (i.e. is connected to a Symbol Directory) and a News service (i.e. is connected to a News Server). We'll be making time series, symbol directory and news API method calls later in this document. Note that a CG will always be connected to a Downstream Content Server and/or a Contribution Server (that contains a last-value cache for price records). If it is connected to two or more Downstream Content Server / Contribution Servers, then the CG will provide access to all of the tables in those servers.

Table Metadata

Now we're going to have a look at the list of all the tables in the Downstream Content Servers and Contribution Servers that the CG is connected to. We do this using the GetTableInfoList method:

```
# 30
<R>ealtime or <D>elayed: R
No Type Name
0 Realtime Code identifier
USListing
TABLE_NO_US_LISTING
1 Realtime USEquityOption
TABLE_NO_US_EQUITY_OPTION
2 Realtime Index
TABLE_NO_INDEX
3 RealtimeLevel2 USMarketMakerQuote
TABLE_NO_US_MARKET_MAKER_QUOTE
5 Realtime AmericasListing
TABLE_NO_AMERICAS_LISTING
7 Realtime Option
TABLE_NO_OPTION
16 Realtime USFuture
TABLE_NO_US_FUTURE
17 Realtime USFutureOption
TABLE_NO_US_FUTURE_OPTION
21 Realtime MutualFund
TABLE_NO_MUTUAL_FUND
22 Realtime MoneyMarket
TABLE_NO_MONEY_MARKET
23 Realtime Fund
TABLE_NO_FUND
24 Realtime Forex
TABLE_NO_FOREX
25 Realtime OptionRoot
TABLE_NO_OPTION_ROOT
26 Realtime OptionDeliverable
TABLE_NO_OPTION_DELIVERABLE
27 Realtime FutureRoot
TABLE_NO_FUTURE_ROOT
28 Realtime FutureOptionRoot
TABLE_NO_FUTURE_OPTION_ROOT
29 Realtime Synthetic
TABLE_NO_SYNTHETIC
30 Realtime Security
TABLE_NO_SECURITY
31 Realtime Company
TABLE_NO_COMPANY
32 Realtime BankCompany
TABLE_NO_BANK_COMPANY
33 Realtime IndustrialCompany
TABLE_NO_INDUSTRIAL_COMPANY
34 Realtime InsuranceCompany
TABLE_NO_INSURANCE_COMPANY
35 Realtime ThriftCompany
```

```

36 Realtime      TABLE_NO_THRIFT_COMPANY
37 Realtime      Sector
37 Realtime      TABLE_NO_SECTOR
38 Realtime      Exchange
38 Realtime      TABLE_NO_EXCHANGE
39 Realtime      Sessions
39 Realtime      TABLE_NO_SESSIONS
40 Realtime      Statistics
40 Realtime      TABLE_NO_STATISTICS
41 Realtime      Analytics
41 Realtime      TABLE_NO_ANALYTICS
42 Realtime      Rankings
42 Realtime      TABLE_NO_RANKINGS
43 Realtime      AmericasFuture
43 Realtime      TABLE_NO_AMERICAS_FUTURE
44 Realtime      AmericasEquityOption
44 Realtime      TABLE_NO_AMERICAS_EQUITY_OPTION
45 Realtime      AmericasFutureOption
45 Realtime      TABLE_NO_AMERICAS_FUTURE_OPTION
46 Realtime      Strategy
46 Realtime      TABLE_NO_STRATEGY
60 Realtime      USFutureSpread
60 Realtime      TABLE_NO_US_FUTURE_SPREAD
200 CorporateAction Hemscoff
200 CorporateAction TABLE_NO_HEMSCOTT
201 CorporateAction CorporateEvents
201 CorporateAction TABLE_NO_CORPORATE_EVENTS
202 CorporateAction Delist
202 CorporateAction TABLE_NO_DELIST
203 CorporateAction Dividend
203 CorporateAction TABLE_NO_DIVIDEND
204 CorporateAction IPO
204 CorporateAction TABLE_NO_IPO
205 CorporateAction Split
205 CorporateAction TABLE_NO_SPLIT
206 CorporateAction SymbolChange
206 CorporateAction TABLE_NO_SYMBOL_CHANGE
350 Realtime      OptionSymbolEvent
350 Realtime      TABLE_NO_OPTION_SYMBOL_EVENT
351 Realtime      FeedStatus
351 Realtime      TABLE_NO_FEED_STATUS
352 Realtime      Latency
352 Realtime      TABLE_NO_LATENCY
400 News          FeedStatistics
400 News          TABLE_NO_FEED_STATISTICS
401 News          News
401 News          TABLE_NO_NEWS
402 News          NewsHeadline
402 News          TABLE_NO_NEWS_HEADLINE
600 Alias         SystemMessage
600 Alias         TABLE_NO_SYSTEM_MESSAGE
601 Alias         MiscellaneousAlias
601 Alias         TABLE_NO_MISCELLANEOUS_ALIAS
700 Metadata      FutureAlias
700 Metadata      TABLE_NO_FUTURE_ALIAS
701 Metadata      TableTemplateListMetadata
701 Metadata      TABLE_NO_TABLE_TEMPLATE_LIST_METADATA
702 Metadata      UniversalFieldListMetadata
702 Metadata      TABLE_NO_UNIVERSAL_FIELD_LIST_METADATA
703 Metadata      TableTemplateFieldListMetadata
703 Metadata      TABLE_NO_TABLE_TEMPLATE_FIELD_LIST_METADATA
704 Metadata      TableTemplateIndexListMetadata
704 Metadata      TABLE_NO_TABLE_TEMPLATE_INDEX_LIST_METADATA
705 Metadata      TableTemplateIndexFieldListMetadata
705 Metadata      TABLE_NO_TABLE_TEMPLATE_INDEX_FIELD_LIST_METADATA
#

```

Next we're going to look at the specification of a specific table
(including a list of the fields in the table) using GetTableSpecification:

31

<R>ealtime or <D>elayed: R

Enter table number: 0

Id	Name	Type	MaxLength	Offset	Property
----	------	------	-----------	--------	----------

0	Bid	TRational	6	80	0
1	BidSize	UInt	4	86	0
2	BidCondition	BinaryString	1	90	0
3	BidTime	Time	3	91	0
4	BidExchange	TextString	2	94	0
5	Ask	TRational	6	96	0
6	AskSize	UInt	4	102	0
7	AskCondition	BinaryString	1	106	0
8	AskTime	Time	3	107	0
9	AskExchange	TextString	2	110	0
11	QuoteDate	Date	3	112	0
12	Trade	TRational	6	115	0
13	TradeSize	UInt	4	121	0
14	TradeCondition	BinaryString	4	125	0
15	TradeTime	Time	3	129	0
16	TradeDate	Date	3	132	0
17	TradeExchange	TextString	2	135	0
18	TradeHigh	Rational	5	137	0
20	TradeHighTime	Time	3	142	0
21	TradeHighExchange	TextString	2	145	0
22	TradeLow	Rational	5	147	0
24	TradeLowTime	Time	3	152	0
25	TradeLowExchange	TextString	2	155	0
26	TradeCount	UInt	4	157	0
35	Open	Rational	5	161	0
38	OpenTime	Time	3	166	0
39	OpenExchange	TextString	2	169	0
50	CumulativePrice	Rational	9	171	0
51	CumulativeValue	Rational	9	180	0
52	CumulativeVolume	UInt	4	189	0
53	PrePostMarketCumulativevo	UInt	4	193	0
54	NetChange	TRational	6	197	0
55	PercentChange	TRational	6	203	0
56	ClosingBid	Rational	5	209	0
57	ClosingBidExchange	TextString	2	214	0
58	ClosingAsk	Rational	5	216	0
59	ClosingAskExchange	TextString	2	221	0
60	ClosingQuoteDate	Date	3	223	0
61	Close	Rational	5	226	0
63	CloseStatus	UInt	1	231	0
65	CloseDate	Date	3	232	0
66	CloseExchange	TextString	2	235	0
67	CloseCumulativeVolume	UInt	4	237	0
68	CloseCumulativeVolumeStat	UInt	1	241	0
69	CloseCumulativeVolumeDate	Date	3	242	0
70	CloseCumulativeValue	Rational	9	245	0
71	CloseCumulativeValueStatu	UInt	1	254	0
72	CompositeClose	Rational	5	255	0
73	CompositeCloseDate	Date	3	260	0
74	CompositeCloseExchange	TextString	2	263	0
112	PreviousTradingDate	Date	3	265	0
113	PreviousClose	Rational	5	268	0
114	PreviousOpen	Rational	5	273	0
115	PreviousTradeHigh	Rational	5	278	0
116	PreviousTradeLow	Rational	5	283	0
119	PreviousNetChange	Rational	5	288	0
120	PreviousPercentChange	Rational	5	293	0
148	52WeekHigh	Rational	5	298	0
149	52WeekHighDate	Date	3	303	0
150	52WeekLow	Rational	5	306	0
151	52WeekLowDate	Date	3	311	0
152	YearHigh	Rational	5	314	0
153	YearHighDate	Date	3	319	0
154	YearLow	Rational	5	322	0
155	YearLowDate	Date	3	327	0
156	LifetimeHigh	Rational	9	330	0
157	LifetimeHighDate	Date	3	339	0
158	LifetimeLow	Rational	9	342	0
159	LifetimeLowDate	Date	3	351	0
259	CountryCode	TextArray	2	354	0
260	Currency	TextArray	3	356	0
268	DisplayDenominator	UInt	1	359	0
293	Isin	TextArray	12	360	0
301	LocalCode	TextString	12	372	0
361	State	UInt	2	384	0
394	Context	UInt	4	386	0
395	CreateDate	Date	3	390	0
398	EntityType	UInt	1	393	0

413	LastUpdateDate	Date	3	394	0
441	PermissionId	UInt	2	397	0
447	RecordStatus	UInt	1	399	0
449	ResetDate	Date	3	400	0
456	Symbol	TextString	14	403	0
483	UpdateId	UInt	2	417	0
516	PreviousCumulativePrice	Rational	9	419	0
616	VolumeWeightedOpeningPric	Rational	5	428	0
648	PeRatio	Rational	5	433	0
652	PreviousBid	Rational	5	438	0
653	PreviousAsk	Rational	5	443	0
654	PreviousQuoteDate	Date	3	448	0
655	PreviousCloseDate	Date	3	451	0
657	PreviousCumulativeValue	Rational	9	454	0
658	PreviousCumulativeVolume	UInt	4	463	0
659	PreviousCumulativeVolumeD	Date	3	467	0
673	ImbalanceBuyVolume	UInt	4	470	0
674	ImbalanceSellVolume	UInt	4	474	0
675	ImbalanceVolumeTime	Time	3	478	0
676	HighIndicationPrice	Rational	5	481	0
677	LowIndicationPrice	Rational	5	486	0
678	IndicationPriceTime	Time	3	491	0
688	FinancialStatus	TextArray	1	494	0
748	PrePostMarketCumulativeVa	Rational	9	495	0
776	LastReportedTrade	TRational	6	504	0
777	LastReportedTradeSize	UInt	4	510	0
778	LastReportedTradeConditio	BinaryString	4	514	0
779	LastReportedTradeTime	Time	3	518	0
780	LastReportedTradeDate	Date	3	521	0
781	LastReportedTradeExchange	TextString	2	524	0
785	MarketTier	TextArray	1	526	0
793	LotSize	Rational	5	527	0
805	TradeThroughExemptFlag	TextArray	1	532	0
806	TradeReportingExchange	TextString	2	533	0
807	BidMarketMakerId	TextString	4	535	0
808	AskMarketMakerId	TextString	4	539	0
809	LastReportedTradeThroughE	TextArray	1	543	0
810	LastReportedTradeReportin	TextString	2	544	0
856	HighLrpPrice	Rational	5	546	0
857	LowLrpPrice	Rational	5	551	0
858	LrpPriceTime	Time	3	556	0
868	CrossType	TextArray	1	559	0
869	CurrentReferencePrice	Rational	5	560	0
870	FarPrice	Rational	5	565	0
871	NearPrice	Rational	5	570	0
872	PairedShares	UInt	4	575	0
873	PriceVariationIndicator	TextArray	1	579	0
#					

Basic Request - GetEqual

Now we're going to make a simple GetEqual request. Accept the default table number by pressing <Enter> - you do not have to specify table number for the majority of requests, this default value means 'not supplied'. Enter the symbol, for example 'IACI.' which is the composite quote symbol for IAC/InterActiveCorp. Accept the default relationship Id of '0'. Press <Enter> when asked to enter a field Id, and answer 'y' to return all permissioned fields (you could if you wish choose just the fields you'd like when making a request). Press <Enter> when asked for the next relationship Id, to skip entering further request terms. Accept the rest of the defaults:

```
# 13
Enter table number <65535>:
Enter symbol: IACI.
Enter relationship id <0>:
Enter field id:
Return all permissioned fields (y/n) <n>: y
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
```



```

Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 1.
# 11:48:23 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetEqualResponse(): Re
quest id [01 00 00 00] - status success
Subscription cookie ..... undefined
**** Response block 1/1 ****
Resolved key ..... IACI. [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... IACI. [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 29.09<+ =>
BidSize [1] ..... 3
BidCondition [2] ..... 0x52
BidTime [3] ..... 12:48:17
BidExchange [4] ..... Q
Ask [5] ..... 29.1<+ =>
AskSize [6] ..... 25
AskCondition [7] ..... 0x52
AskTime [8] ..... 12:48:17
AskExchange [9] ..... Q
QuoteDate [11] ..... 2007-10-15
Trade [12] ..... 29.09<+==>
TradeSize [13] ..... 100
TradeCondition [14] ..... 0x40
TradeTime [15] ..... 12:48:12
TradeDate [16] ..... 2007-10-15
TradeExchange [17] ..... PA
TradeHigh [18] ..... 29.66
TradeHighTime [20] ..... 09:30:01
TradeHighExchange [21] ..... QD
TradeLow [22] ..... 29.02
TradeLowTime [24] ..... 09:44:54
TradeLowExchange [25] ..... Q
TradeCount [26] ..... 3752
Open [35] ..... 29.66
OpenTime [38] ..... 09:30:01
OpenExchange [39] ..... QD
CumulativePrice [50] ..... 109427.0341
CumulativeValue [51] ..... 19529792.047
CumulativeVolume [52] ..... 669183
PrePostMarketCumulativeVolume [53] ..... 15472
NetChange [54] ..... -0.53<+ =>
PercentChange [55] ..... -1.79<+ =>
ClosingBid [56] ..... 29.58
ClosingBidExchange [57] ..... Q
ClosingAsk [58] ..... 29.6
ClosingAskExchange [59] ..... PA
ClosingQuoteDate [60] ..... 2007-10-12
Close [61] ..... 29.62
CloseStatus [63] ..... 4
CloseDate [65] ..... 2007-10-12
CloseExchange [66] ..... QD
CloseCumulativeVolume [67] ..... 2036095
CloseCumulativeVolumeStatus [68] ..... 4
CloseCumulativeVolumeDate [69] ..... 2007-10-12
CloseCumulativeValue [70] ..... 60023200.9555
CloseCumulativeValueStatus [71] ..... 1
CompositeClose [72] ..... undefined
CompositeCloseDate [73] ..... undefined
CompositeCloseExchange [74] ..... undefined
PreviousTradingDate [112] ..... 2007-10-12
PreviousClose [113] ..... 29.62
PreviousOpen [114] ..... 29.3
PreviousTradeHigh [115] ..... 29.76
PreviousTradeLow [116] ..... 28.96
PreviousNetChange [119] ..... 0.43
PreviousPercentChange [120] ..... 1.47
52WeekHigh [148] ..... 40.99
52WeekHighDate [149] ..... 2007-02-26
52WeekLow [150] ..... 25.08
52WeekLowDate [151] ..... 2007-08-08
YearHigh [152] ..... 40.99
YearHighDate [153] ..... 2007-02-26

```

```

YearLow [154] ..... 25.08
YearLowDate [155] ..... 2007-08-08
LifetimeHigh [156] ..... undefined
LifetimeHighDate [157] ..... undefined
LifetimeLow [158] ..... undefined
LifetimeLowDate [159] ..... undefined
CountryCode [259] ..... undefined
Currency [260] ..... USD
DisplayDenominator [268] ..... undefined
Isin [293] ..... undefined
LocalCode [301] ..... IACI
State [361] ..... 0
Context [394] ..... 0
CreateDate [395] ..... 2005-08-02
EntityType [398] ..... 1
LastUpdateDate [413] ..... 2007-10-15
PermissionId [441] ..... 1
RecordStatus [447] ..... 0
ResetDate [449] ..... 2007-10-15
Symbol [456] ..... IACI.
UpdateId [483] ..... 27776
PreviousCumulativePrice [516] ..... 316581.9607
VolumeWeightedOpeningPrice [616] ..... undefined
PeRatio [648] ..... undefined
PreviousBid [652] ..... 29.58
PreviousAsk [653] ..... 29.6
PreviousQuoteDate [654] ..... 2007-10-12
PreviousCloseDate [655] ..... 2007-10-12
PreviousCumulativeValue [657] ..... 60023200.9555
PreviousCumulativeVolume [658] ..... 2036095
PreviousCumulativeVolumeDate [659] ..... 2007-10-12
ImbalanceBuyVolume [673] ..... undefined
ImbalanceSellVolume [674] ..... undefined
ImbalanceVolumeTime [675] ..... undefined
HighIndicationPrice [676] ..... undefined
LowIndicationPrice [677] ..... undefined
IndicationPriceTime [678] ..... undefined
FinancialStatus [688] ..... N
PrePostMarketCumulativeValue [748] ..... 458221.64
LastReportedTrade [776] ..... 29.09<+ =>
LastReportedTradeSize [777] ..... 100
LastReportedTradeCondition [778] ..... 0x40
LastReportedTradeTime [779] ..... 12:48:12
LastReportedTradeDate [780] ..... 2007-10-15
LastReportedTradeExchange [781] ..... PA
MarketTier [785] ..... Q
LotSize [793] ..... 100
TradeThroughExemptFlag [805] ..... Y
TradeReportingExchange [806] ..... undefined
BidMarketMakerId [807] ..... undefined
AskMarketMakerId [808] ..... undefined
LastReportedTradeThroughExemptFlag [809] ..... Y
LastReportedTradeReportingExchange [810] ..... N
HighLrpPrice [856] ..... undefined
LowLrpPrice [857] ..... undefined
LrpPriceTime [858] ..... undefined
Crosstype [868] ..... undefined
CurrentReferencePrice [869] ..... undefined
FarPrice [870] ..... undefined
NearPrice [871] ..... undefined
PairedShares [872] ..... undefined
PriceVariationIndicator [873] ..... undefined
MyContentGatewayClient::OnGetEqualResponse(): Request id [01 00 00 00] now complete

```

You will see the fields for the IACI. quote. Note the line in the output:

Response key ... IACI. [0]

This is telling you that the returned item was 'IACI.', and the table number where this item resides (which you did not supply above) is 0 (the USListing table).

If you wish to specify more than one symbol at a time, GetMultipleEqual will do it for you.

Table Walk

You can walk a whole table using GetFirst / GetNext. Note that when using this request a table number must be specified. In this example, you will be returned the first 5 records in the UsListing table (table 0), for clarity we are not requesting any data fields:

```
# 9
Enter table number <0>: 0
Enter number of source records to return <1>: 5
Enter relationship id <0>:
Enter field id:
Return all permissioned fields (y/n) <n>:
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 2.
# 12:06:49 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetFirstResponse(): Re
quest id [02 00 00 00] - status success
Subscription cookie ..... undefined
**** Response block 1/5 ****
Resolved key ..... A. [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... A. [0]
Permission id ..... 5
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 2/5 ****
Resolved key ..... A.B [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... A.B [0]
Permission id ..... 5
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 3/5 ****
Resolved key ..... A.C [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... A.C [0]
Permission id ..... 5
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 4/5 ****
Resolved key ..... A.EA [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... A.EA [0]
Permission id ..... 39
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 5/5 ****
Resolved key ..... A.MW [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... A.MW [0]
Permission id ..... 5
Permission level ..... PERMISSION_LEVEL_REALTIME
MyContentGatewayClient::OnGetFirstResponse(): Request id [02 00 00 00] now complete
```

To walk the table, use GetNext. When entering symbol we're going to enter the last one returned from GetFirst, namely 'A.MW':

```
# 11
Enter table number <65535>: 0
Enter symbol: A.MW
Enter number of source records to return <1>: 2
Enter relationship id <0>:
Enter field id:
Return all permissioned fields (y/n) <n>:
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
```

```
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 3.
# 12:07:55 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetNextResponse(): Req
uest id [03 00 00 00] - status success
Subscription cookie ..... undefined
**** Response block 1/2 ****
Resolved key ..... A.N [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... A.N [0]
Permission id ..... 5
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 2/2 ****
Resolved key ..... A.PA [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... A.PA [0]
Permission id ..... 5
Permission level ..... PERMISSION_LEVEL_REALTIME
MyContentGatewayClient::OnGetNextResponse(): Request id [03 00 00 00] now complete
```

Using `GetFirst`, `GetNext` together you can walk the whole table taking any number of records at a time that you wish. You can do the same in reverse using `GetLast` / `GetPrevious`. The API sample `SnapshotViewer` uses these APIs to walk complete market data tables in our system writing out the records to a file.

Pattern Match Request

Pattern matches are an efficient way to request multiple items where they are related by symbol, for example all option contracts for an option root, all market maker quotes for a stock, all regional listings of a stock. In this example we will use a pattern match to retrieve all the regional quotes of Microsoft Corporation using `GetMultiplePatternMatch`. Accept the default table number '0' which is US Listing. Pattern matching and table walks are the only places where a table number is required with the request. It is not required for `GetEqual/Match` requests. For the symbol pattern we're going to enter 'MSFT.*' and we're only going to request the Bid and Ask fields (FIDs 0 and 5):

```
# 15
Enter table number <0>:
Enter symbol pattern: MSFT.*
Watch for matching new records (y/n) <n>:
Reverse order of results (y/n) <n>:
Enter relationship id <0>:
Enter field id: 0
Enter field id: 5
Enter field id:
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 4.
# 12:09:55 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetMultiplePatternMatc
hResponse(): Request id [04 00 00 00] - status success
Subscription cookie ..... undefined
**** Response block 1/10 ****
Resolved key ..... MSFT. [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... MSFT. [0]
Permission id ..... 1
```

```

Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 30.09<- =>
Ask [5] ..... 30.1<- =>
**** Response block 2/10 ****
Resolved key ..... MSFT.C [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... MSFT.C [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 30.09<- =>
Ask [5] ..... 30.11<+ =>
**** Response block 3/10 ****
Resolved key ..... MSFT.EA [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... MSFT.EA [0]
Permission id ..... 39
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 30.09<- =>
Ask [5] ..... 30.1<- =>
**** Response block 4/10 ****
Resolved key ..... MSFT.MW [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... MSFT.MW [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 30.02<- ->
Ask [5] ..... 30.18<+ =>
**** Response block 5/10 ****
Resolved key ..... MSFT.PA [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... MSFT.PA [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 30.09<- =>
Ask [5] ..... 30.1<- =>
**** Response block 6/10 ****
Resolved key ..... MSFT.Q [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... MSFT.Q [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 30.09<- =>
Ask [5] ..... 30.11<+ =>
**** Response block 7/10 ****
Resolved key ..... MSFT.QD [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... MSFT.QD [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 30.09<- =>
Ask [5] ..... 30.1<- =>
**** Response block 8/10 ****
Resolved key ..... MSFT.W [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... MSFT.W [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 30.07<+ =>
Ask [5] ..... 30.13<- =>
**** Response block 9/10 ****
Resolved key ..... MSFT.X [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... MSFT.X [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 30.09<+ =>
Ask [5] ..... 30.11<- =>
**** Response block 10/10 ****
Resolved key ..... MSFT.Y [0]
Relationship id 0 ..... success

```

```
Flags ..... none
Response key ..... MSFT.Y [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... undefined
Ask [5] ..... undefined
MyContentGatewayClient::OnGetMultiplePatternMatchResponse(): Request id [04 00 00 00] now complete
```

If you look through the results, you will see a list of the MSFT regional quotes - MSFT., MSFT.C, MSFT.EA, etc..., complete with the Bid and Ask data fields. The data for all of these items has been returned in a single network round-trip.

GetMultiplePatternMatch supports wildcards of the form A*B*. This allows for very flexible matches to be made on a table.

If you want to check the performance of the API, you need to turn off screen updates, which you can do by typing 1 for 'Display/modify settings'. Enable synchronous mode and disable 'Display responses' (hit <Enter> for any other options to leave them unchanged).

1

```
Synchronous mode disabled. Enable? (y/n) <n>: y
Non-blocking synchronous mode for rt requests disabled. Enable? (y/n) <n>:
Display responses enabled. Disable? (y/n) <n>: y
Display record updates disabled. Enable? (y/n) <n>:
Display time series field set results disabled. Enable? (y/n) <n>:
Display get symbol (search) results enabled. Disable? (y/n) <n>:
```

Now re-submit the above pattern match request. The request is complete when the console prompt reappears after you press <Enter>, and in synchronous mode you will get some simple timing figures also:

15

```
Enter table number <0>:
Enter symbol pattern: MSFT.*
Watch for matching new records (y/n) <n>:
Reverse order of results (y/n) <n>:
Enter relationship id <0>:
Enter field id: 0
Enter field id: 5
Enter field id:
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
```

Returned success. 10 response blocks in 0.3735 secs, 26.7752 / sec

#

If you want to test response rates (response blocks per second) you should make much larger requests than this to get meaningful per-second figures. We routinely get response rates of over 30,000 records per second (including all data fields) on our LAN, but the rate that you receive will depend on the bandwidth of your connection to the CG.

Now switch back to asynchronous mode and turn 'Display responses' back on:

1

```
Synchronous mode enabled. Disable? (y/n) <n>: y
Display responses disabled. Enable? (y/n) <n>: y
Display record updates disabled. Enable? (y/n) <n>:
Display time series field set results disabled. Enable? (y/n) <n>:
Display get symbol (search) results enabled. Disable? (y/n) <n>:
```

Subscription

All of our requests support subscription to the results, i.e. you receive updates to the record as well as the initial results (and this works just the same for navigation-based requests). There are a few different options for subscription, as shown in the following line:

```
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types, <F>ull <N>:
```

The simplest form of subscription is 'Full' – try subscribing to IACI. by repeating the GetEqual request made above, but entering 'F' for the subscription type. This subscribes you to all updates. To see the update messages printed to the screen, you need to use the options menu to enable screen output of updates. Go to 'Display/modify settings' and enable them, as follows:

```
# 1
Synchronous mode disabled. Enable? (y/n) <n>:
Display responses enabled. Disable? (y/n) <n>:
Display record updates disabled. Enable? (y/n) <n>: y
Display time series field set results disabled. Enable? (y/n) <n>:
Display get symbol (search) results enabled. Disable? (y/n) <n>:
# 13
Enter table number <65535>:
Enter symbol: IACI.
Enter relationship id <0>:
Enter field id:
Return all permissioned fields (y/n) <n>:
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types, <F>ull <N>: F
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 5.
# 12:19:50 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetEqualResponse(): Request id [05 00 00 00] - status success
```

Subscription cookie 1

```
**** Response block 1/1 ****
Resolved key ..... IACI. [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... IACI. [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
MyContentGatewayClient::OnGetEqualResponse(): Request id [05 00 00 00] now complete
12:19:51 [ContentGatewayApiSample:3] **** Update received for IACI. [0] ****
Flags ..... none
Update id ..... 29926
Event type ..... 3
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Ask [5] ..... 28.99<+ =>
AskCondition [7] ..... 0x52
AskSize [6] ..... 14
AskTime [8] ..... 13:19:47
AskExchange [9] ..... Q
Bid [0] ..... 28.98<+ =>
BidCondition [2] ..... 0x52
BidSize [1] ..... 2
BidTime [3] ..... 13:19:47
BidExchange [4] ..... PA
QuoteDate [11] ..... 2007-10-15
```

```
12:19:51 [ContentGatewayApiSample:3] **** Update received for IACI. [0] ****
Flags ..... none
Update id ..... 29927
```

```

Event type ..... 3
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 28.98<+ =>
BidCondition [2] ..... 0x52
BidSize [1] ..... 2
BidTime [3] ..... 13:19:47
BidExchange [4] ..... Q
QuoteDate [11] ..... 2007-10-15

12:19:52 [ContentGatewayApiSample:3] **** Update received for IACI. [0] ****
Flags ..... none
Update id ..... 29928
Event type ..... 1
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
TradeSize [13] ..... 100
TradeCondition [14] ..... 0x4046
TradeTime [15] ..... 13:19:48
Trade [12] ..... 28.98<--->
TradeDate [16] ..... 2007-10-15
TradeExchange [17] ..... Q
TradeCount [26] ..... 4320
CumulativePrice [50] ..... 125900.5884
CumulativeValue [51] ..... 22725511.598
CumulativeVolume [52] ..... 779378
NetChange [54] ..... -0.64<- ->
PercentChange [55] ..... -2.16<- ->
LastReportedTrade [776] ..... 28.98<- ->
LastReportedTradeTime [779] ..... 13:19:48

12:19:52 [ContentGatewayApiSample:3] **** Update received for IACI. [0] ****
Flags ..... none
Update id ..... 29929
Event type ..... 3
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Ask [5] ..... 28.99<+ =>
AskCondition [7] ..... 0x52
AskSize [6] ..... 14
AskTime [8] ..... 13:19:48
AskExchange [9] ..... Q
Bid [0] ..... 28.98<+ =>
BidCondition [2] ..... 0x52
BidSize [1] ..... 1
BidTime [3] ..... 13:19:48
BidExchange [4] ..... Q
QuoteDate [11] ..... 2007-10-15

12:19:52 [ContentGatewayApiSample:3] **** Update received for IACI. [0] ****
Flags ..... none
Update id ..... 29930
Event type ..... 3
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Ask [5] ..... 28.99<+ =>
AskCondition [7] ..... 0x52
AskSize [6] ..... 15
AskTime [8] ..... 13:19:48
AskExchange [9] ..... Q
QuoteDate [11] ..... 2007-10-15

12:19:52 [ContentGatewayApiSample:3] **** Update received for IACI. [0] ****
Flags ..... none
Update id ..... 29931
Event type ..... 3
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Ask [5] ..... 28.99<+ =>
AskCondition [7] ..... 0x52
AskSize [6] ..... 14
AskTime [8] ..... 13:19:48
AskExchange [9] ..... Q
QuoteDate [11] ..... 2007-10-15

12:19:52 [ContentGatewayApiSample:3] **** Update received for IACI. [0] ****
Flags ..... none
Update id ..... 29932

```



```

Event type ..... 1
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
TradeSize [13] ..... 100
TradeCondition [14] ..... 0x4046
TradeTime [15] ..... 13:19:48
Trade [12] ..... 28.99<+>
TradeDate [16] ..... 2007-10-15
TradeExchange [17] ..... Q
TradeCount [26] ..... 4321
CumulativePrice [50] ..... 125929.5784
CumulativeValue [51] ..... 22728410.598
CumulativeVolume [52] ..... 779478
NetChange [54] ..... -0.63<+ +>
PercentChange [55] ..... -2.13<+ +>
LastReportedTrade [776] ..... 28.99<+ +>

```

Received 7 updates in last 10 seconds, 0 / sec

Note the subscription cookie in the above response. When you have seen enough, you can unsubscribe from this cookie:

27

```

Enter cookie: 1
Enter cookie:
Unsubscribe() returned success

```

If the display is updating very quickly, you may have trouble entering this – use option ‘26’ to unsubscribe from all instruments instead.

Now switch off the displaying of updates:

1

```

Synchronous mode disabled. Enable? (y/n) <n>:
Display responses enabled. Disable? (y/n) <n>:
Display record updates enabled. Disable? (y/n) <n>: y
Display time series field set results disabled. Enable? (y/n) <n>:
Display get symbol (search) results enabled. Disable? (y/n) <n>:

```

Subscription cookies mean that you do not have to track interest counts in your application if you subscribe multiple times to the same item. For example, if you subscribe to IACI, twice you get a unique subscription cookie back with each response. Updates for IACI, only stop when you have unsubscribed from both subscription cookies.

The other subscription types in the request let you subscribe to record adds / deletes, and filter the updates you receive by including or excluding certain event types – these options are described more fully in the API specification document (ActivContentGatewayApi.pdf) supplied with the SDK.

Navigation Requests

Some of the tables in ACTIV’s Downstream Content Servers are special “navigation” tables. The records in these tables link related records in the market-data tables together, with the name of the navigation table indicating what sort of relationship is being represented. For example, the IndexConstituentNavigation table contains records that identify all the constituents for a number of indices and therefore defines a relationship between records in the Index table and records in the USListing table.

Rather than force clients to parse and understand the contents of each of these navigation tables directly, ACTIV has instead provided a simple mechanism in the API that exposes the functionality they provide without requiring knowledge about each individual table. ACTIV has assigned a unique relationship id to each type of market data that is accessible via a navigation request and it is this that is used by the client. For example, the UnderlyingOptionPatternNavigation table describes the relationship between underlyings (equities, indices and forex) and the options on these underlyings. If a client wanted to request information on all the options for a particular underlying, they would simply use RELATIONSHIP_ID_OPTION in their request and would get access to all options without having to know specific information about what expirations and strike prices exist for the underlying. Similarly, the underlying can be accessed from a particular option using RELATIONSHIP_ID_UNDERLYING.

This mechanism is underpinned by another table, the "Relationship" table, which contains the records that describe how the information in each individual navigation table is used. Since the API provides this simple abstraction on the contents of the navigation and Relationship tables, a client does not need to access any of these tables directly using the API.

The API exposes this ability to walk the navigation links in the system and retrieve records from other market-data tables in a single request (and normally a single network round-trip). This is one of the reasons why the API is capable of such high request/response performance.

These navigation and relationship records are maintained by ACTIV centrally and updated over ActivFeed (or over our Admin Feed in the case of an ActivFeed Direct infrastructure). As a result, ACTIV is able to ensure that these links are always correct and enables us to add additional relationships with no additional coding. Users of our feed infrastructure can also add their own navigation and relationship records. ACTIV currently maintains 20 different navigation relationships (e.g. company relationship, security relationship, future root relationship etc) and more are planned. See the include/ActivContentPlatform/ActivFeedCommon/RelationshipIds.h file for a full list of these.

For a practical example of the navigation model in action, see the below section on Options Requests.

Options Requests

In this example we do a GetEqual for IACI, but use the navigation model to access additional information - in this case the set of all OCC option roots available for this stock. Note that option roots are subject to change due to option expiration and the following is valid at the time of print.

Before you start it's advisable to adjust the console screen buffer size, to ensure that you can scroll through the complete results set. On Windows, right click the title bar and select Properties, then go to the 'Layout' tab and set the screen buffer height to 2048. Let's try GetEqual again and set up the request as in the screen output below, by typing 'IACI.' for the symbol (do not forget the trailing period), selecting all fields for relationship Id 0 and then adding a second request term for relationship Id 108 (programmers would use RELATIONSHIP_ID_OPTION_ROOT). Press <Enter> and then 'y' to request all option root fields. Accept the rest of the defaults:

```
# 13
Enter table number <65535>:
Enter symbol: IACI.
Enter relationship id <0>:
Enter field id:
Return all permissioned fields (y/n) <n>: y
Enter relationship id: 108
Enter field id:
Return all permissioned fields (y/n) <n>: y
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 6.
# 12:31:32 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetEqualResponse(): Request id [06 00 00 00] - status success
Subscription cookie ..... undefined
**** Response block 1/5 ****
Resolved key ..... IACI. [0]
Relationship id 0 ..... success
Flags ..... none
Response key ..... IACI. [0]
Permission id ..... 1
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... 29<+ =>
BidSize [1] ..... 5
BidCondition [2] ..... 0x52
BidTime [3] ..... 13:31:23
BidExchange [4] ..... QD
Ask [5] ..... 29.01<+ =>
AskSize [6] ..... 14
AskCondition [7] ..... 0x52
AskTime [8] ..... 13:31:23
AskExchange [9] ..... Q
QuoteDate [11] ..... 2007-10-15
Trade [12] ..... 29.01<+==>
TradeSize [13] ..... 100
TradeCondition [14] ..... 0x4046
TradeTime [15] ..... 13:31:23
TradeDate [16] ..... 2007-10-15
TradeExchange [17] ..... Q
TradeHigh [18] ..... 29.66
TradeHighTime [20] ..... 09:30:01
TradeHighExchange [21] ..... QD
TradeLow [22] ..... 28.91
TradeLowTime [24] ..... 13:05:17
TradeLowExchange [25] ..... Q
TradeCount [26] ..... 4471
Open [35] ..... 29.66
OpenTime [38] ..... 09:30:01
OpenExchange [39] ..... QD
CumulativePrice [50] ..... 130279.7333
CumulativeValue [51] ..... 23470812.5325
CumulativeVolume [52] ..... 805077
PrePostMarketCumulativeVolume [53] ..... 15472
NetChange [54] ..... -0.61<+ =>
PercentChange [55] ..... -2.06<+ =>
ClosingBid [56] ..... 29.58
ClosingBidExchange [57] ..... Q
```

ClosingAsk [58]	29.6
ClosingAskExchange [59]	PA
ClosingQuoteDate [60]	2007-10-12
Close [61]	29.62
CloseStatus [63]	4
CloseDate [65]	2007-10-12
CloseExchange [66]	QB
CloseCumulativeVolume [67]	2036095
CloseCumulativeVolumeStatus [68]	4
CloseCumulativeVolumeDate [69]	2007-10-12
CloseCumulativeValue [70]	60023200.9555
CloseCumulativeValueStatus [71]	1
CompositeClose [72]	undefined
CompositeCloseDate [73]	undefined
CompositeCloseExchange [74]	undefined
PreviousTradingDate [112]	2007-10-12
PreviousClose [113]	29.62
PreviousOpen [114]	29.3
PreviousTradeHigh [115]	29.76
PreviousTradeLow [116]	28.96
PreviousNetChange [119]	0.43
PreviousPercentChange [120]	1.47
52WeekHigh [148]	40.99
52WeekHighDate [149]	2007-02-26
52WeekLow [150]	25.08
52WeekLowDate [151]	2007-08-08
YearHigh [152]	40.99
YearHighDate [153]	2007-02-26
YearLow [154]	25.08
YearLowDate [155]	2007-08-08
LifetimeHigh [156]	undefined
LifetimeHighDate [157]	undefined
LifetimeLow [158]	undefined
LifetimeLowDate [159]	undefined
CountryCode [259]	undefined
Currency [260]	USD
DisplayDenominator [268]	undefined
Isin [293]	undefined
LocalCode [301]	IACI
State [361]	0
Context [394]	0
CreateDate [395]	2005-08-02
EntityType [398]	1
LastUpdateDate [413]	2007-10-15
PermissionId [441]	1
RecordStatus [447]	0
ResetDate [449]	2007-10-15
Symbol [456]	IACI.
UpdateId [483]	30433
PreviousCumulativePrice [516]	316581.9607
VolumeWeightedOpeningPrice [616]	undefined
PeRatio [648]	undefined
PreviousBid [652]	29.58
PreviousAsk [653]	29.6
PreviousQuoteDate [654]	2007-10-12
PreviousCloseDate [655]	2007-10-12
PreviousCumulativeValue [657]	60023200.9555
PreviousCumulativeVolume [658]	2036095
PreviousCumulativeVolumeDate [659]	2007-10-12
ImbalanceBuyVolume [673]	undefined
ImbalanceSellVolume [674]	undefined
ImbalanceVolumeTime [675]	undefined
HighIndicationPrice [676]	undefined
LowIndicationPrice [677]	undefined
IndicationPriceTime [678]	undefined
FinancialStatus [688]	N
PrePostMarketCumulativeValue [748]	458221.64
LastReportedTrade [776]	29.01<+ =>
LastReportedTradeSize [777]	100
LastReportedTradeCondition [778]	0x4046
LastReportedTradeTime [779]	13:31:23
LastReportedTradeDate [780]	2007-10-15
LastReportedTradeExchange [781]	Q
MarketTier [785]	Q
LotSize [793]	100
TradeThroughExemptFlag [805]	Y
TradeReportingExchange [806]	undefined
BidMarketMakerId [807]	undefined

```

AskMarketMakerId [808] ..... undefined
LastReportedTradeThroughExemptFlag [809] .... Y
LastReportedTradeReportingExchange [810] .... N
HighLrpPrice [856] ..... undefined
LowLrpPrice [857] ..... undefined
LrpPriceTime [858] ..... undefined
CrossType [868] ..... undefined
CurrentReferencePrice [869] ..... undefined
FarPrice [870] ..... undefined
NearPrice [871] ..... undefined
PairedShares [872] ..... undefined
PriceVariationIndicator [873] ..... undefined
**** Response block 2/5 ****
Resolved key ..... IACI. [0]
Relationship id 108 ..... success
Flags ..... none
Response key ..... ZCP.OCC [25]
Permission id ..... 0
Permission level ..... PERMISSION_LEVEL_REALTIME
CashPerContract [250] ..... undefined
ContractMultiplier [257] ..... 100
ContractType [258] ..... 4
CountryCode [259] ..... undefined
Currency [260] ..... USD
DisplayDenominator [268] ..... undefined
ExerciseStyle [279] ..... A
SharesPerContract [355] ..... 50
Context [394] ..... 25
CreateDate [395] ..... 2005-08-09
EntityType [398] ..... 28
LastUpdateDate [413] ..... 2007-10-15
PermissionId [441] ..... 0
RecordStatus [447] ..... 0
ResetDate [449] ..... undefined
Symbol [456] ..... ZCP.OCC
UnderlyingSymbol [481] ..... IACI.Q
UpdateId [483] ..... 33570
ExpirationDate01 [559] ..... 2008-01-19
ExpirationDate02 [560] ..... undefined
ExpirationDate03 [561] ..... undefined
ExpirationDate04 [562] ..... undefined
ExpirationDate05 [563] ..... undefined
ExpirationDate06 [564] ..... undefined
ExpirationDate07 [565] ..... undefined
ExpirationDate08 [566] ..... undefined
ExpirationDate09 [567] ..... undefined
ExpirationDate10 [568] ..... undefined
ExpirationDate11 [569] ..... undefined
ExpirationDate12 [570] ..... undefined
StrikePrice01 [571] ..... undefined
StrikePrice02 [572] ..... undefined
StrikePrice03 [573] ..... 15
StrikePrice04 [574] ..... 20
StrikePrice05 [575] ..... 25
StrikePrice06 [576] ..... 30
StrikePrice07 [577] ..... 35
StrikePrice08 [578] ..... undefined
StrikePrice09 [579] ..... undefined
StrikePrice10 [580] ..... undefined
StrikePrice11 [581] ..... undefined
StrikePrice12 [582] ..... undefined
StrikePrice13 [583] ..... undefined
StrikePrice14 [584] ..... undefined
StrikePrice15 [585] ..... undefined
StrikePrice16 [586] ..... undefined
StrikePrice17 [587] ..... undefined
StrikePrice18 [588] ..... undefined
StrikePrice19 [589] ..... undefined
StrikePrice20 [590] ..... undefined
StrikePrice21 [591] ..... undefined
StrikePrice22 [592] ..... 12.5
StrikePrice23 [593] ..... undefined
StrikePrice24 [594] ..... undefined
StrikePrice25 [595] ..... undefined
StrikePrice26 [596] ..... undefined
MinimumTick [602] ..... 0.05
HasDeliverables [613] ..... Y
SettlementAllocation [685] ..... 55

```

```

SettlementType [687] ..... undefined
ExpirationType [753] ..... 0
**** Response block 3/5 ****
Resolved key ..... IACI. [0]
Relationship id 108 ..... success
Flags ..... none
Response key ..... VSW.OCC [25]
Permission id ..... 0
Permission level ..... PERMISSION_LEVEL_REALTIME
CashPerContract [250] ..... undefined
ContractMultiplier [257] ..... 100
ContractType [258] ..... 0
CountryCode [259] ..... undefined
Currency [260] ..... USD
DisplayDenominator [268] ..... undefined
ExerciseStyle [279] ..... A
SharesPerContract [355] ..... 100
Context [394] ..... 25
CreateDate [395] ..... 2006-05-28
EntityType [398] ..... 28
LastUpdateDate [413] ..... 2007-10-15
PermissionId [441] ..... 0
RecordStatus [447] ..... 0
ResetDate [449] ..... undefined
Symbol [456] ..... VSW.OCC
UnderlyingSymbol [481] ..... IACI.Q
UpdateId [483] ..... 33277
ExpirationDate01 [559] ..... 2009-01-17
ExpirationDate02 [560] ..... undefined
ExpirationDate03 [561] ..... undefined
ExpirationDate04 [562] ..... undefined
ExpirationDate05 [563] ..... undefined
ExpirationDate06 [564] ..... undefined
ExpirationDate07 [565] ..... undefined
ExpirationDate08 [566] ..... undefined
ExpirationDate09 [567] ..... undefined
ExpirationDate10 [568] ..... undefined
ExpirationDate11 [569] ..... undefined
ExpirationDate12 [570] ..... undefined
StrikePrice01 [571] ..... undefined
StrikePrice02 [572] ..... undefined
StrikePrice03 [573] ..... 15
StrikePrice04 [574] ..... 20
StrikePrice05 [575] ..... 25
StrikePrice06 [576] ..... 30
StrikePrice07 [577] ..... 35
StrikePrice08 [578] ..... 40
StrikePrice09 [579] ..... 45
StrikePrice10 [580] ..... 50
StrikePrice11 [581] ..... 55
StrikePrice12 [582] ..... undefined
StrikePrice13 [583] ..... undefined
StrikePrice14 [584] ..... undefined
StrikePrice15 [585] ..... undefined
StrikePrice16 [586] ..... undefined
StrikePrice17 [587] ..... undefined
StrikePrice18 [588] ..... undefined
StrikePrice19 [589] ..... undefined
StrikePrice20 [590] ..... undefined
StrikePrice21 [591] ..... undefined
StrikePrice22 [592] ..... undefined
StrikePrice23 [593] ..... undefined
StrikePrice24 [594] ..... undefined
StrikePrice25 [595] ..... undefined
StrikePrice26 [596] ..... undefined
MinimumTick [602] ..... 0.05
HasDeliverables [613] ..... N
SettlementAllocation [685] ..... 100
SettlementType [687] ..... undefined
ExpirationType [753] ..... 0
**** Response block 4/5 ****
Resolved key ..... IACI. [0]
Relationship id 108 ..... success
Flags ..... none
Response key ..... YOY.OCC [25]
Permission id ..... 0
Permission level ..... PERMISSION_LEVEL_REALTIME

```

```

CashPerContract [250] ..... undefined
ContractMultiplier [257] ..... 100
ContractType [258] ..... 0
CountryCode [259] ..... undefined
Currency [260] ..... USD
DisplayDenominator [268] ..... undefined
ExerciseStyle [279] ..... A
SharesPerContract [355] ..... 100
Context [394] ..... 25
CreateDate [395] ..... 2007-05-27
EntityType [398] ..... 28
LastUpdateDate [413] ..... 2007-10-15
PermissionId [441] ..... 0
RecordStatus [447] ..... 0
ResetDate [449] ..... undefined
Symbol [456] ..... YOY.OCC
UnderlyingSymbol [481] ..... IACI.Q
UpdateId [483] ..... 32911
ExpirationDate01 [559] ..... 2010-01-16
ExpirationDate02 [560] ..... undefined
ExpirationDate03 [561] ..... undefined
ExpirationDate04 [562] ..... undefined
ExpirationDate05 [563] ..... undefined
ExpirationDate06 [564] ..... undefined
ExpirationDate07 [565] ..... undefined
ExpirationDate08 [566] ..... undefined
ExpirationDate09 [567] ..... undefined
ExpirationDate10 [568] ..... undefined
ExpirationDate11 [569] ..... undefined
ExpirationDate12 [570] ..... undefined
StrikePrice01 [571] ..... undefined
StrikePrice02 [572] ..... undefined
StrikePrice03 [573] ..... undefined
StrikePrice04 [574] ..... 20
StrikePrice05 [575] ..... 25
StrikePrice06 [576] ..... 30
StrikePrice07 [577] ..... 35
StrikePrice08 [578] ..... 40
StrikePrice09 [579] ..... 45
StrikePrice10 [580] ..... undefined
StrikePrice11 [581] ..... undefined
StrikePrice12 [582] ..... undefined
StrikePrice13 [583] ..... undefined
StrikePrice14 [584] ..... undefined
StrikePrice15 [585] ..... undefined
StrikePrice16 [586] ..... undefined
StrikePrice17 [587] ..... undefined
StrikePrice18 [588] ..... undefined
StrikePrice19 [589] ..... undefined
StrikePrice20 [590] ..... undefined
StrikePrice21 [591] ..... undefined
StrikePrice22 [592] ..... undefined
StrikePrice23 [593] ..... undefined
StrikePrice24 [594] ..... undefined
StrikePrice25 [595] ..... undefined
StrikePrice26 [596] ..... undefined
MinimumTick [602] ..... 0.05
HasDeliverables [613] ..... N
SettlementAllocation [685] ..... 100
SettlementType [687] ..... undefined
ExpirationType [753] ..... 0
**** Response block 5/5 ****
Resolved key ..... IACI. [0]
Relationship id 108 ..... success
Flags ..... none
Response key ..... QTH.OCC [25]
Permission id ..... 0
Permission level ..... PERMISSION_LEVEL_REALTIME
CashPerContract [250] ..... undefined
ContractMultiplier [257] ..... 100
ContractType [258] ..... 0
CountryCode [259] ..... undefined
Currency [260] ..... USD
DisplayDenominator [268] ..... undefined
ExerciseStyle [279] ..... A
SharesPerContract [355] ..... 100
Context [394] ..... 25
CreateDate [395] ..... 2005-08-10

```

```

EntityType [398] ..... 28
LastUpdateDate [413] ..... 2007-10-15
PermissionId [441] ..... 0
RecordStatus [447] ..... 0
ResetDate [449] ..... undefined
Symbol [456] ..... QTH.OCC
UnderlyingSymbol [481] ..... IACI.Q
UpdateId [483] ..... 830
ExpirationDate01 [559] ..... 2008-01-19
ExpirationDate02 [560] ..... undefined
ExpirationDate03 [561] ..... undefined
ExpirationDate04 [562] ..... 2008-04-19
ExpirationDate05 [563] ..... undefined
ExpirationDate06 [564] ..... undefined
ExpirationDate07 [565] ..... undefined
ExpirationDate08 [566] ..... undefined
ExpirationDate09 [567] ..... undefined
ExpirationDate10 [568] ..... 2007-10-20
ExpirationDate11 [569] ..... 2007-11-17
ExpirationDate12 [570] ..... undefined
StrikePrice01 [571] ..... undefined
StrikePrice02 [572] ..... undefined
StrikePrice03 [573] ..... 15
StrikePrice04 [574] ..... 20
StrikePrice05 [575] ..... 25
StrikePrice06 [576] ..... 30
StrikePrice07 [577] ..... 35
StrikePrice08 [578] ..... 40
StrikePrice09 [579] ..... 45
StrikePrice10 [580] ..... 50
StrikePrice11 [581] ..... 55
StrikePrice12 [582] ..... undefined
StrikePrice13 [583] ..... undefined
StrikePrice14 [584] ..... undefined
StrikePrice15 [585] ..... undefined
StrikePrice16 [586] ..... undefined
StrikePrice17 [587] ..... undefined
StrikePrice18 [588] ..... undefined
StrikePrice19 [589] ..... undefined
StrikePrice20 [590] ..... undefined
StrikePrice21 [591] ..... 37.5
StrikePrice22 [592] ..... 42.5
StrikePrice23 [593] ..... 17.5
StrikePrice24 [594] ..... 22.5
StrikePrice25 [595] ..... 27.5
StrikePrice26 [596] ..... 32.5
MinimumTick [602] ..... 0.05
HasDeliverables [613] ..... N
SettlementAllocation [685] ..... 100
SettlementType [687] ..... undefined
ExpirationType [753] ..... 0
MyContentGatewayClient::OnGetEqualResponse(): Request id [06 00 00 00] now complete

```

What happened here is that the CG walked our navigation model to get you both the quote and the option root data in one round trip. If you look at the results you should see that it starts with the quote fields that you requested (i.e. the fields for the IACI stock composite quote). If you look further down, you should see ‘**Relationship id 108 ... success**’ followed by a ‘**Response key ... ZCP.OCC [25]**’. ZCP.OCC is an option root, and the data that follows are its fields. 25 is the table number where ZCP.OCC is stored. The other option roots follow. The roots contain information such as SharesPerContract that is common to all contracts in the series.

Underlying Symbol

Note that the option root record shows you the underlying in the UnderlyingSymbol field, in this case IACI.Q. This always tells you the primary exchange of the underlying, in this case NASDAQ. You can use GetEqual to retrieve data for this symbol.

If you need a complete list of all regional underlying quotes, you can GetEqual the option root (ZCP.OCC) using relationship 104 (RELATIONSHIP_ID_LISTING) to retrieve them. Alternatively, you can GetEqual the individual option contracts using relationship 104 (RELATIONSHIP_ID_LISTING) as well.

Multiple Underlyings and Other Extended Delivery Terms

Looking at the request above, you should notice the **HasDeliverables** field for the ZCP root. This flag tells us that the root has additional deliverable terms and we can use relationship Id 107 (RELATIONSHIP_ID_OPTION_DELIVERABLE) to recover them:

```
# 13
Enter table number <65535>:
Enter symbol: ZCP.OCC
Enter relationship id <0>: 107
Enter field id:
Return all permissioned fields (y/n) <n>: y
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 7.
# 12:36:48 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetEqualResponse(): Re
quest id [07 00 00 00] - status success
Subscription cookie ..... undefined
**** Response block 1/1 ****
Resolved key ..... ZCP.OCC [25]
Relationship id 107 ..... success
Flags ..... none
Response key ..... ZCP#1.OCC [26]
Permission id ..... 0
Permission level ..... PERMISSION_LEVEL_REALTIME
CashInLieuOf [248] ..... undefined
Currency [260] ..... USD
SharesPerContract [355] ..... 50
Context [394] ..... 26
CreateDate [395] ..... 2005-08-09
EntityType [398] ..... undefined
LastUpdateDate [413] ..... 2007-10-15
PermissionId [441] ..... 0
RecordStatus [447] ..... 0
ResetDate [449] ..... undefined
Symbol [456] ..... ZCP#1.OCC
UnderlyingSymbol [481] ..... EXPE.Q
UpdateId [483] ..... 33565
SettlementAllocation [685] ..... 45
MyContentGatewayClient::OnGetEqualResponse(): Request id [07 00 00 00] now complete
```

ZCP#1.OCC is the first (and in this case, only) additional deliverable. The above request will return more than one record if more than one exists, you will get additional Response Key and data fields if so. There is no limit on how many additional deliverable terms ActivFeed can support.

Note that you could have returned all deliverables for all option roots in one go by using GetMultipleEqual.

Contract Matrix

Note the ExpirationDate01 to ExpirationDate12 fields – these give you the full expiration date for the OCC month codes (A-L and M-X) for this root, where a contract with that month code exists. Similarly the StrikePrice01 to StrikePrice26 fields

contain the real strike price for OCC strike codes (A-Z) where a contract exists. Thus these fields give you the full matrix of all possible contracts that may exist under a given root, along with the real expiration date and strike price.

Most equity options deliver 100 of the underlying and/or a cash sum per contract. You can see these fields in the option root output above. Where there are additional deliverables for an option (for example as a side-effect of a corporate action) our navigation model links the option root to a list of records which describe each additional deliverable.

Option Contracts – Method 1

To get the actual option contract data, use relationship Id 113 (RELATIONSHIP_ID_OPTION) as follows. We don't ask for any fields, for brevity. Caution – this request returns a lot of data, which takes time to display. Minimizing the console window (and thus preventing it from repainting) will greatly speed things up. To measure the actual time taken by the request, switch display of responses off, and switch to synchronous request mode, using option 1 from the menu.

```
# 13
Enter table number <65535>:
Enter symbol: IACI.
Enter relationship id <0>: 113
Enter field id:
Return all permissioned fields (y/n) <n>:
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 8.
# 13:16:26 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetEqualResponse(): Re
quest id [08 00 00 00] - status pending
Subscription cookie ..... undefined
**** Response block 1/64 ****
Resolved key ..... IACI. [0]
Relationship id 113 ..... success
Flags ..... none
Response key ..... QTH/A/C.AO [1]
Permission id ..... 42
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 2/64 ****
Resolved key ..... IACI. [0]
Relationship id 113 ..... success
Flags ..... none
Response key ..... QTH/A/C.BO [1]
Permission id ..... 42
Permission level ..... PERMISSION_LEVEL_REALTIME
.
.
**** Response block 43/44 ****
Resolved key ..... IACI. [0]
Relationship id 113 ..... success
Flags ..... none
Response key ..... ZCP/M/V.XO [1]
Permission id ..... 42
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 44/44 ****
Resolved key ..... IACI. [0]
Relationship id 113 ..... success
Flags ..... none
Response key ..... ZCP/M/V.Y [1]
Permission id ..... 42
```

```
Permission level ..... PERMISSION_LEVEL_REALTIME
MyContentGatewayClient::OnGetEqualResponse(): Request id [08 00 00 00] now complete
```

Note that you can of course request all the option roots and options for an underlying by using RELATIONSHIP_ID_OPTION_ROOT and RELATIONSHIP_ID_OPTION in a single request.

Option Contracts – Method 2

Another way to get at the option contracts is to do pattern matches against the option table using GetMultiplePatternMatchList. Note that we must provide the correct table number which is 1 (TABLE_NO_US_EQUITY_OPTION). In this example, we supply the complete list of option roots (minus the .OCC) and supply the trailing /* pattern to match any strike, expiration and exchange code. You can reduce the scope of this request by changing the pattern (e.g. YAG/*.O for just the OPRA NBBO instead of all regional exchanges) and/or requesting a subset of option roots. We don't ask for any fields, for brevity. Caution – this request returns a lot of data, which takes time to display. Minimizing the console window (and thus preventing it from repainting) will greatly speed things up. To measure the actual time taken by the request, switch display of responses off, and switch to synchronous request mode, using option 1 from the menu.

```
# 16
Enter table number <0>: 1
Enter symbol pattern: ZCP/*
Enter symbol pattern: VSW/*
Enter symbol pattern: YOY/*
Enter symbol pattern: QTH/*
Enter symbol pattern:
Watch for matching new records (y/n) <n>:
Reverse order of results (y/n) <n>:
Enter relationship id <0>:
Enter field id:
Return all permissioned fields (y/n) <n>:
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 9.
# 13:37:41 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetMultiplePatternMatc
hListResponse(): Request id [09 00 00 00] - status pending
Subscription cookie ..... undefined
**** Response block 1/64 ****
Resolved key ..... ZCP/A/C.AO [1]
Relationship id 0 ..... success
Flags ..... none
Response key ..... ZCP/A/C.AO [1]
Permission id ..... 42
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 2/64 ****
Resolved key ..... ZCP/A/C.BO [1]
Relationship id 0 ..... success
Flags ..... none
Response key ..... ZCP/A/C.BO [1]
Permission id ..... 42
Permission level ..... PERMISSION_LEVEL_REALTIME
.
.
.
**** Response block 43/44 ****
Resolved key ..... QTH/W/Z.XO [1]
Relationship id 0 ..... success
Flags ..... none
Response key ..... QTH/W/Z.XO [1]
```

```

Permission id ..... 42
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 44/44 ****
Resolved key ..... QTH/W/Z.Y [1]
Relationship id 0 ..... success
Flags ..... none
Response key ..... QTH/W/Z.Y [1]
Permission id ..... 42
Permission level ..... PERMISSION_LEVEL_REALTIME
MyContentGatewayClient::OnGetMultiplePatternMatchListResponse(): Request id [09 00 00 0
0] now complete

```

Futures Examples

ActivFeed carries futures from all major exchanges. This expiry date should be changed accordingly for an up-to-date future expiration. The symbology is:

Root Code / Expiration . Session code.

e.g.:

SP/07Z.CM

This represents the December 2007 S&P 500 contract, the normal trading session. The contract on the electronic (Globex) session is:

SP/07Z.CMG

You can request either using standard requests, e.g. GetEqual, as demonstrated below.

There is also a record containing a composite price across these two sessions:

SP/07M.CM*

13

Enter table number <65535>:

Enter symbol: **SP/07Z.CM**

Enter relationship id <0>:

Enter field id:

Return all permissioned fields (y/n) <n>: **y**

Enter relationship id:

Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types, <F>ull <N>:

Ignore alias (y/n) <n>:

Max response blocks in one response <64>:

<R>ealtime, <D>elayed or est permission level :

Send request (y/n) <y>:

Returned success using request id 10.

15:12:05 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetEqualResponse(): Request id [0a 00 00 00] - status success

Subscription cookie undefined

**** Response block 1/1 ****

Resolved key SP/07Z.CM [16]

Relationship id 0 success

Flags none

Response key SP/07Z.CM [16]

Permission id 32

Permission level PERMISSION_LEVEL_REALTIME

Bid [0] undefined

BidSize [1] undefined

BidCondition [2] undefined

BidTime [3] undefined

Ask [5] undefined

AskSize [6] undefined

AskCondition [7] undefined

AskTime [8] undefined

QuoteDate [11] 2007-10-15

Trade [12] 1559.7<+-->

TradeSize [13] undefined

TradeCondition [14] 0x5420

TradeTime [15] 15:11:59

TradeDate [16] 2007-10-15

TradeHigh [18] 1574.2

TradeHighCondition [19] 0x5420

TradeHighTime [20] 08:35:14

TradeLow [22] 1550.3

TradeLowCondition [23] 0x5420

```

TradeLowTime [24] ..... 14:27:53
TradeCount [26] ..... 2638
Open [35] ..... 1573.7
OpenCondition [37] ..... 0x5420
OpenTime [38] ..... 08:30:06
CumulativePrice [50] ..... 4115968.5
CumulativeValue [51] ..... undefined
CumulativeVolume [52] ..... undefined
NetChange [54] ..... -14.9<+ +>
PercentChange [55] ..... -0.95<+ +>
ClosingBid [56] ..... undefined
ClosingAsk [58] ..... undefined
ClosingQuoteDate [60] ..... 2007-10-12
Close [61] ..... 1552.5
CloseCondition [62] ..... 0x5420
CloseStatus [63] ..... 1
CloseDate [65] ..... 2007-10-15
CloseCumulativeVolume [67] ..... undefined
CloseCumulativeVolumeStatus [68] ..... 1
CloseCumulativeVolumeDate [69] ..... 2007-10-15
CloseCumulativeValue [70] ..... undefined
CloseCumulativeValueStatus [71] ..... 1
Settlement [75] ..... 1574.6
SettlementSize [76] ..... undefined
SettlementStatus [77] ..... 4
SettlementTime [78] ..... 16:29:44
SettlementDate [79] ..... 2007-10-12
Bid1 [80] ..... undefined
Bid1Time [81] ..... undefined
Bid1Size [82] ..... undefined
Bid1Count [83] ..... undefined
Ask1 [84] ..... undefined
Ask1Time [85] ..... undefined
Ask1Size [86] ..... undefined
Ask1Count [87] ..... undefined
Bid2 [88] ..... undefined
Bid2Count [89] ..... undefined
Bid2Size [90] ..... undefined
Bid3 [91] ..... undefined
Ask2 [92] ..... undefined
Ask2Count [93] ..... undefined
Ask2Size [94] ..... undefined
Ask3 [95] ..... undefined
Bid3Size [96] ..... undefined
Bid4 [97] ..... undefined
Bid3Count [98] ..... undefined
Bid4Size [99] ..... undefined
Ask3Size [100] ..... undefined
Ask4 [101] ..... undefined
Ask3Count [102] ..... undefined
Ask4Size [103] ..... undefined
Bid4Count [104] ..... undefined
Bid5Size [105] ..... undefined
Bid5 [106] ..... undefined
Bid5Count [107] ..... undefined
Ask4Count [108] ..... undefined
Ask5Size [109] ..... undefined
Ask5 [110] ..... undefined
Ask5Count [111] ..... undefined
PreviousTradingDate [112] ..... 2007-10-12
PreviousClose [113] ..... 1574.6
PreviousOpen [114] ..... 1565.7
PreviousTradeHigh [115] ..... 1575
PreviousTradeLow [116] ..... 1563.8
PreviousNetChange [119] ..... 9.4
PreviousPercentChange [120] ..... 0.60
PreviousOpenInterest [121] ..... 576319
PreviousOpenInterestDate [122] ..... 2007-10-12
OpenRange1 [123] ..... undefined
OpenRange1Condition [124] ..... undefined
OpenRange2 [125] ..... undefined
OpenRange2Condition [126] ..... undefined
OpenRangeTime [127] ..... undefined
CloseRange1 [128] ..... undefined
CloseRange1Condition [129] ..... undefined
CloseRange2 [130] ..... undefined
CloseRange2Condition [131] ..... undefined
CloseRangeTime [132] ..... undefined

```

OpenInterest [134]	576319
OpenInterestDate [135]	2007-10-12
52WeekHigh [148]	undefined
52WeekHighDate [149]	undefined
52WeekLow [150]	undefined
52WeekLowDate [151]	undefined
YearHigh [152]	undefined
YearHighDate [153]	undefined
YearLow [154]	undefined
YearLowDate [155]	undefined
LifetimeHigh [156]	undefined
LifetimeHighDate [157]	undefined
LifetimeLow [158]	undefined
LifetimeLowDate [159]	undefined
DisplayDenominator [268]	1
ExpirationDate [280]	2007-12-21
Isin [293]	undefined
LastTradingDate [300]	2007-12-21
LocalCode [301]	SP
State [361]	0
Context [394]	16
CreateDate [395]	2005-12-16
EntityType [398]	7
LastUpdateDate [413]	2007-10-15
PermissionId [441]	32
RecordStatus [447]	0
ResetDate [449]	2007-10-15
Symbol [456]	SP/07Z.CM
UpdateId [483]	36060
LimitHighPrice [487]	undefined
LimitLowPrice [488]	1424.6
PreviousSettlement [513]	1574.6
PreviousCumulativePrice [516]	3491192.3
Bid6 [618]	undefined
Bid6Count [619]	undefined
Bid6Size [620]	undefined
Ask6 [621]	undefined
Ask6Count [622]	undefined
Ask6Size [623]	undefined
Bid7 [624]	undefined
Bid7Count [625]	undefined
Bid7Size [626]	undefined
Ask7 [627]	undefined
Ask7Count [628]	undefined
Ask7Size [629]	undefined
Bid8 [630]	undefined
Bid8Count [631]	undefined
Bid8Size [632]	undefined
Ask8 [633]	undefined
Ask8Count [634]	undefined
Ask8Size [635]	undefined
Bid9 [636]	undefined
Bid9Count [637]	undefined
Bid9Size [638]	undefined
Ask9 [639]	undefined
Ask9Count [640]	undefined
Ask9Size [641]	undefined
Bid10 [642]	undefined
Bid10Count [643]	undefined
Bid10Size [644]	undefined
Ask10 [645]	undefined
Ask10Count [646]	undefined
Ask10Size [647]	undefined
PreviousBid [652]	undefined
PreviousAsk [653]	undefined
PreviousQuoteDate [654]	2007-10-12
PreviousCloseDate [655]	2007-10-12
PreviousSettlementDate [656]	2007-10-12
PreviousCumulativeValue [657]	undefined
PreviousCumulativeVolume [658]	27535
PreviousCumulativeVolumeDate [659]	2007-10-12
IndicativeBid [795]	undefined
IndicativeBidSize [796]	undefined
IndicativeBidTime [797]	undefined
IndicativeAsk [798]	undefined
IndicativeAskSize [799]	undefined
IndicativeAskTime [800]	undefined
IndicativeQuoteDate [801]	undefined

MyContentGatewayClient::OnGetEqualResponse(): Request id [0a 00 00 00] now complete

Rolling Contract

Our Database Administration team designates one of the contracts in a futures chain as the 'rolling contract' based on which has the highest open interest and volume. To request the rolling contract, use * in place of the expiration code. This request is usually made using GetMatch, in which case you don't need to specify the session code:

```
# 17
Enter table number <65535>:
Enter symbol: SP/*
<C>omposite, <P>rimary search type <C>:
Enter relationship id <0>:
Enter field id:
Return all permissioned fields (y/n) <n>: y
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 11.
# 15:13:46 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetMatchResponse(): Re
quest id [0b 00 00 00] - status success
Subscription cookie ..... undefined
**** Response block 1/1 ****
Resolved key ..... SP/* [601]
Relationship id 0 ..... success
Flags ..... none
Response key ..... SP/07Z.CM* [16]
Permission id ..... 32
Permission level ..... PERMISSION_LEVEL_REALTIME
Bid [0] ..... undefined
BidSize [1] ..... undefined
BidCondition [2] ..... undefined
BidTime [3] ..... undefined
Ask [5] ..... undefined
AskSize [6] ..... undefined
AskCondition [7] ..... undefined
AskTime [8] ..... undefined
QuoteDate [11] ..... 2007-10-15
Trade [12] ..... 1560.2<+--+>
TradeSize [13] ..... undefined
TradeCondition [14] ..... 0x5420
TradeTime [15] ..... 15:13:27
TradeDate [16] ..... 2007-10-15
TradeHigh [18] ..... 1575.8
TradeHighCondition [19] ..... 0x5420
TradeHighTime [20] ..... 17:01:45
TradeLow [22] ..... 1550.3
TradeLowCondition [23] ..... 0x5420
TradeLowTime [24] ..... 14:27:53
TradeCount [26] ..... 4572
Open [35] ..... 1574.4
OpenCondition [37] ..... 0x5420
OpenTime [38] ..... 17:00:00
CumulativePrice [50] ..... 7159157.3
CumulativeValue [51] ..... 6542555.3
CumulativeVolume [52] ..... 4158
NetChange [54] ..... -14.4<+ +>
PercentChange [55] ..... -0.91<+ +>
ClosingBid [56] ..... 1563.1
ClosingAsk [58] ..... 1563.8
ClosingQuoteDate [60] ..... 2007-10-12
Close [61] ..... 1552.5
CloseCondition [62] ..... 0x5420
CloseStatus [63] ..... 1
CloseDate [65] ..... 2007-10-15
CloseCumulativeVolume [67] ..... 4158
CloseCumulativeVolumeStatus [68] ..... 1
CloseCumulativeVolumeDate [69] ..... 2007-10-15
CloseCumulativeValue [70] ..... 6542555.3
CloseCumulativeValueStatus [71] ..... 1
```

Settlement [75]	1574.6
SettlementSize [76]	undefined
SettlementStatus [77]	4
SettlementTime [78]	16:29:44
SettlementDate [79]	2007-10-12
Bid1 [80]	undefined
Bid1Time [81]	undefined
Bid1Size [82]	undefined
Bid1Count [83]	undefined
Ask1 [84]	undefined
Ask1Time [85]	undefined
Ask1Size [86]	undefined
Ask1Count [87]	undefined
Bid2 [88]	undefined
Bid2Count [89]	undefined
Bid2Size [90]	undefined
Bid3 [91]	undefined
Ask2 [92]	undefined
Ask2Count [93]	undefined
Ask2Size [94]	undefined
Ask3 [95]	undefined
Bid3Size [96]	undefined
Bid4 [97]	undefined
Bid3Count [98]	undefined
Bid4Size [99]	undefined
Ask3Size [100]	undefined
Ask4 [101]	undefined
Ask3Count [102]	undefined
Ask4Size [103]	undefined
Bid4Count [104]	undefined
Bid5Size [105]	undefined
Bid5 [106]	undefined
Bid5Count [107]	undefined
Ask4Count [108]	undefined
Ask5Size [109]	undefined
Ask5 [110]	undefined
Ask5Count [111]	undefined
PreviousTradingDate [112]	2007-10-12
PreviousClose [113]	1574.6
PreviousOpen [114]	1563.7
PreviousTradeHigh [115]	1575
PreviousTradeLow [116]	1559
PreviousNetChange [119]	9.4
PreviousPercentChange [120]	0.60
PreviousOpenInterest [121]	576319
PreviousOpenInterestDate [122]	2007-10-12
OpenRange1 [123]	undefined
OpenRange1Condition [124]	undefined
OpenRange2 [125]	undefined
OpenRange2Condition [126]	undefined
OpenRangeTime [127]	undefined
CloseRange1 [128]	undefined
CloseRange1Condition [129]	undefined
CloseRange2 [130]	undefined
CloseRange2Condition [131]	undefined
CloseRangeTime [132]	undefined
OpenInterest [134]	576319
OpenInterestDate [135]	2007-10-12
52WeekHigh [148]	undefined
52WeekHighDate [149]	undefined
52WeekLow [150]	undefined
52WeekLowDate [151]	undefined
YearHigh [152]	undefined
YearHighDate [153]	undefined
YearLow [154]	undefined
YearLowDate [155]	undefined
LifetimeHigh [156]	undefined
LifetimeHighDate [157]	undefined
LifetimeLow [158]	undefined
LifetimeLowDate [159]	undefined
DisplayDenominator [268]	1
ExpirationDate [280]	2007-12-21
Isin [293]	undefined
LastTradingDate [300]	2007-12-21
LocalCode [301]	SP
State [361]	0
Context [394]	16
CreateDate [395]	2005-12-16


```

EntityType [398] ..... 7
LastUpdateDate [413] ..... 2007-10-15
PermissionId [441] ..... 32
RecordStatus [447] ..... 0
ResetDate [449] ..... 2007-10-14
Symbol [456] ..... SP/07Z.CM*
UpdateId [483] ..... 36676
LimitHighPrice [487] ..... 1649.6
LimitLowPrice [488] ..... 1424.6
PreviousSettlement [513] ..... 1574.6
PreviousCumulativePrice [516] ..... 8316855.9
Bid6 [618] ..... undefined
Bid6Count [619] ..... undefined
Bid6Size [620] ..... undefined
Ask6 [621] ..... undefined
Ask6Count [622] ..... undefined
Ask6Size [623] ..... undefined
Bid7 [624] ..... undefined
Bid7Count [625] ..... undefined
Bid7Size [626] ..... undefined
Ask7 [627] ..... undefined
Ask7Count [628] ..... undefined
Ask7Size [629] ..... undefined
Bid8 [630] ..... undefined
Bid8Count [631] ..... undefined
Bid8Size [632] ..... undefined
Ask8 [633] ..... undefined
Ask8Count [634] ..... undefined
Ask8Size [635] ..... undefined
Bid9 [636] ..... undefined
Bid9Count [637] ..... undefined
Bid9Size [638] ..... undefined
Ask9 [639] ..... undefined
Ask9Count [640] ..... undefined
Ask9Size [641] ..... undefined
Bid10 [642] ..... undefined
Bid10Count [643] ..... undefined
Bid10Size [644] ..... undefined
Ask10 [645] ..... undefined
Ask10Count [646] ..... undefined
Ask10Size [647] ..... undefined
PreviousBid [652] ..... 1563.1
PreviousAsk [653] ..... 1563.8
PreviousQuoteDate [654] ..... 2007-10-12
PreviousCloseDate [655] ..... 2007-10-12
PreviousSettlementDate [656] ..... 2007-10-12
PreviousCumulativeValue [657] ..... 10814872.4
PreviousCumulativeVolume [658] ..... 27535
PreviousCumulativeVolumeDate [659] ..... 2007-10-12
IndicativeBid [795] ..... undefined
IndicativeBidSize [796] ..... undefined
IndicativeBidTime [797] ..... undefined
IndicativeAsk [798] ..... undefined
IndicativeAskSize [799] ..... undefined
IndicativeAskTime [800] ..... undefined
IndicativeQuoteDate [801] ..... undefined
MyContentGatewayClient::OnGetMatchResponse(): Request id [0b 00 00 00] now complete

```

Rolling contracts are only defined on the composite exchange, i.e. the full symbol of the rolling contract above is SP/*.CM*

Navigating from Futures to Future Options – Method 1

To get the actual option contract data, use relationship Id 120 (RELATIONSHIP_ID_FUTURE_OPTION) as follows. We don't ask for any fields, for brevity. Caution – this request returns a lot of data, which takes time to display. Minimizing the console window (and thus preventing it from repainting) will greatly speed things up. To measure the actual time taken by the request, switch display of responses off, and switch to synchronous request mode, using option 1 from the menu.

13

```

Enter table number <65535>:
Enter symbol: SP/07Z.CM
Enter relationship id <0>: 120
Enter field id:
Return all permissioned fields (y/n) <n>:
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 12.
# 16:16:54 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetEqualResponse(): Re
quest id [0c 00 00 00] - status pending
Subscription cookie ..... undefined
**** Response block 1/64 ****
Resolved key ..... SP/7V/100000P.CM [17]
Relationship id 0 ..... success
Flags ..... none
Response key ..... SP/7V/100000P.CM [17]
Permission id ..... 32
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 2/64 ****
Resolved key ..... SP/7V/102500P.CM [17]
Relationship id 0 ..... success
Flags ..... none
Response key ..... SP/7V/102500P.CM [17]
Permission id ..... 32
Permission level ..... PERMISSION_LEVEL_REALTIME
.
.
**** Response block 18/19 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 120 ..... success
Flags ..... none
Response key ..... SP/7Z/95000P.CMG [17]
Permission id ..... 35
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 19/19 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 120 ..... success
Flags ..... none
Response key ..... SP/7Z/97500P.CMG [17]
Permission id ..... 35
Permission level ..... PERMISSION_LEVEL_REALTIME
MyContentGatewayClient::OnGetEqualResponse(): Request id [0c 00 00 00] now complete

```

Navigating from Futures to Future Options – Method 2

Futures are also linked to FutureOptionExpirationRoot and vice-versa via relationship Id 116 (RELATIONSHIP_ID_FUTURE_OPTION_EXPIRATION_ROOT).

FutureOptionExpirationRoot is a nominal entity that relates future options of various expiration dates and potentially various trading sessions to their underlying future. You can then supply the GetMultiplePatternMatchList API with FutureOptionExpirationRoot symbols to then return all the FutureOptionContract records:

```

# 13
Enter table number <65535>:
Enter symbol: SP/07Z.CM
Enter relationship id <0>: 116
Enter field id:
Return all permissioned fields (y/n) <n>:
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 13.

```

```
# 16:44:10 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetEqualResponse(): Request id [0d 00 00 00] - status success
Subscription cookie ..... undefined
**** Response block 1/10 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 116 ..... target not found
Flags ..... none
Response key ..... EV/7V.CM [65535]
**** Response block 2/10 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 116 ..... target not found
Flags ..... none
Response key ..... EV/7V.CMG [65535]
**** Response block 3/10 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 116 ..... target not found
Flags ..... none
Response key ..... EV/7X.CM [65535]
**** Response block 4/10 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 116 ..... target not found
Flags ..... none
Response key ..... EV/7X.CMG [65535]
**** Response block 5/10 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 116 ..... target not found
Flags ..... none
Response key ..... SP/7V.CM [65535]
**** Response block 6/10 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 116 ..... target not found
Flags ..... none
Response key ..... SP/7V.CMG [65535]
**** Response block 7/10 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 116 ..... target not found
Flags ..... none
Response key ..... SP/7X.CM [65535]
**** Response block 8/10 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 116 ..... target not found
Flags ..... none
Response key ..... SP/7X.CMG [65535]
**** Response block 9/10 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 116 ..... target not found
Flags ..... none
Response key ..... SP/7Z.CM [65535]
**** Response block 10/10 ****
Resolved key ..... SP/07Z.CM [16]
Relationship id 116 ..... target not found
Flags ..... none
Response key ..... SP/7Z.CMG [65535]
MyContentGatewayClient::OnGetEqualResponse(): Request id [0d 00 00 00] now complete
```

The Future Option Expiration Roots indicate which future option expiration dates are related to the specified future and which trading session (e.g. normal or electronic) these are traded on. Note the ‘target not found’. This is expected behavior – there is no actual database record at the Future Option Expiration Root level. The purpose of the navigation walk is simply to return the correct patterns to use with GetMultiplePatternMatchList.

Second step: pattern match in table 17 (TABLE_NO_US_FUTURE_OPTION) to get the contracts. We use GetMultiplePatternMatchList so that we can provide multiple patterns and hence request all the future options in one go. We don’t ask for any fields, for brevity:

```
# 16
Enter table number <0>: 17
Enter symbol pattern: EV/7V/*.CM
```

```

Enter symbol pattern: EV/7V/*.CMG
Enter symbol pattern: EV/7X/*.CM
Enter symbol pattern: EV/7X/*.CMG
Enter symbol pattern: SP/7V/*.CM
Enter symbol pattern: SP/7V/*.CMG
Enter symbol pattern: SP/7X/*.CM
Enter symbol pattern: SP/7X/*.CMG
Enter symbol pattern: SP/7Z/*.CM
Enter symbol pattern: SP/7Z/*.CMG
Enter symbol pattern:
Watch for matching new records (y/n) <n>:
Reverse order of results (y/n) <n>:
Enter relationship id <0>:
Enter field id:
Return all permissioned fields (y/n) <n>:
Enter relationship id:
Subscribe to <N>othing, <A>dds or deletes, <I>nclude Event types, <E>xclude Event Types
, <F>ull <N>:
Ignore alias (y/n) <n>:
Max response blocks in one response <64>:
<R>ealtime, <D>elayed or <B>est permission level <B>:
Send request (y/n) <y>:
Returned success using request id 14.
# 16:47:30 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetMultiplePatternMatc
hResponse(): Request id [0e 00 00 00] - status pending
Subscription cookie ..... undefined
**** Response block 1/64 ****
Resolved key ..... SP/7V/100000P.CM [17]
Relationship id 0 ..... success
Flags ..... none
Response key ..... SP/7V/100000P.CM [17]
Permission id ..... 32
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 2/64 ****
Resolved key ..... SP/7V/102500P.CM [17]
Relationship id 0 ..... success
Flags ..... none
Response key ..... SP/7V/102500P.CM [17]
Permission id ..... 32
Permission level ..... PERMISSION_LEVEL_REALTIME
.
.
**** Response block 25/26 ****
Resolved key ..... SP/7Z/95000P.CMG [17]
Relationship id 0 ..... success
Flags ..... none
Response key ..... SP/7Z/95000P.CMG [17]
Permission id ..... 35
Permission level ..... PERMISSION_LEVEL_REALTIME
**** Response block 26/26 ****
Resolved key ..... SP/7Z/97500P.CMG [17]
Relationship id 0 ..... success
Flags ..... none
Response key ..... SP/7Z/97500P.CMG [17]
Permission id ..... 35
Permission level ..... PERMISSION_LEVEL_REALTIME
MyContentGatewayClient::OnGetMultiplePatternMatchListResponse(): Request id [0e 00 00 0
0] now complete

```

These are the future option contracts for the various expirations and sessions.

Time Series Request

Before using this option, you need to enable the display of time series results. You do this by choosing option '1':

```

# 1
Synchronous mode disabled. Enable? (y/n) <n>:
Display responses enabled. Disable? (y/n) <n>:
Display record updates disabled. Enable? (y/n) <n>:

```

Display time series field set results disabled. Enable? (y/n) <n>: **y**
 Display get symbol (search) results enabled. Disable? (y/n) <n>:

See below for a time series request. Select '1' for ticks. Next select a filter type, '2' for all trades. Accept the default for table number. Enter a symbol, for example 'IACI.'. You will then be asked for period types, which define the starting and ending points for the request. For example, select '3' and enter '2007-10-15 15:00:00' as date and time. This is the starting point. For the next period type, select '1' (Present Time). This is the ending period. You can add further period types (this can be useful for certain kinds of technical analysis), but for this example press <Enter> to skip entering any more. This defined a request from 2007-10-15 15:00:00 to the present time. Now type 100 for the max field set (this is the max number of data bars in each part of the response). Accept the default for 'reverse results' (data is returned in reverse chronological order by default. The order can be reversed with this option).

```
# 20
1. Ticks
2. 1 Minute bars
3. 5 Minute bars
4. Minute bars as specified
5. Daily bars
6. Weekly bars
7. Monthly bars
Enter time series type: 1
Record filter types:
1. All
2. All Trades
3. Regular Trades
4. All Quotes
5. All Bids
6. Asks
Enter record filter: 2
Enter table number <65535>:
Enter symbol: IACI.
Period types:
1. Present Time
2. Infinity
3. Local Date Time
4. UTC Date Time
5. Trading Day Count
6. Data Point Count
7. Data Point Address
Enter period type: 3
Enter date <yyyy-mm-dd hh:mm:ss[.mmm]>: 2007-05-07 15:00:00
Period types:
1. Present Time
2. Infinity
3. Local Date Time
4. UTC Date Time
5. Trading Day Count
6. Data Point Count
7. Data Point Address
Enter period type: 1
Period types:
1. Present Time
2. Infinity
3. Local Date Time
4. UTC Date Time
5. Trading Day Count
6. Data Point Count
7. Data Point Address
Enter period type:
Enter max field sets to return <1000>: 100
Reverse results (y/n) <n>:
Returned success.
# 19:08:03 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetFirstTicksResponse(
): Request id [0f 00 00 00] - status pending
Symbol ..... IACI.
```

Number of responses 100

2007-10-15 17:03:35,29.06,96400,D,QD,68,@ TW,,0

2007-10-15 17:03:14,29.0708,236,D,QD,67,@ TW,,0

2007-10-15 16:57:40,29.132,1275,D,QD,65,@ TW,,0

2007-10-15 16:38:30,29.29,3188,D,QD,64,@ TW,,0

2007-10-15 16:32:15,29.29,2848,D,QD,63,@ TP,,0

2007-10-15 16:31:16,29.29,471,D,QD,62,@ TP,,0

2007-10-15 16:30:56,29.29,455,D,QD,61,N TP,,89

2007-10-15 16:30:30,29.29,168,D,QD,60,N4TP,,89

2007-10-15 16:24:43,29.295,400,D,QD,58,@ TW,,0

2007-10-15 16:18:45,29.29,5768,D,QD,57,@ TP,,0

2007-10-15 16:12:47,29.14,3200,D,QD,56,@ TW,,0

2007-10-15 16:12:47,29.14,8900,D,QD,55,@ TW,,0

2007-10-15 16:08:39,29.29,437,D,QD,54,@ TP,,0

2007-10-15 16:08:32,29.29,437,D,QD,53,@ TP,,0

2007-10-15 16:07:12,29.14,6636,D,QD,52,@ TW,,0

2007-10-15 16:06:05,29.29,174,D,QD,49,@ TP,,0

2007-10-15 16:01:10,29.29,3619,D,QD,11,T,,0

2007-10-15 16:00:49,29.29,100,D,PA,926,@FT,,89

2007-10-15 16:00:47,29.29,100,D,PA,925,T,,0

2007-10-15 16:00:32,29.29,100,D,PA,923,T,,0

2007-10-15 16:00:26,29.29,4680,T,QD,6,@,,0

2007-10-15 16:00:26,29.29,5768,T,QD,5,@,,0

2007-10-15 16:00:26,29.29,5884,T,QD,4,@,,0

2007-10-15 16:00:26,29.29,3252,T,QD,3,@,,0

2007-10-15 16:00:26,29.29,200,T,QD,2,@,,0

2007-10-15 16:00:26,29.29,100,T,QD,1,@,,0

2007-10-15 16:00:05,29.29,77247,T,Q,45687,@6 x,,0

2007-10-15 16:00:03,29.32,300,T,Q,45682,@F,,0

2007-10-15 16:00:01,29.32,400,T,Q,45679,@F,,0

2007-10-15 15:59:59,29.32,1200,T,Q,45673,@F,,0

2007-10-15 15:59:59,29.32,2000,T,Q,45670,@,,0

2007-10-15 15:59:59,29.32,1300,T,Q,45668,@F,,0

2007-10-15 15:59:59,29.32,900,T,Q,45666,@F,,0

2007-10-15 15:59:59,29.32,1200,T,Q,45664,@F,,0

2007-10-15 15:59:58,29.32,700,T,Q,45662,@F,,0

2007-10-15 15:59:58,29.32,700,T,Q,45660,@F,,0

2007-10-15 15:59:58,29.32,527,T,Q,45656,@F,,0

2007-10-15 15:59:58,29.32,173,T,Q,45655,@F,,0

2007-10-15 15:59:58,29.32,400,T,Q,45653,@F,,0

2007-10-15 15:59:58,29.31,300,T,Q,45652,@F,,0

2007-10-15 15:59:57,29.32,200,T,Q,45651,@F,,0

2007-10-15 15:59:57,29.32,273,T,Q,45650,@F,,0

2007-10-15 15:59:57,29.29,197,T,QD,32764,@,,0

2007-10-15 15:59:57,29.32,500,T,Q,45648,@F,,0

2007-10-15 15:59:57,29.32,600,T,Q,45645,@F,,0

2007-10-15 15:59:57,29.32,500,T,Q,45643,@F,,0

2007-10-15 15:59:57,29.32,500,T,Q,45642,@F,,0

2007-10-15 15:59:56,29.32,400,T,Q,45640,@F,,0

2007-10-15 15:59:56,29.32,300,T,Q,45638,@F,,0

2007-10-15 15:59:56,29.32,300,T,Q,45636,@F,,0

2007-10-15 15:59:56,29.32,400,T,Q,45634,@F,,0

2007-10-15 15:59:56,29.32,300,T,Q,45632,@F,,0

2007-10-15 15:59:55,29.32,300,T,Q,45631,@F,,0

2007-10-15 15:59:55,29.32,200,T,Q,45628,@F,,0

2007-10-15 15:59:55,29.32,200,T,Q,45624,@F,,0

2007-10-15 15:59:55,29.32,1200,T,Q,45621,@F,,0

2007-10-15 15:59:55,29.32,355,T,Q,45618,@F,,0

2007-10-15 15:59:54,29.32,200,T,Q,45617,@F,,0

2007-10-15 15:59:54,29.32,100,T,PA,912,@,,0

2007-10-15 15:59:54,29.32,300,T,Q,45614,@F,,0

2007-10-15 15:59:54,29.32,200,T,Q,45609,@F,,0

2007-10-15 15:59:54,29.32,400,T,Q,45608,@F,,0

2007-10-15 15:59:54,29.32,200,T,Q,45605,@,,0

2007-10-15 15:59:54,29.32,200,T,Q,45602,@F,,0

2007-10-15 15:59:54,29.32,100,T,PA,909,@,,0

2007-10-15 15:59:54,29.32,100,T,Q,45599,@F,,0

2007-10-15 15:59:54,29.32,200,T,Q,45597,@F,,0

2007-10-15 15:59:53,29.32,300,T,Q,45594,@F,,0

2007-10-15 15:59:53,29.32,400,T,Q,45593,@F,,0

2007-10-15 15:59:53,29.32,200,T,Q,45590,@F,,0

2007-10-15 15:59:53,29.32,100,T,Q,45589,@F,,0

2007-10-15 15:59:53,29.32,200,T,Q,45586,@F,,0

2007-10-15 15:59:52,29.32,300,T,Q,45585,@F,,0

2007-10-15 15:59:52,29.32,200,T,Q,45582,@F,,0

2007-10-15 15:59:52,29.32,100,T,QD,32762,@,,0

2007-10-15 15:59:52,29.32,100,T,Q,45581,@F,,0

2007-10-15 15:59:51,29.32,200,T,Q,45579,@F,,0

```

2007-10-15 15:59:50,29.32,100,T,Q,45576,@F,,,0
2007-10-15 15:59:50,29.32,100,T,Q,45575,@F,,,0
2007-10-15 15:59:49,29.32,100,T,Q,45571,@F,,,0
2007-10-15 15:59:48,29.32,100,T,Q,45569,@F,,,0
2007-10-15 15:59:48,29.32,100,T,PA,900,@,,,0
2007-10-15 15:59:48,29.32,100,T,Q,45566,@F,,,0
2007-10-15 15:59:47,29.29,500,T,Q,45562,@,,,0
2007-10-15 15:59:47,29.29,100,T,PA,884,@F,,,0
2007-10-15 15:59:47,29.29,200,T,PA,883,@F,,,0
2007-10-15 15:59:47,29.29,100,T,Q,45560,@F,,,0
2007-10-15 15:59:47,29.29,100,T,Q,45553,@F,,,0
2007-10-15 15:59:47,29.29,100,T,Q,45552,@F,,,0
2007-10-15 15:59:47,29.29,100,T,Q,45551,@F,,,0
2007-10-15 15:59:47,29.29,223,T,Q,45550,@F,,,0
2007-10-15 15:59:47,29.32,100,T,Q,45549,@F,,,0
2007-10-15 15:59:46,29.32,100,T,PA,880,@,,,0
2007-10-15 15:59:46,29.32,100,T,PA,879,@,,,0
2007-10-15 15:59:46,29.32,100,T,Q,45546,@F,,,0
2007-10-15 15:59:46,29.32,300,T,Q,45545,@F,,,0
2007-10-15 15:59:45,29.29,177,T,Q,45542,@F,,,0
2007-10-15 15:59:45,29.29,100,T,Q,45539,@F,,,0
2007-10-15 15:59:45,29.29,100,T,Q,45538,@F,,,0
2007-10-15 15:59:45,29.29,223,T,Q,45537,@F,,,0

```

The response includes the first 100 ticks that fall within the specified time period, this is what we requested above. Type '21' ('Get next time series') to retrieve the next 100 ticks. You can now keep typing '21' until you have received all of the data. You can specify any response size you like in the initial request, the feature helps you to manage the rate at which you process data when making large requests such as this one.

21

```

Returned success.
# 19:15:19 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetNextTicksResponse()
: Request id [3f 00 00 00] - status success
Symbol ..... IACI.
Number of responses ..... 40
2007-10-15 15:00:36,29.02,100,T,Q,36659,@F,,,0
2007-10-15 15:00:36,29.02,100,T,Q,36658,@F,,,0
2007-10-15 15:00:36,29.02,100,T,Q,36657,@F,,,0
2007-10-15 15:00:36,29.03,100,T,Q,36656,@F,,,0
2007-10-15 15:00:36,29.03,100,T,Q,36655,@F,,,0
2007-10-15 15:00:36,29.03,100,T,Q,36654,@F,,,0
2007-10-15 15:00:36,29.04,300,T,Q,36653,@F,,,0
2007-10-15 15:00:36,29.04,100,T,Q,36652,@F,,,0
2007-10-15 15:00:36,29.04,800,T,Q,36651,@F,,,0
2007-10-15 15:00:36,29.04,100,T,Q,36650,@F,,,0
2007-10-15 15:00:36,29.04,100,T,Q,36649,@F,,,0
2007-10-15 15:00:29,29.04,100,T,QD,31446,@F,,,0
2007-10-15 15:00:29,29.04,100,T,QD,31445,@F,,,0
2007-10-15 15:00:27,29.05,400,T,QD,31443,@F,,,0
2007-10-15 15:00:27,29.05,121,T,Q,36620,@F,,,0
2007-10-15 15:00:27,29.05,100,T,Q,36619,@F,,,0
2007-10-15 15:00:27,29.05,900,T,Q,36618,@F,,,0
2007-10-15 15:00:27,29.05,100,T,Q,36617,@F,,,0
2007-10-15 15:00:27,29.05,900,T,Q,36616,@F,,,0
2007-10-15 15:00:27,29.05,100,T,Q,36615,@F,,,0
2007-10-15 15:00:26,29.05,900,T,Q,36604,@F,,,0
2007-10-15 15:00:26,29.05,100,T,Q,36603,@F,,,0
2007-10-15 15:00:26,29.05,900,T,Q,36602,@F,,,0
2007-10-15 15:00:26,29.05,100,T,Q,36601,@F,,,0
2007-10-15 15:00:26,29.05,900,T,Q,36600,@F,,,0
2007-10-15 15:00:26,29.05,100,T,Q,36599,@F,,,0
2007-10-15 15:00:26,29.05,479,T,Q,36593,@F,,,0
2007-10-15 15:00:26,29.05,100,T,Q,36592,@F,,,0
2007-10-15 15:00:26,29.05,100,T,Q,36591,@F,,,0
2007-10-15 15:00:26,29.05,100,T,Q,36590,@F,,,0
2007-10-15 15:00:26,29.05,100,T,Q,36589,@F,,,0
2007-10-15 15:00:26,29.05,100,T,Q,36588,@F,,,0
2007-10-15 15:00:22,29.05,100,T,PA,27420,@,,,0
2007-10-15 15:00:22,29.055,700,T,QD,31442,@,,,0
2007-10-15 15:00:16,29.05,200,T,QD,31440,@,,,0
2007-10-15 15:00:16,29.05,100,T,PA,27417,@,,,0
2007-10-15 15:00:16,29.05,100,T,QD,31439,@,,,0
2007-10-15 15:00:16,29.05,100,T,Q,36580,@F,,,0
2007-10-15 15:00:07,29.05,100,T,PA,27411,@,,,0

```


2007-10-15 15:00:06,29.06,100,T,Q,36572,@F,,,0

To get daily bars, enter 5 for daily bars. Then enter 1 for full bar (this includes value added fields as well as open, high, low, close, volume) followed by accepting table number and entering symbol 'IACI.'. For period types, enter 'Local Date Time' 2007-08-01 00:00:00 for the first, and 'Present Time' for the second. Enter 100 for 'max field sets' and accept the default for 'reverse results' as in the example above:

```
# 20
1. Ticks
2. 1 Minute bars
3. 5 Minute bars
4. Minute bars as specified
5. Daily bars
6. Weekly bars
7. Monthly bars
Enter time series type: 5
Field filter types:
1. Full Bar
2. Mini Bar
Enter field filter: 1
Enter table number <65535>:
Enter symbol: IACI.
Period types:
1. Present Time
2. Infinity
3. Local Date Time
4. UTC Date Time
5. Trading Day Count
6. Data Point Count
7. Data Point Address
Enter period type: 3
Enter date <yyyy-mm-dd hh:mm:ss[.mmm]>: 2007-08-01 00:00:00
Period types:
1. Present Time
2. Infinity
3. Local Date Time
4. UTC Date Time
5. Trading Day Count
6. Data Point Count
7. Data Point Address
Enter period type: 1
Period types:
1. Present Time
2. Infinity
3. Local Date Time
4. UTC Date Time
5. Trading Day Count
6. Data Point Count
7. Data Point Address
Enter period type:
Enter max field sets to return <1000>: 100
Reverse results (y/n) <n>:
Returned success.
# 19:19:02 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetFirstHistoryResponse(): Request id [40 00 00 00] - status success
Symbol ..... IACI.
Number of responses ..... 53
2007-10-15,29.66,29.66,28.91,29.29,2031677,272495.5015,59220247.4436,0
2007-10-12,29.3,29.76,28.96,29.62,2036095,316581.9607,60023200.9555,0
2007-10-11,29.76,29.89,29.03,29.19,1965814,272934.514,57782030.7873,0
2007-10-10,29.61,29.77,29.32,29.72,1599916,237872.1336,47364605.3381,0
2007-10-09,29.74,29.88,29.37,29.74,1294310,196814.73,38365850.5614,0
2007-10-08,29.93,30.16,29.67,29.95,1086335,179487.0264,32435739.5,0
2007-10-05,30.03,30.35,29.86,30,1523738,214275.2389,45753424.7696,0
2007-10-04,29.88,30.26,29.85,30.02,2102972,281829.8427,63687036.2552,0
2007-10-03,29.6,30.01,29.6,29.8,1457574,228146.5874,43397838.777,0
2007-10-02,30.05,30.09,29.5,29.7,2322563,329978.4231,68939321.8226,0
2007-10-01,29.68,30.08,29.61,30,2457683,346768.8267,73344491.6158,0
2007-09-28,29.64,29.89,29.43,29.67,2086280,243290.4034,61933631.8291,0
2007-09-27,29.65,29.75,29.28,29.62,2806578,324110.7539,82855756.638,0
2007-09-26,28.56,29.565,28.56,29.46,5159097,534839.5794,151294870.561,0
2007-09-25,28.53,29,28.25,28.51,3538943,433025.795,100920978.6333,0
```



```

2007-09-24,27.99,28.37,27.91,28.14,2293832,287474.4643,64556773.6936,0
2007-09-21,28.26,28.32,27.65,28.04,7529146,398811.5667,210817855.2113,0
2007-09-20,28.06,28.6,28.05,28.26,2239215,281760.8045,63389644.0567,0
2007-09-19,28.13,28.35,28.03,28.19,2533280,322639.5259,71235454.146,0
2007-09-18,27.6,28.07,27.39,28.05,3398736,366463.2625,94237260.8824,0
2007-09-17,27.68,27.77,26.5,27.12,4513128,431125.2675,121642694.3763,0
2007-09-14,27.54,28.01,27.47,27.92,2538432,269095.3033,70627620.0838,0
2007-09-13,27.89,27.89,27.49,27.67,2284771,245901.5943,63121465.3322,0
2007-09-12,27.66,27.75,27.34,27.73,2333091,236546.3345,64484802.0637,0
2007-09-11,27.59,27.74,27.37,27.66,2099569,272074.9516,57794807.5659,0
2007-09-10,27.79,27.79,27.03,27.51,2568105,254682.6816,70370773.2557,0
2007-09-07,27.56,27.8,27.48,27.6,2084312,231350.0691,57519620.2828,0
2007-09-06,27.85,27.95,27.58,27.79,2072732,208518.3566,57562913.2399,0
2007-09-05,27.84,28.09,27.55,27.69,1685297,233866.7589,46872012.7066,0
2007-09-04,27.7,28.13,27.51,27.99,1780647,221015.4675,49718581.6588,0
2007-08-31,27.62,27.99,27.32,27.79,1658594,207600.5799,46008633.0348,0
2007-08-30,27.14,27.55,27.13,27.35,1891663,234741.5004,51722341.1173,0
2007-08-29,27.03,27.35,26.64,27.32,1931798,241980.4186,52021242.3153,0
2007-08-28,27.42,27.81,26.94,26.95,2132976,218461.2918,58225008.7505,0
2007-08-27,28.05,28.18,27.56,27.64,2096325,263190.227,58216990.9203,0
2007-08-24,27.14,28.11,26.97,28.11,2313874,271861.2548,64277550.4554,0
2007-08-23,26.99,27.41,26.64,27.19,3065984,356970.6491,83041650.1792,0
2007-08-22,27.63,27.71,27.13,27.47,2806731,304899.5991,76849587.9688,0
2007-08-21,27.7,27.93,27.36,27.6,3051159,295263.933,84217942.1179,0
2007-08-20,27.52,27.76,27.23,27.5,4420351,436119.3859,121525205.8773,0
2007-08-17,26.81,27.57,26.62,27.27,4195331,442790.7338,113875105.9812,0
2007-08-16,27.57,28.05,26.11,26.81,5156140,591130.742,138296207.274,0
2007-08-15,27.85,28.36,27.59,27.62,3656967,374243.9765,101964364.3064,0
2007-08-14,27.79,28.24,27.55,27.84,2910930,343620.2975,81327888.4765,0
2007-08-13,27.31,28.16,26.91,27.97,3439337,401330.0179,95665594.0052,0
2007-08-10,25.86,27.61,25.5,27.3,4890697,564634.1709,131016833.691,0
2007-08-09,26.25,27.21,25.9,26.12,6198352,597348.7621,163325545.6759,0
2007-08-08,26.92,27.12,25.08,26.47,6807736,649664.1252,177141262.7476,0
2007-08-07,26.88,27.33,26.62,26.71,5334709,552190.6992,144073297.3833,0
2007-08-06,27.62,27.66,26.5,26.8,6104657,682574.281,163634342.8452,0
2007-08-03,28.71,28.82,27.39,27.4,4266046,520842.011,118921511.8673,0
2007-08-02,28.71,28.83,28.4,28.66,4056755,488006.47,116166055.963,0
2007-08-01,28.49,28.84,28.01,28.66,3891243,526671.8545,110447451.6652,0

```

Try experimenting with intraday bars and other kinds of history bars, they work similarly to the examples above.

Symbol Directory Request

The GetSymbols method enables you to do name or local code searches (with partial string match support). Here's an example:

```

# 19
1. Name
2. LocalCode
Enter field Id: 1
Enter search string: Microsoft
Filter on <N>othing, <I>nclude Entity Types, <E>xclude Entity Types <N>;
Match on <A>nything or <E>xact <A>;
Returned success.
# 19:20:18 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetSymbolsResponse():
Request id [41 00 00 00] - status success
**** SymbolDirectory Response ****
Field id ..... 311
Symbol id ..... MSFT.COM [33]
Entity Type ..... 19
Match Data ..... Microsoft Corp
Symbol id ..... MSFT. [0]
Entity Type ..... 1
Match Data ..... Microsoft Corp
Symbol id ..... MSFT.C [0]
Entity Type ..... 1
Match Data ..... Microsoft Corp
Symbol id ..... MSFT.EA [0]
Entity Type ..... 1
Match Data ..... Microsoft Corp
Symbol id ..... MSFT.MW [0]

```

```

Entity Type ..... 1
Match Data ..... Microsoft Corp
Symbol id ..... MSFT.PA [0]
Entity Type ..... 1
Match Data ..... Microsoft Corp
Symbol id ..... MSFT.Q [0]
Entity Type ..... 1
Match Data ..... Microsoft Corp
Symbol id ..... MSFT.QD [0]
Entity Type ..... 1
Match Data ..... Microsoft Corp
Symbol id ..... MSFT.SEC [30]
Entity Type ..... 20
Match Data ..... Microsoft Corp
Symbol id ..... MSFT.W [0]
Entity Type ..... 1
Match Data ..... Microsoft Corp
Symbol id ..... MSFT.X [0]
Entity Type ..... 1
Match Data ..... Microsoft Corp
Symbol id ..... MSFT.Y [0]
Entity Type ..... 1
Match Data ..... Microsoft Corp
Symbol id ..... MSFT/OC.FRR [27]
Entity Type ..... 29
Match Data ..... Microsoft Corp SSF
Symbol id ..... MSFT/07V.OC [16]
Entity Type ..... 7
Match Data ..... Microsoft Corp SSF
Symbol id ..... MSFT/07X.OC [16]
Entity Type ..... 7
Match Data ..... Microsoft Corp SSF
Symbol id ..... MSFT/07Z.OC [16]
Entity Type ..... 7
Match Data ..... Microsoft Corp SSF
Symbol id ..... MSFT/08H.OC [16]
Entity Type ..... 7
Match Data ..... Microsoft Corp SSF
MyContentGatewayClient::OnGetSymbolsResponse(): Request id [41 00 00 00] now complete

```

News Server Request

Our News Server has deep archiving and powerful indexing capabilities. The GetNewsStories method can be used to query the server. In this example you can specify certain fields available in the NaNews table. Here's an example:

23

Basic usage is "<tag>=<value>"
 To retrieve every story, use * (an asterisk)
 Operators are: AND OR NOT ()
 e.g. "body=(microsoft OR apple) AND NOT body=ibm"
 n.b. NOT operators can only be ANDed

Valid tags are: body cat head magazine newssymbol supplier symbol
 "body" used to query the news story body
 "cat" used to query the category code
 "head" can be used to query headlines
 "magazine" can be used to query magazine
 "newssymbol" is the actual symbol of a story
 "supplier" can be used to query the supplier of the story
 "symbol" is a stock symbol referenced in a story

Examples:

```

"cat=industrial AND symbol=IBM."
"magazine=(DJDN or BIZ) AND symbol=MSFT. AND body=report"
"body=(apple AND intel)"
"head=yahoo"
"newssymbol=241b3044%BIZ"
"supplier=comtex"

```

22

Enter query string: **head=jobs**
 Enter start date <yyyy-mm-dd>:
 Enter end date <yyyy-mm-dd>:

```

Enter start symbol:
Enter number of records <1>: 10
Max records in one response <64>:
Enter permission level <255>:
Subscribe to query (y/n) <n>:
Enter field id: 523
Enter field id: 524
Enter field id: 749
Enter field id: 750
Enter field id:
Send request (y/n) <y>:
Returned success.
# 19:22:58 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetNewsStoriesResponse
(): Request id [42 00 00 00] - status success
Subscription cookie ..... undefined
**** News story 1/10 ****
Symbol ..... 07AFh0587%XFN
Permission ids ..... 31
StoryDateTime [523] ..... 2007-10-16 00:02:58
Headline [524] ..... RPT UK jobs market faces threat from power shift to Brazil, India, China - MPs
Magazine [749] ..... XFN
Supplier [750] ..... Comtex
**** News story 2/10 ****
Symbol ..... 07AFh0585%XFN
Permission ids ..... 31
StoryDateTime [523] ..... 2007-10-16 00:02:53
Headline [524] ..... UK jobs market faces threat from power shift to Brazil, India, China - MPs
Magazine [749] ..... XFN
Supplier [750] ..... Comtex
**** News story 3/10 ****
Symbol ..... 07AFe0358%KRO
Permission ids ..... 31
StoryDateTime [523] ..... 2007-10-15 22:49:05
Headline [524] ..... Sr. federal prosecutor interviews for top BSO job: Applicant was involved in Jenne investigation
Magazine [749] ..... KRO
Supplier [750] ..... Comtex
**** News story 4/10 ****
Symbol ..... 07AFx0793%FGI
Permission ids ..... 31
StoryDateTime [523] ..... 2007-10-15 22:48:56
Headline [524] ..... U.S. Labor Secretary Elaine L. Chao to make closing remarks at Job Corps annual leadership summit
Magazine [749] ..... FGI
Supplier [750] ..... Comtex
**** News story 5/10 ****
Symbol ..... 07AFh0445%XIN
Permission ids ..... 31
StoryDateTime [523] ..... 2007-10-15 22:47:10
Headline [524] ..... AOL to shed 2,000 jobs worldwide
Magazine [749] ..... XIN
Supplier [750] ..... Comtex
**** News story 6/10 ****
Symbol ..... 07AFx0701%FGI
Permission ids ..... 31
StoryDateTime [523] ..... 2007-10-15 22:34:46
Headline [524] ..... President Bush Visits Arkansas, Discusses Job Growth
Magazine [749] ..... FGI
Supplier [750] ..... Comtex
**** News story 7/10 ****
Symbol ..... 07AFi9557%ABX
Permission ids ..... 31
StoryDateTime [523] ..... 2007-10-15 22:21:18
Headline [524] ..... Perks of old job give Debus a federal push
Magazine [749] ..... ABX
Supplier [750] ..... Comtex
**** News story 8/10 ****
Symbol ..... 07AFi9506%ABX
Permission ids ..... 31
StoryDateTime [523] ..... 2007-10-15 22:12:38
Headline [524] ..... Trounson's job is safe: new boss
Magazine [749] ..... ABX
Supplier [750] ..... Comtex

```

```

**** News story 9/10 ****
Symbol ..... 07AFi9416%ABX
Permission ids ..... 31
StoryDateTime [523] ..... 2007-10-15 21:53:11
Headline [524] ..... Trounson's job is safe: new boss
Magazine [749] ..... ABX
Supplier [750] ..... Comtex
**** News story 10/10 ****
Symbol ..... 07AFe0058%KRO
Permission ids ..... 31 52
StoryDateTime [523] ..... 2007-10-15 21:38:41
Headline [524] ..... Will Pentair change bring jobs locally?
Magazine [749] ..... KRO
Supplier [750] ..... Comtex
MyContentGatewayClient::OnGetNewsStoriesResponse(): Request id [42 00 00 00] now complete

```

Now we'll choose the story we want (symbol 0757e1649%KRO) and make the request for that story but this time requesting the StoryBody field (FID 525):

22

```

Enter query string: newssymbol=0757e1649%KRO
Enter start date <yyyy-mm-dd>:
Enter end date <yyyy-mm-dd>:
Enter start symbol:
Enter number of records <1>:
Max records in one response <64>:
Enter permission level <255>:
Subscribe to query (y/n) <n>:
Enter field id: 523
Enter field id: 524
Enter field id: 525
Enter field id: 749
Enter field id: 750
Enter field id:
Send request (y/n) <y>:
# 19:30:02 [ContentGatewayApiSample:3] MyContentGatewayClient::OnGetNewsStoriesResponse
(): Request id [43 00 00 00] - status success
Subscription cookie ..... undefined
**** News story 1/1 ****
Symbol ..... 07AFi9557%ABX
Permission ids ..... 31
StoryDateTime [523] ..... 2007-10-15 22:21:18
Headline [524] ..... Perks of old job give Debus a federal push
StoryBody [525] ..... defined
0x00000000: 3c703e52 65746972 65642073 74617465 <p>Retired state
0x00000010: 20706f6c 69746963 69616e20 426f6220 politician Bob
0x00000020: 44656275 73206861 73206265 656e2061 Debus has been a
0x00000030: 63637573 6564206f 66207573 696e6720 ccused of using
0x00000040: 68697320 4e657720 536f7574 68205761 his New South Wa
0x00000050: 6c657320 6d696e69 73746572 69616c20 les ministerial
0x00000060: 656e7469 746c656d 656e7473 20746f20 entitlements to
0x00000070: 66756e64 20686973 20666564 6572616c fund his federal
0x00000080: 20656c65 6374696f 6e206173 70697261 election aspira
0x00000090: 74696f6e 732e2020 41732061 20726574 tions. As a ret
0x000000a0: 69726564 20737461 7465206d 696e6973 ired state minis
0x000000b0: 7465722c 20446562 75732069 7320656e ter, Debus is en
0x000000c0: 7469746c 65642074 6f206365 72746169 titled to certai
0x000000d0: 6e207061 796d656e 74732e20 20537461 n payments. Sta
0x000000e0: 7465206f 70706f73 6974696f 6e206c65 te opposition le
0x000000f0: 61646572 20426172 7279204f 27466172 ader Barry O'Far
0x00000100: 72656c6c 20736179 73204465 62757320 rell says Debus
0x00000110: 68617320 75736564 20686973 20244131 has used his $A1
0x00000120: 352c3030 3020776f 72746820 6f662065 5,000 worth of e
0x00000130: 6e746974 6c656d65 6e747320 746f2066 ntitlements to f
0x00000140: 756e6420 68697320 66656465 72616c20 und his federal
0x00000150: 656c6563 74696f6e 2063616d 70616967 election campaig
0x00000160: 6e2e2020 44656275 73277320 636c6169 n. Debus's clai
0x00000170: 6d732069 6e636c75 64652061 20244139 ms include a $A9
0x00000180: 2c303030 20736563 72657461 7269616c ,000 secretarial
0x00000190: 2062696c 6c2c2024 41312c39 30392077 bill, $A1,909 w
0x000001a0: 6f727468 206f6620 73746174 696f6e65 orth of statione
0x000001b0: 72792061 6e642061 6c6d6f73 74202441 ry and almost $A
0x000001c0: 342c3030 3020696e 206d6f62 696c6520 4,000 in mobile

```

```
0x000001d0: 74656c65 70686f6e 65206578 70656e73 telephone expens
0x000001e0: 65732e3c 2f703e3c 703e5075 626c6963 es.</p><p>Public
0x000001f0: 6174696f 6e204461 74653a20 3136204f ation Date: 16 O
0x00000200: 63746f62 65722032 3030373c 2f703e3c tober 2007</p><
0x00000210: 7072653e 203c2f70 72653e pre> </pre>
```

```
Magazine [749] ..... ABX
Supplier [750] ..... Comtex
MyContentGatewayClient::OnGetNewsStoriesResponse(): Request id [43 00 00 00] now comple
Te
```

More Metadata Methods

We've already looked at the GetTableInfoList and GetTableSpecification methods near the start of this document. Now we'll have a quick look at the rest. Firstly we can have a look at what content sets we're permissioned for using GetPermissionInfo:

29

```
GetPermissionInfo() returned success
Symbol subscription quota ..... [NotInitialized]
```

<R>ealtime or <D>elayed: **R**

Available permission ids at permission level 0:

- 0 [PERMISSION_ID_NONE]
- 1 [PERMISSION_ID_NASDAQ_LEVEL1]
- 2 [PERMISSION_ID_NASDAQ_LEVEL2]
- 3 [PERMISSION_ID_NASDAQ_INDEX]
- 4 [PERMISSION_ID_NASDAQ_ADF]
- 5 [PERMISSION_ID_NYSE]
- 6 [PERMISSION_ID_NYSE_INDEX]
- 7 [PERMISSION_ID_AMEX]
- 8 [PERMISSION_ID_AMEX_INDEX]
- 9 [PERMISSION_ID_OPRA_COMPOSITE]
- 10 [PERMISSION_ID_OPRA_FCO]
- 11 [PERMISSION_ID_OPRA_INDEX]
- 12 [PERMISSION_ID_OPRA_FOREX]
- 13 [PERMISSION_ID_CBOT]
- 14 [PERMISSION_ID_CBOT_MINI]
- 15 [PERMISSION_ID_CBOT_DJ_INDEX]
- 16 [PERMISSION_ID_KCBOT]
- 17 [PERMISSION_ID_NYMEX]
- 18 [PERMISSION_ID_COMEX]
- 19 [PERMISSION_ID_NYBOT]
- 20 [PERMISSION_ID_CORPORATE_ACTION]
- 21 [PERMISSION_ID_SECURITY]
- 22 [PERMISSION_ID_COMPANY]
- 23 [PERMISSION_ID_TSX_LEVEL1]
- 24 [PERMISSION_ID_TSX_LEVEL2]
- 25 [PERMISSION_ID_TSX_INDEX]
- 26 [PERMISSION_ID_TSX_VENTURE_LEVEL1]
- 27 [PERMISSION_ID_TSX_VENTURE_LEVEL2]
- 28 [PERMISSION_ID_TSX_VENTURE_INDEX]
- 29 [PERMISSION_ID_NASDAQ_MFDS]
- 30 [PERMISSION_ID_DJN]
- 31 [PERMISSION_ID_COMTEX]
- 32 [PERMISSION_ID_CME]
- 33 [PERMISSION_ID_CME_E_MINI_LEVEL1]
- 34 [PERMISSION_ID_CME_E_MINI_LEVEL2]
- 35 [PERMISSION_ID_CME_GLOBEX_LEVEL1]
- 36 [PERMISSION_ID_CME_GLOBEX_LEVEL2]
- 37 [PERMISSION_ID_CME_SP_INDEX]
- 38 [PERMISSION_ID_INTERNAL]
- 39 [PERMISSION_ID_ARCA]
- 40 [PERMISSION_ID_BRUT]
- 41 [PERMISSION_ID_INET]
- 42 [PERMISSION_ID_OPRA_REGIONAL]
- 43 [PERMISSION_ID_MONTREAL_LEVEL1]
- 44 [PERMISSION_ID_ONE_CHICAGO]
- 45 [PERMISSION_ID_TENFORE]
- 46 [PERMISSION_ID_CFE]
- 47 [PERMISSION_ID_TSX_FOREX]
- 48 [PERMISSION_ID_ASX]
- 49 [PERMISSION_ID_HEMSCOTT]
- 50 [PERMISSION_ID_CNQ]

```

51 [PERMISSION_ID_COMTEX_PUBCO_CANADA]
52 [PERMISSION_ID_COMTEX_PUBLIC_COMPANIES]
53 [PERMISSION_ID_WORKSTATION_FULL]
54 [PERMISSION_ID_NEWSTEX]
55 [PERMISSION_ID_AMX]
56 [PBOT]
57 [TSX News]
58 [NASDAQ Total View]
59 [NYSE Open Book]
60 [Montreal Level 2]
61 [Midnight Trader Extended]
62 [NASDAQ Open View]
63 [Midnight Trader Earnings]
64 [Pink Sheets Level 2]
65 [MGEX]
66 [Eurex]
67 [Sydney Futures]
68 [CBOE Index]
69 [ICE Level1]
70 [Direct Edge]
71 [AMEX Depth Of Book]
72 [TSE]
73 [SGX]
74 [BOX Level 1]
75 [BOX Level 2]
76 [NSX]
77 [WCE]
78 [LME]
79 [Pure Trading Level 1]
80 [Pure Trading Level 2]
81 [Pink Sheets Level 1]
82 [Nagoya]
83 [Fukuoka]
84 [Sapporo]
85 [HKSE]
86 [OSE]
87 [BATS]
88 [Dubai Mercantile Exchange]
89 [ICE Level2]
90 [ITA Level 1]
91 [ITA Level 2]

```

Enter permission id: **1**

Available fields in permission id 1 at permission level 0:

All fields

Next we can use `GetRelationshipInfoList` to have a look at what relationships are defined for any given Context (Context is a field held in each record). Accept the default value to see the complete list of valid relationships for any Context:

32

Enter source context <4294967295>:

Context	RelId	Name
		Code identifier
0	102	USListing_Index
		RELATIONSHIP_ID_INDEX
0	105	USListing_Security
		RELATIONSHIP_ID_SECURITY
0	106	USListing_Company
		RELATIONSHIP_ID_COMPANY
0	108	USListing_OptionRoot
		RELATIONSHIP_ID_OPTION_ROOT
0	113	USListing_OptionPattern
		RELATIONSHIP_ID_OPTION
0	115	USListing_Analytics
		RELATIONSHIP_ID_ANALYTICS
0	119	USListing_Fundamental
		RELATIONSHIP_ID_FUNDAMENTAL
1	104	OptionPattern_Listing
		RELATIONSHIP_ID_LISTING
1	108	USEquityOptionPattern_OptionRoot
		RELATIONSHIP_ID_OPTION_ROOT
1	121	USEquityOptionPattern_Underlying
		RELATIONSHIP_ID_UNDERLYING
2	103	Index_IndexConstituent
		RELATIONSHIP_ID_INDEX_CONSTITUENT
2	104	Index_Listing

2 108 RELATIONSHIP_ID_LISTING
 Index_OptionRoot
 2 113 RELATIONSHIP_ID_OPTION_ROOT
 Index_OptionPattern
 RELATIONSHIP_ID_OPTION
 2 115 Index_Analytics
 RELATIONSHIP_ID_ANALYTICS
 5 102 AmericasListing_Index
 RELATIONSHIP_ID_INDEX
 5 105 AmericasListing_Security
 RELATIONSHIP_ID_SECURITY
 5 106 AmericasListing_Company
 RELATIONSHIP_ID_COMPANY
 5 108 AmericasListing_OptionRoot
 RELATIONSHIP_ID_OPTION_ROOT
 5 113 AmericasListing_OptionPattern
 RELATIONSHIP_ID_OPTION
 5 115 AmericasListing_Analytics
 RELATIONSHIP_ID_ANALYTICS
 5 119 AmericasListing_Fundamental
 RELATIONSHIP_ID_FUNDAMENTAL
 16 109 USFuture_FutureRoot
 RELATIONSHIP_ID_FUTURE_ROOT
 16 115 USFuture_Analytics
 RELATIONSHIP_ID_ANALYTICS
 16 116 USFuture_FutureOptionExpirationRoot
 RELATIONSHIP_ID_FUTURE_OPTION_EXPIRATION_ROOT
 16 120 USFuture_FutureOptionPattern
 RELATIONSHIP_ID_FUTURE_OPTION
 17 110 USFutureOptionPattern_FutureOptionRoot
 RELATIONSHIP_ID_FUTURE_OPTION_ROOT
 17 117 USFutureOptionPattern_Future
 RELATIONSHIP_ID_FUTURE
 21 115 MutualFund_Analytics
 RELATIONSHIP_ID_ANALYTICS
 23 115 Fund_Analytics
 RELATIONSHIP_ID_ANALYTICS
 24 108 Forex_OptionRoot
 RELATIONSHIP_ID_OPTION_ROOT
 24 113 Forex_OptionPattern
 RELATIONSHIP_ID_OPTION
 25 102 OptionRoot_Index
 RELATIONSHIP_ID_INDEX
 25 104 OptionRoot_Listing
 RELATIONSHIP_ID_LISTING
 25 107 OptionRoot_OptionDeliverable
 RELATIONSHIP_ID_OPTION_DELIVERABLE
 25 113 OptionRoot_OptionPattern
 RELATIONSHIP_ID_OPTION
 25 118 OptionRoot_Forex
 RELATIONSHIP_ID_FOREX
 25 121 OptionRoot_Underlying
 RELATIONSHIP_ID_UNDERLYING
 26 108 OptionDeliverable_OptionRoot
 RELATIONSHIP_ID_OPTION_ROOT
 27 117 FutureRoot_Future
 RELATIONSHIP_ID_FUTURE
 28 120 FutureOptionRoot_FutureOptionPattern
 RELATIONSHIP_ID_FUTURE_OPTION
 30 104 Security_Listing
 RELATIONSHIP_ID_LISTING
 31 104 Company_Listing
 RELATIONSHIP_ID_LISTING
 32 104 Company_Listing
 RELATIONSHIP_ID_LISTING
 33 104 Company_Listing
 RELATIONSHIP_ID_LISTING
 34 104 Company_Listing
 RELATIONSHIP_ID_LISTING
 35 104 Company_Listing
 RELATIONSHIP_ID_LISTING
 40 104 Analytics_Symbol
 RELATIONSHIP_ID_LISTING
 42 109 AmericasFuture_FutureRoot
 RELATIONSHIP_ID_FUTURE_ROOT
 42 115 AmericasFuture_Analytics
 RELATIONSHIP_ID_ANALYTICS
 42 120 AmericasFuture_FutureOptionPattern

```

    RELATIONSHIP_ID_FUTURE_OPTION
43  108 AmericasEquityOptionPattern_OptionRoot
    RELATIONSHIP_ID_OPTION_ROOT
43  110 AmericasFutureOptionPattern_FutureOptionRoot
    RELATIONSHIP_ID_FUTURE_OPTION_ROOT
43  117 AmericasFutureOptionPattern_Future
    RELATIONSHIP_ID_FUTURE
43  121 AmericasEquityOptionPattern_Underlying
    RELATIONSHIP_ID_UNDERLYING
#

```

Finally we'll finish up by looking at the total list of fields in the system using GetUniversalFieldHelperMap and how to use the GetUniversalFieldHelper method to return a field helper given a field id or code identifier:

```

# 33
FID Name                                     Type
0 Bid                                       TRational
1 BidSize                                  UInt
2 BidCondition                             BinaryString
3 BidTime                                  Time
4 BidExchange                             TextString
5 Ask                                       TRational
6 AskSize                                  UInt
7 AskCondition                             BinaryString
8 AskTime                                  Time
9 AskExchange                             TextString
10 MarketMakerStatus                      BinaryString
11 QuoteDate                              Date
12 Trade                                   TRational
13 TradeSize                               UInt
14 TradeCondition                         BinaryString
15 TradeTime                              Time
16 TradeDate                              Date
17 TradeExchange                         TextString
18 TradeHigh                             Rational
19 TradeHighCondition                     BinaryString
20 TradeHighTime                          Time
21 TradeHighExchange                     TextString
22 TradeLow                              Rational
23 TradeLowCondition                     BinaryString
24 TradeLowTime                          Time
25 TradeLowExchange                     TextString
26 TradeCount                             UInt
27 Current                                TRational
28 CurrentCondition                       BinaryString
29 CurrentTime                            Time
30 CurrentDate                            Date
31 CurrentHigh                           Rational
32 CurrentHighTime                       Time
33 CurrentLow                            Rational
34 CurrentLowTime                        Time
35 Open                                   Rational
36 OpenSize                               UInt
37 OpenCondition                         BinaryString
38 OpenTime                              Time
39 OpenExchange                         TextString
40 FirstTrade                            Rational
41 FirstTradeTime                        Time
42 OrderPrice                            Rational
43 OrderSize                              UInt
44 OrderTime                             Time
45 OrderDate                             Date
46 OrderBuySell                          TextArray
47 OrderSequenceNumber                   UInt
48 OrderState                            UInt
49 OrderType                             UInt
50 CumulativePrice                       Rational
51 CumulativeValue                       Rational
52 CumulativeVolume                      UInt
53 PrePostMarketCumulativeVolume         UInt
54 NetChange                             TRational
55 PercentChange                         TRational
56 ClosingBid                            Rational
57 ClosingBidExchange                    TextString
58 ClosingAsk                            Rational

```



```

59 ClosingAskExchange      TextString
60 ClosingQuoteDate       Date
61 Close                   Rational
62 CloseCondition          BinaryString
63 CloseStatus             UInt
64 CloseTime               Time
65 CloseDate               Date
66 CloseExchange           TextString
67 CloseCumulativeVolume   UInt
68 CloseCumulativeVolumeStatus UInt
69 CloseCumulativeVolumeDate Date
70 CloseCumulativeValue     Rational
71 CloseCumulativeValueStatus UInt
72 CompositeClose           Rational
73 CompositeCloseDate       Date
74 CompositeCloseExchange   TextString
75 Settlement              Rational
76 SettlementSize           UInt
77 SettlementStatus         UInt
78 SettlementTime           Time
79 SettlementDate           Date
80 Bid1                    TRational
81 Bid1Time                Time
82 Bid1Size                 UInt
83 Bid1Count                UInt
84 Ask1                     TRational
85 Ask1Time                 Time
86 Ask1Size                 UInt
87 Ask1Count                UInt
88 Bid2                     Rational
89 Bid2Count                UInt
90 Bid2Size                 UInt
91 Bid3                     Rational
92 Ask2                     Rational

# 34
Enter field id: 0
Field id ..... 0
Name ..... Bid
Code identifier ..... FID_BID
Description ..... Bid price
Type ..... TRational
Maximum length ..... 10

# 35
Enter code identifier (e.g. FID_BID): FID_BID
Field id ..... 0
Name ..... Bid
Code identifier ..... FID_BID
Description ..... Bid price
Type ..... TRational
Maximum length ..... 10
#

```

Application Shutdown

To shut down the application, first disconnect the sample using option 4. Then 'q' to quit to the <Main> menu. Then choose option 6:

```

# 4
Disconnect() returned success.
# 14:51:05 [ApiSample:3] Received async disconnect
14:51:05 [RouterService:5] Deallocating client connection component 6:5
# 2
Connection state ..... initialized
# q
<Main> menu options:
1. Display available ui components
2. Display available middleware ui components
3. Display system menu
4. Display process menu
5. Display command prompt
6. Shutdown system
or enter (unique partial) ui component name
# 6
Shutdown ContentGatewayApiSample on GUID? (y/n) <n>: y

```

```
# 23:59:49 [ContentGatewayApiSample:7] ---- Initiating system shutdown (from ui) ----
23:59:49 [PubSubService:0] Removed subscription to </monitor/endpoint/ContentGatewayApi
Sample/> by 1:3
23:59:49 [PubSubService:0] Removed subscription to </monitor/system/> by 1:3
23:59:49 [ContentGatewayApiSample:0] ---- ContentGatewayApiSample shutdown (uptime 0 da
ys, 12:14:10) ----
23:59:49 [PubSubService:0] Removed subscription to </system/endpoint/> by 2:0
23:59:49 [PubSubService:0] Removed subscription to </system/endpoint/> by 5:0
23:59:49 [PubSubService:0] Removed subscription to </system/endpoint/> by 6:0
```