



The Consolidated Quotation System (CQS) and Consolidated Tape System (CTS) are making modifications to move from the current ASCII messaging formats to new Binary messaging formats. For more Binary modification details, refer to the CTA Participant Input Binary Specifications at www.ctaplan.com selecting the Tech Spec option. In addition to FAQs from Participants, noted below are recommended processing requirements to facilitate the migration from ASCII to Binary.

Participant ASCII/Binary Input

1. Can a Participant use negative numbers in the ‘Participant Reference Number’ field?

- In instances when a CQS or CTS message is generated on behalf of a Participant, SIAC will populate the required message with a negative Participant Reference Number. This practice will be accommodated in order to avoid a duplication of an already provided or expected to be provided Participant Reference Number by a Participant during the production day. As such, SIAC recommends that a Participant **ONLY utilize positive Participant Reference Numbers.** A negative Participant Reference Number received from a Participant will be rejected back to the Participant.

2. What is the impact if a Participant sends exact nanosecond precision in Timestamp fields?

- The Timestamp field is a pass through field. Timestamp fields are intended to represent nanoseconds since Epoch.

3. Is the new Block Separator included in the block size?

- No. The Block Separator is not included in the block size it is independent of the block.

4. Is a Block Separator required to be sent before the first BLOCK?

- Yes. Every block must be preceded by a Block Separator.

5. What should a Participant do if the validation of the Block Checksum fails?

- If the validation of the Block Checksum fails, a recommendation would be to drop the Block and look for a Participant Block Separator to re-sync.



6. Will CQS and CTS accept both the ASCII and Binary formats from a Participant?

- Yes. CQS and CTS will accept both ASCII and Binary formats over Participant Input lines to assist Participants in their transition to the new Binary formats.
 - During a phase-in period when CQS and CTS is disseminating Binary formats data prior to receiving Binary formats from Participants, CQS and CTS will convert the Participants ASCII formats to Binary formats for dissemination over the CQS and CTS multicast feeds.
 - Once a Participant commences to input Binary formats via their Participant input lines, all messages sent from CQS and CTS back to a Participant via their input lines will be in Binary format.
 - If a Participant elects to input both ASCII and Binary formats over separate input lines during a transition period, messaging which is sent back to a Participant over their input lines (e.g., Warning and Reject messages, Start of Day, Line Integrity. etc.) will be in the format in which the Participant is inputting over their individual lines.
 - After a Participant input line is enabled for Binary, ASCII messages from the Participant will continue to be accepted on that input line. Participants are required to coordinate implementation requirements with SIAC by sending an email to the NMS Product Planning team at cqs-cts-opra@siac.com. Participant Input line implementations will be scheduled on Monday's only (following successful testing).

7. Will CQS and CTS require Participants to input both the ASCII and Binary formats at both the Primary and Backup Data Centers and will CQS and CTS support real-time ('hot') dissemination from both the Primary and Backup Data Centers?

- No. As supported with current CQS and CTS implementations, the Binary formats implementation will not be a 'hot' dissemination from the Primary and Backup Data Centers thus Participants are not required to input data individually to both Data Centers. The Primary and Backup Data Centers will be capable of handling both ASCII and Binary input formats during a transition period to facilitate a failover event.

8. When a Participant input line cuts over from ASCII to Binary, is it correct that all 4 Host IP/Ports must also cut over to Binary (e.g., Primary Site Primary Host IP/Port, Primary Site Backup Host IP/Port, DR Site Primary IP/Port and DR Site Backup IP/Port)?

- Binary implementation will begin at the Primary Data Center and the Participants assigned Primary Data Center 2 Host IP/Ports will be effective while the Participants assigned DR site Host IP/Ports remain on ASCII for at least a two week during the Binary/ASCII transition period.



Fallback from Binary to ASCII

9. Following an intraday fallback from Binary to ASCII, what should Participants populate in the ASCII field 'Regional Reference Number (of transaction being corrected/cancelled)' for trade corrections and cancels (this field is a signed 64 bit integer in Binary but a 6 byte alphanumeric in ASCII)?

- SIAC **requires** Participants continue to use their current ASCII Regional Reference Number (RRN) production population convention when populating the Binary Participant Reference Number (PRN) field. **Participants should construct a 6 byte ASCII Regional Reference Number (RRN) (like today's production) and perform a byte-copy of those 6 characters to the lower-significant 6 bytes of the 8 byte PRN field and fill the upper-significant two bytes of the PRN to binary 0s, otherwise it will be rejected.**

RRN/PRN Input Example:

ASCII RRN:

1	2	3	A	b	C
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New Binary PRN:

0	0	1	2	3	A	b	C
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PRN Validation:

- **Participant Reference Numbers that do not conform to the ASCII 'Regional Reference Number' data format range requirements will be rejected.**
- **Participant Reference Numbers containing 8 bytes with the upper-significant two bytes of the PRN containing non-binary 0s will be rejected.**

10. Following an intraday fallback from Binary to ASCII, after receiving a Sequence Inquiry Message from a Participant, how would CQS and CTS determine the Message Sequence Number and Regional Reference Number in the Sequence Information Response?

- After a fallback from Binary to ASCII:
 - The first Sequence Inquiry Message received from a Participant before any other ASCII message will be responded with the Regional Reference Number (lower six bytes of Participant Reference Number) and the internal Message Sequence Number.
 - A response to subsequent Sequence Inquiry Messages following other ASCII messages from a Participant will be responded with the ASCII Regional Reference Number and the Participant's last Message Sequence Number.

11. If there is a fallback from Binary to ASCII formats on CQS and/or CTS, is a Participant required to also fallback their input lines back to ASCII? ?

- CQS and CTS Participant Input and Multicast Output are independent. In the event of a CQS and/or CTS Multicast Output fallback, CQS and CTS will continue to accept Participant input in both the ASCII and Binary and Binary formats.



Binary Formats Implementation

12. Will both the CQS and CTS Binary Message formats be implemented on the same day?

- Yes. At the request of Data Subscribers and following the same methodology used with previous implementations that affect both CQS and CTS (e.g., implementation of new CQS and CTS Message Headers on the same day).

Documentation / Additional Information

13. Where can I access the latest CQS and CTS Multicast Output Specifications?

- The CQS and CTS Multicast Output ASCII (current production) and Binary (future implementation) Specifications can be accessed at: www.ctaplan.com selecting the Tech Specs option.

14. Who do I contact for additional information?

- For questions regarding the CQS and CTS Multicast feeds, please send an email to CQS-CTS-OPRA@siac.com.