



Archipelago Exchange Clearing Information and Guidelines

For the Archipelago Exchange, LLC

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Contents

Introduction	3
Clearing Overview	3
Access to ArcaEx for Order Entry	4
Execution Information.....	4
ETP Identification within ArcaEx.....	6
Contra Party Information and Locked In Trades	7
Specifics of Execution Information.....	7
Reconciliation.....	7
Compression.....	9
Confirms.....	9
Trading as a Sponsored Participants	10
Trade Adjustments, Busts and Clearing Questions.....	10
Appendix I – ArcaEx Trade Clearing Exhibits	11
Appendix II – ArcaEx / PCX RIO Output	13
Appendix III – FIX Drop Copy File Layout and Sample	14
Appendix IV – AOF Sample Report.....	17
Appendix V - DTCC Specifications.....	18
Appendix VI – ArcaEx Compression.....	34

Introduction

The Archipelago Exchange (ArcaEx) is a trading venue for equities. Operating under the regulatory oversight of the Equities division of the Pacific Exchange (PCXE) as Self Regulatory Organization (SRO) for ArcaEx, eligible stocks include the NYSE, AMEX, NASDAQ and PCX listed securities. On ArcaEx, all orders are electronically matched without the use of a trading floor or human intervention using Price/Time priority through the Archipelago Trading System. In order to participate in the Archipelago Exchange, registered broker/dealers and their clearing firms are required to become Equity Trading Permit holders (ETPs) of the PCXE. This is functionally the equivalent of exchange membership at other exchanges. Trading entities that are not broker/dealers may access ArcaEx by becoming a Sponsored Participant (ETSP) and having an ETP holder sponsor their firm.

When a trade is matched on the ArcaEx, the execution occurs between two ETP holders. If the trade is routed away from ArcaEx, the execution contra will be the ETP Id of the routing broker, ARCA for listed and ARRB for OTC.

See Appendix I of this document for an example of the ArcaEx Trade Clearing Exhibits.

Additional information and an ETP Application may be found at:
<http://www.archipelago.com/exchange/pdfs/ETPApplications.pdf>

Clearing Overview

Like other exchanges, all transactions are submitted directly to Depository Trust Clearing Corporation (DTCC) as locked-in trades with both sides of the transaction identified. ArcaEx submits trades to their facilities manager, the Securities Industry Automation Corporation (SIAC) for processing several times during the trading day. Since ArcaEx is a registered facility of the Pacific Exchange, PCXE will appear as the market of execution for all trades.

All trades executed on ArcaEx appear on DTCC's PCXE Regional Interface Organization (RIO) report. ArcaEx will not report any trades via ACT, QSR or Correspondent Flip.

The RIO report will detail all trades executed on ArcaEx and will include the contra ETP ID. ArcaEx submits trades to DTCC for processing 6 times during the trading day. Self Clearing ETP holders (CETP) receive their RIO output from SIAC at approximately 2:00 am (EST) on T+1. ArcaEx encourages all CETPs to contact their DTCC representative to arrange for receipt of the PCX RIO Output.

See Appendix II of this document for an example of the ArcaEx / PCX RIO output.

As executions occur during the trading day, they are available to a participant and/or their clearing firm via the Archipelago Orders and Fills (AOF) process. AOF publishes

executions via a secure website where users may download trade information in a CSV format. Basic trade execution information is available via AOF within 6 minutes of the trade. Contra-party execution information is available via AOF at approximately 4:15 pm ET. The RIO Id is displayed on AOF at 11:00 pm ET. In Q1 2003, it's expected that this trade information will be available in an FTP format that is "pushed" out to ETPs and their clearing firms. To be permissioned for the AOF, please contact your Arca Sales Rep or ArcaEx Connectivity at 888-689-7739 or Connectivity@tradingarca.com.

Access to ArcaEx for Order Entry

There are two ways to enter orders into ArcaEx:

- The FIX protocol is supported for those firms that have their own Order Management Systems (OMS). FIX allows for ETPs to customize trade identification; this trade information may in turn be passed through to the clearing firm to aid in post trade processing.
- For firms that do not have an OMS, RealTick®, an application developed by Townsend Analytics, L.L.C., is available for order entry and management. ETPs connecting via RealTick may also utilize client identification information that may be passed on to clearing firms to aid in subsequent trade processing.

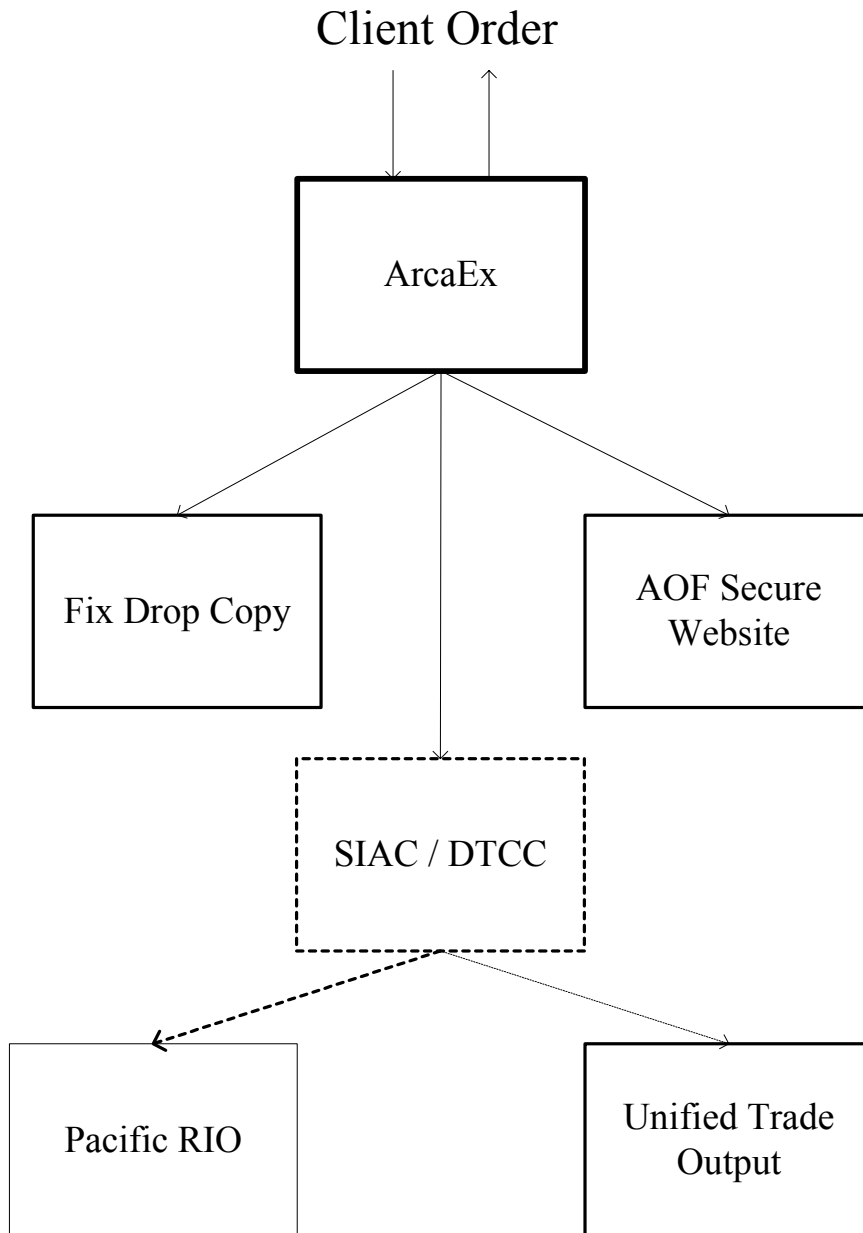
For more information on connectivity options and requirements, please contact the ArcaEx Connectivity group at 888-689-7739 or Connectivity@tradingarca.com.

Execution Information

When fills occur on ArcaEx, fill reports are sent back to the customer either via FIX or RealTick. In addition to fill reports, information about ArcaEx executions is also available in several other formats as described below.

- **FIX Drop Copy** – Drop copies of executions are available via FIX for firms that have the capability to receive and process them. Firms may elect to use this as a backup to their customer side clearing process or as a primary source for bookkeeping information. FIX drop copies may be directed to the ETP's clearing broker as well. Please see Appendix III in this document for further drop copy information.
- **AOF Website** – ArcaEx execution information is also posted to the AOF Secure Website where it may be retrieved by ETPs and their clearing firms. ETPs and their clearing firms may choose to download information in a .CSV format (Excel) from the AOF Secure Website to assist in back office processing. In Q1 2003, it's expected that this trade information will be available in an FTP format that is "pushed" out to ETPs and their clearing firms. Please see Appendix IV in this document for further information.
- **DTCC** – ArcaEx execution information for all trades is transmitted to the DTCC for inclusion in the national clearing process and will appear on the RIO report. The RIO

report will be the source for all trades executed on ArcaEx. It is important to note that OTC securities executed on the ArcaEx will appear on the RIO report just as listed exchange traded securities; these trades will not appear on OTC contracts. DTCC also offers the Unified Trade Output (UTO), which will act as an enhanced and expanded version of the RIO report. While the UTO report is currently available, the expanded and firm-specific information such as the OnBehalfOf, SenderSubID, ClOrderID and ExecutionID data fields may not be available until Q1, 2003. Participants should contact their DTCC representative for more information. Please see Appendix V in this document for further information.



ETP Identification within ArcaEx

ArcaEx uses a series of identifiers to define the client and their orders. Some of these identifiers are ArcaEx assigned and others are determined by the ETP. The ArcaEx assigned identifiers, such as Domain, are used to assist clients with unique needs for Billing and Clearing. Below are other key identification fields:

- Primary Identifier
 - ETPid – Each registered broker-dealer who applies and is approved for trading on ArcaEx will be assigned an ETP ID. This is a unique 5 character mnemonic that is generally comprised of the firm’s NASDAQ MMID plus an A. An example of an ETP ID would be WXYZA. The ETP ID is returned to the client in the FIX *OnBehalfOf* tag.
- Secondary Identifiers
 - FIX Clients
 - *SenderSubId* – sent by the client to identify the trader, branch or other subgroup of users SenderSubId is not passed on to SIAC for display on the RIO output. It is, however, available on the DTCC’s Unified Trade Output and/or AOF.
 - *ClOrdId* – Sent by the client as an order reference value for each order sent – usually unique. ClOrdId is not passed onto SIAC for display on the RIO output. It is, however, available on DTCC’s Unified Trade Output and/or AOF.
 - *CompId* - used to identify the “connection” between ArcaEx and the ETP or ETSP. Usually similar to the Domain, the CompId is used for billing. CompId is not passed on to SIAC for display on the RIO output but is made available on AOF reports.
 - RealTick Clients
 - Domain – used to identify a group of users within the same firm; this may be based on function (Block Desk, Arb Desk etc.)
 - User – used to identify the person logged onto the Realtick Trading System. This information is not passed on to clearing. User is not passed on to SIAC for display on the RIO output. It is however available on AOF.

In Q4 2002, ArcaEx will add a unique *Execution Id* to each transaction. This *Execution Id* will be made available on the output from DTCC, AOF, FIX fill reports and FIX drop copies.

Contra Party Information and Locked In Trades

The Archipelago Exchange provides matching of trades in an anonymous manner and does not publish Contra Party information until approximately 4:15 p.m. ET on the AOF Secure Website. As an electronic venue, all transactions are submitted directly to DTCC as locked in trades with both sides of the transaction identified.

Specifics of Execution Information

FIX executions and drop copies contain:

- *OnBehalfOf*
- *SenderSubId*
- *ClOrdId*
- *Execution Id*¹

The AOF Website reports contain:

- *OnBehalfOf*
- *SenderSubId*
- *ClOrderId*
- *RIO Id*
- *Execution Id*
- *User*

DTCC RIO output will contain:

- *OnBehalfOf*
- *RIO Id*
- *Execution Id*

DTCC Unified Trade Output² will contain:

- *OnBehalfOf*
- *SenderSubId*
- *ClOrderId*
- *Execution Id*

Reconciliation

ArcaEx provides ETP holders with the customer and street side execution information as well as the four key pieces of information shared by ArcaEx and DTCC (*OnBehalfOf*, *SenderSubId*, *ClOrderId* and *Execution Id* upon implementation of the expanded format) to simplify reconciliation processing.

Information Flowchart

FIX TAG	Sent by ETP	FIX Drop	AOF Field Name	Unified Trade Field names	Pacific RIO Field name
---------	-------------	----------	----------------	---------------------------	------------------------

¹ *Execution ID* available Q4 2002

² Expanded UTO available Q1 2003

		Copy Field Name		- DTCC- (subject to modification by DTCC)	- DTCC-
<i>Via FIX</i>					
32	ClOrdId	ClOrdId	ClOrdId	Client Id plus 2 nd Client Id Fields (296-310 plus 311-325)	N/A
50	SenderSubId	UserTag1	UserTag1	Order Id Fields (281-295)	N/A
115	OnBehalfOf	N/A	ETPid	Entering Broker Fields (47-50)*	Buy/Sell Executing Broker Fields(97-100 or 101-104)*
<i>Via Realtick</i>					
N/A	Domain	UserTag1	UserTag1	Order Id Fields (281-295)	N/A
N/A	User	User Name	User Name	N/A	N/A
Added by ArcaEx					
TBD	Execution Id	TDB	RIOId	Market Control Number Fields (326-334)	N/A

The fields in the chart above identify all key matching information for reconciling both the customer and the street side of ArcaEx executions.

- Customer Side Information - Many ETPs receive customer clearing information from their own internal systems as executions occur. ArcaEx provides ETPs a copy of the execution that may also be used to build the customer side of the trade via FIX drop copies or AOF website reports. Fix drop copies may also be sent to third parties such as clearing firms.
- Street Side Information – Street side clearing information is available from DTCC on either the PSE RIO or the UTO outputs. ArcaEx publishes the information that will be sent to DTCC for ETPs trades on the AOF website. This clearing information may be previewed by accessing the AOF website after 4:15 pm ET when the contra side information becomes available.

Appendix V of this document contains the DTCC Specifications for both the PSE RIO and the UTO output files. Contact your DTCC representative to obtain the most up-to-date programming specifications.

Compression

Trade compression is the process whereby many trades are aggregated into as few trades as possible based on the specific compression criteria of ETP holder, Contra ETP holder, stock, and side. Frequently called “bunching,” compression is important to reducing overall clearing costs.

- On the ArcaEx, parties trade directly with each other and trades may be compressed by ETP holder, Contra ETP holder, stock, and side.
- ETP holders must agree to two-sided compression. The ArcaEx trading and clearing systems will maintain relationship tables identifying the ETP holders who agree to two-sided compression. If one ETP holder agrees to two-sided compression and the other does not, the system cannot compress that trade.
- ArcaEx will compress trades by ETP holder, domain, ETP contra, domain, stock, and side, and show the total volume at an average price to **six** decimal places, (eg., \$22.123456).
- ArcaEx will process and submit compressed trade records to DTCC twice a day corresponding to the core session times of 12 pm and 4 pm ET.
- ArcaEx will only compress trades executed from 8 am ET to 4 pm ET. For any compression cycle, the system will use trades up to the time of the compression cycle. For example, if ArcaEx compresses at 12:00:00 pm ET, the system should only compress trades executed from 8 am ET to 12 pm ET. These compressed records will be submitted to DTCC on the next scheduled RIO transmission. When ArcaEx compresses trades again at 4 pm ET, the system will compress trades executed from 12:00:01 pm ET to 4:00:00 pm ET. Again, these compressed records will be submitted to DTCC on the next scheduled RIO transmission.
- At the end of the trading day, ArcaEx will post the compressed trade records as well as the detail trade records on the AOF website for customer use.

See Appendix VI in this document for an example and additional compression information.

Confirms

All transactions that occur on ArcaEx are reported with the market of execution designated as the Pacific Exchange (PCXE).

Trading as a Sponsored Participants

Firms that are not Broker/Dealers may trade on the ArcaEx by gaining sponsorship (SP) through an ETP holder. All of the ArcaEx technical connections will function as if the SP was an ETP holder but all trades executed and cleared will be displayed under the name of the sponsoring ETP. A list of ETPs may be found on the Archipelago website (www.Archipelago.com) under the “Exchange” section.

Trade Adjustments, Busts and Clearing Questions

All modifications and trade busts are performed by the ArcaEx using its interface to DTCC. It is not possible to pick up or modify trades using ACT or OCS as these are proprietary systems of NASDAQ and NYSE. Trade busts are submitted to DTCC as reversals of the original trade record and identified on the RIO output with an “R” indicator in the RV Ind field. See Appendix II of this document for an example of a PSE RIO reversal.

- All ArcaEx trade bust or price adjustment requests must be communicated to the ArcaEx Trade Support desk. The ArcaEx Trade Support desk may be reached at 1-888-513-9873 or Trading@tradedearca.com from 8:00 am to 8:00 pm (ET).
- If you have trade breaks or have clearing questions, please contact the ArcaEx Security Operations department at 312-442-7089 or ExchangeSecOps@tradedearca.com from 8:00 am to 8:00 pm (ET).

See Appendix II in this document for additional information.

Appendix I – ArcaEx Trade Clearing Exhibits

Exchange Clearing



Arca reports all executions performed on the ArcaEx to NSCC via the daily RIO transmissions. ETP holders or their clearing firms receive PCX / ArcaEx RIO blotters from NSCC for executions performed on the ArcaEx on T+1. These blotters display the contra ETP Id.

Routing Broker Clearing



Arca reports all executions performed on the ArcaEx to NSCC via the daily RIO transmissions. ETP holders or their clearing firms receive PCX / ArcaEx RIO blotters from NSCC for executions performed on the ArcaEx on T+1. These blotters display the contra ETP Id. The Routing Broker ETP ID ARCA will be used for listed issues while the ETP ID ARRB will be used for OTC issues.

Appendix II – ArcaEx / PCX RIO Output

The exhibit below is provided as an example of DTCC’s Regional Interface Operations (RIO) Output.

1 NATIONAL SECURITIES CLEARING CORPORATION		REGIONAL INTERFACE OPERATIONS REPORT - RIO										PAGE	182
STOCK S A L E CONTRACT		TRANSACTIONS RECORDED FOR SETTLEMENT AT NSCC										T-DATE:	T+0
MEMBER NO 0000 Member Name		RECEIVED FROM THE PACIFIC STOCK CLEARING CORP										PROCESS-DATE: mm/dd/yyyy	
		TRADE-DATE: mm/dd/yyyy SETTLEMENT-DATE: mm/dd/yyyy											
SYMBOL - SECURITY DESCRIPTION	CONTRACT	SELL	BUY	TRADE	BRANCH	EXEC	STK	RV	SPCL	PRC			
CUSIP	MONEY	EXEC	PRICE	BUYER	EXEC	REFNUM	ID-SEQ	TIME	BND	IND	TRADE	VAR	

OBK	- BANK OF NEW YORK INC												
064057 10 2													
	100	2,987.00	ETPID	29.870000	0234	MPBS	009E2A	-	14:49	S			
	1,000	30,060.00	ETPID	30.060000	0050	MSCO	009213	-	13:18	S			
	600	18,306.00	ETPID	30.510000	0234	MPBS	0095DD	-	10:24	S	R		
	200	6,152.00	ETPID	30.760000	0551	PRMT	00392F	-	10:01	S			
TOTAL	1,900	57,505.00											

The highlighted record above identifies a trade which has been busted. Busted trades are identified on the RIO output with an “R” in the reversal indicator field.

Appendix III – FIX Drop Copy File Layout and Sample

The message header format is as follows:

Message Header

Tag	Field Name	Req'd	Comments
8	BeginString	Y	FIX.4.0 <i>(Always unencrypted, must be first field in message)</i>
9	BodyLength	Y	<i>(Always unencrypted, must be second field in message)</i>
35	MsgType	Y	<i>(Always unencrypted, must be third field in message)</i>
49	SenderCompID	Y	<i>(Always unencrypted)</i>
56	TargetCompID	Y	<i>(Always unencrypted)</i>
115	OnBehalfOfCompID	N	Trading partner company ID used when sending messages via a third party <i>(Can be embedded within encrypted data section.)</i>
128	DeliverToCompID	N	Trading partner company ID used when sending messages via a third party <i>(Can be embedded within encrypted data section.)</i>
90	SecureDataLen	N	Required to identify length of encrypted section of message. <i>(Always unencrypted)</i>
91	SecureData	N	Required when message body is encrypted. Always immediately follows SecureDataLen field.
34	MsgSeqNum	Y	<i>(Can be embedded within encrypted data section.)</i>
50	SenderSubID	N	<i>(Can be embedded within encrypted data section.)</i>
57	TargetSubID	N	“ADMIN” reserved for administrative messages not intended for a specific user. <i>(Can be embedded within encrypted data section.)</i>
116	OnBehalfOfSubID	N	Trading partner SubID used when delivering messages via a third party. <i>(Can be embedded within encrypted data section.)</i>
129	DeliverToSubID	N	Trading partner SubID used when delivering messages via a third party. <i>(Can be embedded within encrypted data section.)</i>
43	PossDupFlag	N	Always required for retransmissions, whether prompted by the sending system or as the result of a resend request. <i>(Can be embedded within encrypted data section.)</i>
97	PossResend	N	Required when message may be duplicate of another message sent under a different sequence number. <i>(Can be embedded within encrypted data section.)</i>

52	SendingTime	Y	<i>(Can be embedded within encrypted data section.)</i>
122	OrigSendingTime	N	Required for message resends. If data is not available set to same value as SendingTime <i>(Can be embedded within encrypted data section.)</i>

Message trailer

Each message, administrative or application, is terminated by a standard trailer. The trailer is used to segregate messages and contains the three digit character representation of the Checksum value.

The message trailer format is as follows:

Message Trailer

<i>Tag</i>	<i>Field Name</i>	<i>Req'd</i>	<i>Comments</i>
93	SignatureLength	N	Required when trailer contains signature. <i>Note: Not to be included within SecureData field</i>
89	Signature	N	<i>Note: Not to be included within SecureData field</i>
10	Checksum	Y	<i>(Always unencrypted, always last field in message)</i>

FIX Drop Copy Sample

```

09:34:07.781 -T-   BeginString=FIX.4.0
09:34:07.781 -T-   BodyLength=275
09:34:07.781 -T-   MsgType=8
09:34:07.781 -T-   DeliverToCompID=MPID
09:34:07.781 -T-   DeliverToSubID=u59161
09:34:07.781 -T-   MsgSeqNum=411

```

09:34:07.781 -T- SenderCompID=XXX
09:34:07.781 -T- TargetCompID=XXXX
09:34:07.781 -T- SendingTime=20021204-14:34:07
09:34:07.781 -T- OrderID=15-9e1-268-0001-00-0
09:34:07.781 -T- ExecTransType=0
09:34:07.781 -T- OrdStatus=2
09:34:07.781 -T- OrderQty=600
09:34:07.781 -T- Symbol=MO
09:34:07.781 -T- SecurityID=718154107
09:34:07.781 -T- IDSource=1
09:34:07.781 -T- Account=FIXSRV;FIX ACCOUNT;FIX ACCOUNT;FIX
09:34:07.781 -T- TransactTime=20021204-14:34:07
09:34:07.781 -T- TradeDate=20021204
09:34:07.781 -T- Side=2
09:34:07.781 -T- LastPx=38.890000
09:34:07.781 -T- LastShares=600
09:34:07.781 -T- CumQty=600
09:34:07.781 -T- AvgPx=38.890000
09:34:07.781 -T- ExecBroker=ETPID
09:34:07.781 -T- LastMkt=P
09:34:07.781 -T- 9730=X
09:34:07.781 -T- LastCapacity=2
09:34:07.781 -T- ExecID=0
09:34:07.781 -T- CheckSum=079

Appendix IV – AOF Sample Report

Company Name	User Name	ETPID	ETP Contra ID	ETP Contra Clearing Firm	Domain	Trade Date	Time	Buy/Sell	Volume	Symbol	cusip	Price	Dollar Amount
ETP Name	FIX-USER16	MPIDA	MPIDB	385	NAME	12/10/2002	8:02:27	Buy	200	NOK	654902204	17.55	3,510.00
ETP Name	FIX-USER17	MPIDA	MPIDB	164	NAME	12/10/2002	8:02:44	Buy	68	NOK	654902204	17.55	1,193.40
ETP Name	FIX-USER18	MPIDA	MPIDB	188	NAME	12/10/2002	8:02:55	Buy	450	NOK	654902204	17.55	7,897.50
ETP Name	FIX-USER19	MPIDA	MPIDB	501	NAME	12/10/2002	8:03:20	Buy	500	NOK	654902204	17.55	8,775.00

Order ID	User Ord #	Client Order ID	Sequence Number	User Tag 1	User Tag 2	Clearing #	MPID	Bank	Branch	Customer	Deposit	
09e7-0066-00df-01	00-9e7-87-000f-00-0	20NB21210	AB232	USER25	FIX	49		4	ARCA	ARCA	ARCA	ARCA
09e7-0066-00df-02	00-9e7-87-000f-00-0	20NB21210	AB232	USER26	FIX	49		5	ARCA	ARCA	ARCA	ARCA
09e7-0066-00df-03	00-9e7-87-000f-00-0	20NB21210	AB232	USER27	FIX	49		6	ARCA	ARCA	ARCA	ARCA
09e7-0066-00eb-03	00-9e7-6f-0026-00-0	56NB21210	AB245	USER28	FIX	49	09e7-0026-0001-00		ARCA	ARCA	ARCA	ARCA

Good_from	good_until	rioid	Properties
		00215F	Posted
		00215F	Posted
		00215F	Posted
		0027BB	Posted

Appendix V - DTCC Specifications

NSCC Participant Data Received From SIAC

Header **Detail** **Trailer**

<i>REGIONAL TRADE ACTIVITY (RIO)</i>					<i>Header</i>
<i>AUTOROUTE ID 02142125</i>					<i>Record Length 133</i>
Description	Length	Start	End	Type	Comments
NSCC Broker Number	4	1	4	N	NSCC Participant Number
Future Use	1	5	5	A	Spaces
Title	6	6	11	A	HEADER
Future Use	18	12	29	A	Spaces
Title 2	8	30	37	A	RIOMRO
Title 3	13	38	50	A	CREATION DATE
Future Use	10	51	60	A	Spaces
Creation Date	8	61	68	N	MMDDCCYY
Future Use	65	69	133	A/N	Spaces
6/26/97					END OF RECORD

Header **Detail** **Trailer**

<i>REGIONAL TRADE ACTIVITY (RIO)</i>					<i>Detail</i>
<i>AUTOROUTE ID 02142125</i>					<i>Record Length 133</i>

Description	Length	Start	End	Type	Comments
NSCC Broker Number	4	1	4	N	NSCC Participant Number
Buy/Sell Code	1	5	5	A/N	B = Buy S = Sell
Minor Broker Number	4	6	9	N	NSCC Participant Number
Shares	9	10	18	N	999,999,999
Security Symbol	12	19	30	A/N	Alpha Symbol
CUSIP	9	31	39	A/N	S&P Assigned
When Issued Indicator	1	40	40	N	0 = Regular Way 1 = When Issued
Foreign Indicator	1	41	41	N	0 = Domestic 1 = Foreign
Exchange Indicator	1	42	42	N	0 = NYSE 1 = AMEX 2 = OTC
Currency Indicator	3	43	45	A/N	USD = US Dollars
Price	12	46	57	N	999,999.999999
Net Value	16	58	73	N	99,999,999,999,999.99
Trade Date	8	74	81	N	MMDDCCYY
Settlement Date	8	82	89	N	MMDDCCYY
CNS Indicator	1	90	90	N	0 = Non-CNS 1 = CNS
Originator	3	91	93	A/N	BOS = Boston CIN = Cincinnati MDW = Chicago OCC = Option Clr. Cor. PAC = Pacific PBW = Philadelphia DID = ID RCB = CBOE
System Trade Source	1	94	94	A/N	Space = Default

Stock/Bond Indicator	1	95	95	A/N	B = Bond S = Stock
Coupon/Registered Indicator	1	96	96	A/N	C = Coupon R = Registered I = Interchangeable Space = Equity
Sell Executing Broker – First 4 characters of ETPID	4	97	100	A/N	Executing Broker Symbol
Buy Executing Broker- First 4 characters of ETPID	4	101	104	A/N	Executing Broker Symbol
Time of Execution	4	105	108	N	HHMM
Branch Id	4	109	112	A/N	
Sequence Number	4	113	116	A/N	
Trade Sequence Number (not used) – Last 6 of Execution Id	6	117	122	A/N	
Special Trade Indicator	1	123	123	A/N	X = Special Trade Space = Normal Trade
Error Code	1	124	124	A/N	0 = No Errors 1 = Participant Error 2 = Date Error 3 = CUSIP Error 4 = Quantity Error 5 = Trade Value Error M = Multiple Errors
Price Variance Indicator	1	125	125	A/N	0 = No Warning 1 = Price Variance Warning
Reversal Indicator	1	126	126	A/N	Space = Normal R = Reversal
Futures Indicator	1	127	127	A/N	Space = Normal F = Expired Security Future
Future Use	6	128	133	A/N	Spaces
8/15/2001					END OF RECORD

[Header](#)
[Detail](#)
[Trailer](#)

REGIONAL TRADE ACTIVITY (RIO)					Trailer
AUTOROUTE ID 02142125					Record Length 133
Description	Length	Start	End	Type	Comments
NSCC Number	4	1	4	N	NSCC Participant Number
Future Use	1	5	5	A/N	Spaces
Trailer Literal	14	6	19	A/N	TRAILER
Future Use	10	20	29	A/N	Spaces
Number of Items	7	30	36	N	9,999,999
Future Use	1	37	37	A/N	Spaces
Number of Shares	11	38	48	N	99,999,999,999
Future Use	1	49	49	A/N	Spaces
Total Value	18	50	67	N	9,999,999,999,999,999.99
Future Use	66	68	133	A/N	Spaces
6/26/97					END OF RECORD

[Header](#)
[Detail](#)
[Trailer](#)

NEW UNIFIED TRADE FORMAT FOR INTRADAY OUTPUT

The unified format applies to all products. Each product uses a unique AutoRoute number to identify its data.

NSCC INTRADAY OUTPUTS DETAIL RECORD LENGTH:400		
PRODUCT	AUTOROUTE ID	AVAILABILITY
NYSE	02013036	OCT 2001
AMEX	02013037	NOV 2002
NASDAQ/OTC	02023183	SEPT 2001
RIO	02143125	NOV 2001
CORR	02063127	OCT 2001

DESCRIPTION	LENGTH	START	END	TYPE	COMMENTS
PARTIES DATA					
Major Clearing Firm	4	1	4	A/N	Market Mnemonic
" "	4	5	8	A/N	Future Use
" "	4	9	12	A/N	Future Use – Zero Filled
" "	4	13	16	A/N	NSCC Participant Number
" "	11	17	27	A/N	BIC Format
Major Executing Broker	4	28	31	A/N	Badge Identifier or For Account Of (FAO) if Step Out
" "	4	32	35	A/N	Future Use
" "	11	36	46	A/N	BIC Format
Major Entering Broker	4	47	50	A/N	Market Mnemonic

" "	7	51	57	A/N	Future Use
Contra Clearing Firm	4	58	61	A/N	Market Mnemonic
" "	4	62	65	A/N	Future Use
" "	4	66	69	A/N	Future Use – Zero Filled
" "	4	70	73	A/N	NSCC Participant Number
" "	11	74	84	A/N	BIC Format
Contra Executing Broker	4	85	88	A/N	Badge Identifier or For Account Of (FAO) if Step Out
" "	4	89	92	A/N	Future Use
" "	11	93	103	A/N	BIC Format
Order Capacity	1	104	104	A/N	For NYSE and AMEX: A = Agency single order B = Short exempt transaction (refer to A type) C = Program Order, non-index arbitrage, for Member firm/ organization D = Program Order, index arbitrage, for Member firm/ organization E = Registered Equity Market Maker trades F = Short exempt transaction (refer to W type) H = Short exempt transaction (refer to I type) I = Individual Investor single order J = Program Order, index arbitrage, for Individual customer K = Program Order, non-index arbitrage, for individual customer L = Short exempt transaction for member competing market-maker affiliated with the firm clearing the trade (refer to P and O types)

					<p>M = Program Order, index arbitrage, for other member N = Program Order, non-index arbitrage, agent for other member O = Competing dealer trades P = Principal R = Competing dealer trades S = Specialist trades T = Competing dealer trades U = Program Order, index arbitrage, for other agency W = All other orders as agent for other member X = Short exempt transaction for member competing market-maker not affiliated with the firm clearing the trade (refer to W and T types) Y = Program Order, non-index arbitrage, for other agency Z = Program Order, non-index arbitrage, for other agency Blank = Other</p> <p>For NASDAQ:</p> <p>A = Agency F = Firm P = Principal R = Risk less Principal Blank = Other</p>
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DESCRIPTION	LENGTH	START	END	TYPE	COMMENTS
MARKET DATA					
Originating Market /Trade	4	105	108	A/N	XASE = American Stock Exchange

Source					<p>XBOS = Boston Stock Exchange XCBO = CBOE (Chicago Board Options Exchange) XCHI = Chicago Stock Exchange XCIS = Cincinnati Stock Exchange XCME = Chicago Mercantile Exchange XNAS = NASDAQ XOTC = Over the Counter XNYS = New York Stock Exchange XPHL = Philadelphia Stock Exchange XPSE = Pacific Stock Exchange BOT = Board of Trade Clearing Corporation COR = Correspondent Clearing Corporation OCC = Options Clearing Corporation PID = Prime Broker Institutional Delivery</p>
Last Market System	4	109	112	A/N	<p>For NYSE: F = FDC (Locked In) N = NSCC (Specialist Force) O = OCS S = SOS (Step Out)</p> <p>For AMEX: I = IDCE N = NSCC (Specialist Force) S = SOS (Step Out)</p> <p>For NASDAQ: A = ACT (Automated Confirmation Transaction Service) C = CAES (Computer Assisted</p>

				<p>Execution Service) D = PORT (Portal 144A Security) E = EACT (Clearing Broker ACT Accepted) I = ITS N = SUPERMONTAGE O = SENT (SelectNet) Q = QSR S = SOES (Small Order Execution Service) X = PRIMEX</p> <p>For XCHI, XPHL and XPSE: M = OPTIMARK</p> <p>For Correspondent Clearing:</p> <p>XASE = American Stock Exchange XBOS = Boston Stock Exchange XCBO = CBOE (Chicago Board Options Exchange) XCHI = Chicago Stock Exchange XCIS = Cincinnati Stock Exchange XCME = Chicago Mercantile Exchange XNAS = NASDAQ XNYS = New York Stock Exchange XOTC = Over the Counter XPHL = Philadelphia Stock Exchange XPSE = Pacific Stock Exchange BOT = Board of Trade Clearing Corporation OCC = Options Clearing Corporation</p>
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					Blank = Other
Last Market Match	2	113	114	A/N	<p>For NYSE and AMEX:</p> <p>Exact Match fields are: Trade Date, Stock Symbol, Quantity, Price, Trade Type, and Special Trade Indicator</p> <p>A1 = Exact match plus four badges and execution time (within two-minute window) A2 = Exact match plus four badges A3 = Exact match plus two badges and execution time (within two-minute window) A4 = Exact match plus two badges A5 = Exact match plus execution time (within two-minute window) AQ = Compared records resulting from stamped advisories or specialist accepts/pair-offs S1 to S5 = Summarized Match using A1 to A5 exact match criteria except quantity is summarized M1 = Exact Match minus badges and times M2 = Summarized Match minus badges and times MT = OCS Locked In</p> <p>For NASDAQ:</p> <p>M1 = ACT M1 Match M2 = ACT M2 Match M3 = ACT Accepted Trade M4 = ACT Default Trade</p>

					M5 = ACT Default After M2 M6 = ACT M6 Match MT = Non-ACT
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DESCRIPTION SECURITY DATA	LENGTH	START	END	TYPE	COMMENTS
Security ID	9	115	123	A/N	CUSIP
Future Use	1	124	124	A/N	Filler Value = 1
Security ID Symbol	15	125	139	A/N	Market Mnemonic
Security ID ISIN	12	140	151	A/N	ISIN
Security Type	6	152	157	A/N	D = Debt (Bond) ES = Equity Stock EU = Equity Unit FD = Future Debt (Bond) FE = Future Equity (Stock) FU = Future Unit OC = Option Call OP = Option Put

DESCRIPTION DEAL DATA	LENGTH	START	END	TYPE	COMMENTS
Trade Status	1	158	158	A/N	C = Compared/Affirmed U = Uncompared/Unaffirmed A = Advisory/Alert Blank if Market Reject
Side	1	159	159	A/N	1 = Buy 2 = Sell
Last Shares	11	160	170	N	Share Quantity
Odd-lot	1	171	171	A/N	0 = Round-lot 1 = Odd-lot

Last Price	12	172	183	N	12 Digits – Use Last Price Decimal Indicator to determine decimal position
Last Price Decimal Indicator	1	184	184	A/N	0 = No decimal Positions 1 = 1 Decimal Position 2 = 2 Decimals 3 = 3 Decimals 4 = 4 Decimals 5 = 5 Decimals 6 = 6 Decimals 7 = 7 Decimals 8 = 8 Decimals 9 = 9 Decimals A = 10 Decimals B = 11 Decimals C = 12 Decimals
Principal Trade Amount	16	185	200	N	Price x Quantity 2 Decimal Positions
Currency	3	201	203	A/N	USD = US Dollars
Transaction Time	6	204	209	A/N	Time of Execution HHMMSS (Military)
Order Time	6	210	215	A/N	Currently populated for NYSE use: HHMMSS (Military)
Trade Type	1	216	216	A/N	B = Basket S = Step Out Blank = Regular
Trade Date	8	217	224	A/N	CCYYMMDD

DESCRIPTION	LENGTH	START	END	TYPE	COMMENTS
SETTLEMENT DATA					
Settlement Date	8	225	232	A/N	CCYYMMDD 99991231 When and if Issued when no date is announced

					if Reject
When and if Issued	1	233	233	A/N	0 = Regular Way 1= When and if Issued
Netting Indicator	1	234	234	A/N	B = Balance Order (No Netting) C = CNS (Netting) F = Foreign Balance Order (Netting) N = Balance Order (Netting) Z = Trade is NOT Netted
Special Trade	1	235	235	A/N	Blank = Regular Way E = Ex Clearing F = Foreign Trade G = Foreign Special Trade N = NSCC Special Trade R = Regional Special Trade X = Special Trade
Settlement Type	3	236	238	A/N	Blank = Regular Way CA = Cash ND = Next Day ### = Delayed Delivery (Seller's Option) number of business days up to 180
Settlement Location	2	239	240	A/N	DT = DTC
Accrued Interest Amount	9	241	249	N	2 Decimal Positions
Net Settlement Money	16	250	265	N	2 Decimal Positions

DESCRIPTION TRADE ID'S / ORIGINATING MARKET	LENGTH	START	END	TYPE	COMMENTS
Executing ID –	15	266	280	A/N	Trade Control Number
ArcaEx Execution Id					For NYSE, first character defines

					input mode: 0 = FDC 1 = SOS 5 = OCS MQM 6 = OCS LU6.2 7 = OCS RJE 8 = OCS BBSS 9 = OCS Terminal
Order ID- SenderSubId	15	281	295	A/N	Branch ID/Sequence Number
Secondary Order ID – CIOrdId (1st 15 characters)	15	296	310	A/N	Future Use
Client Order ID – CIOrdId (2nd 15 characters if needed)	15	311	325	A/N	Control Number
Turnaround Number	9	326	334	A/N	Trade Reference Number

DESCRIPTION CONTROL DATA	LENGTH	START	END	TYPE	COMMENTS
Accepted/Rejected	1	335	335	A/N	0 = Accepted 1 = Market Rejected Final 2= NSCC Rejected Final 3= NSCC Reject Pending
NSCC Reject Codes	2	336	337	A/N	00 = No NSCC Rejects 01 = Invalid Participant 02 = Invalid Trade Date 03 = Invalid Security 04 = Invalid Quantity 05 = Invalid Price 06 = Invalid Trade Source 07 = Invalid Trade Originator

					08 = Multiple Rejects 09 = Invalid Value
Reversal/Correction	1	338	338	A/N	Blank = Original Trade C = Correction by Market N = Correction by NSCC R = Reversal by Market S = Reversal by NSCC

DESCRIPTION MARKET SPECIFIC DETAILS	LENGTH	START	END	TYPE	COMMENTS
Redefined Area	30	339	368		For Market Use
Correspondent Clearing Fields:					
Commission	8	339	346	N	2 Decimal Positions
Fees	6	347	352	N	2 Decimal Positions
Taxes	7	353	359	N	2 Decimal Positions
Submitting Participant	4	360	363	A/N	
Future Use	5	364	368	A/N	
NYSE Fields:					
OCS Comments 1	10	339	348	A/N	Knows Quantity or Free Form Comments
OCS Comments 2	15	349	363	A/N	Free Form Comments
ADOT Execution	1	364	364	A/N	1 = ADOT Blank Otherwise
CAP ORDER Execution	1	365	365	A/N	4 = CAP Order Otherwise

NX Execution	1	366	366	A/N	1 = With Names 2 = Without Names Otherwise
Xpress Execution	1	367	367	A/N	9 = Xpress Blank Otherwise
Inhibitor	1	368	368	A/N	I = Yes Blank = No

DESCRIPTION	LENGTH	START	END	TYPE	COMMENTS
FUTURE USE					
Future Use	32	369	400		

Appendix VI – ArcaEx Compression

Trade compression is the process whereby many trades are aggregated into as few trades as possible based on the specific compression criteria of ETP holder, Contra ETP holder, stock, and side.

In the example below ArcaEx will compress trades by ETP holder FRM0 and domain DOMAIN1, ETP counterparties FRM1 and FRM2 with domains CONTRA1 and CONTRA2, stock (EMLX), and contra-side.

-----ETP holder-----										-----ETP Counterparty-----					
#	TradeDate	Time	ETPID	b/s	sym	vol	price	type	clr#	Domain	ETPID	b/s	type	clr#	Domain
1.	4/5/2002	13:45	Frm0	BUY	EMLX	200	36.340000	QSR	352	DOMAIN1	Frm1	SLL	QSR	312	CONTRA1
2.	4/5/2002	13:43	Frm0	BUY	EMLX	200	36.560000	QSR	352	DOMAIN1	Frm1	SLL	QSR	312	CONTRA1
3.	4/5/2002	13:40	Frm0	SLL	EMLX	100	36.550000	QSR	352	DOMAIN1	Frm2	BUY	QSR	322	CONTRA2
4.	4/5/2002	13:40	Frm0	SLL	EMLX	100	36.570000	QSR	352	DOMAIN1	Frm2	BUY	QSR	322	CONTRA2
5.	4/5/2002	13:39	Frm0	SLL	EMLX	100	36.630000	QSR	352	DOMAIN1	Frm2	BUY	QSR	322	CONTRA2
6.	4/5/2002	13:39	Frm0	SLL	EMLX	100	36.660000	QSR	352	DOMAIN1	Frm2	BUY	QSR	322	CONTRA2

ArcaEx can compress trades 1 and 2 into one trade because the ETP holder , ETP counterparty, stock, and contra-side match. The compressed trade with be between the ETP holder’s DOMAIN1 and the contra ETP holder’s domain CONTRA1 and where the ETP holder and domain DOMAIN1 is the BUYer the contra ETP holder and domain CONTRA1 is the SLLer and the compressed trade is 400 shares at an average price of 36.45

ArcaEx can compress trades 3 through 6 because the ETP holder, ETP counterparty, stock, and contra-side match. The compressed trade will be between the ETP holder’s DOMAIN1 and the contra ETP holder’s domain CONTRA2, where the ETP holder and domain DOMAIN1 is a SELLer and the contra ETP holder’s domain CONTRA2 is a BUYer of 400 shares at an average price of 36.6025.

Therefore in this example, ArcaEx will yield **two** compressed trade records for RIO transmission instead of six.