Federal Communications Commission

AUCTION 107 ASSIGNMENT PHASE BIDDER DATA FILE FORMATS

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1. Introduction

This document provides the data file specifications for the bidding-related upload and download files that will be available to bidders during the assignment phase of Auction 107. Each file specification includes the format of the file and definitions of the data elements in the files including a name, description, data type, examples and notes. Data type definitions and notation rules are explained in an appendix attached to this document.

In addition to the data file specifications, a sample data file for each file is available on the Auction 107 website (www.fcc.gov/auction/107) in the Education section. The sample data shows the downloads and upload of a bidder with a small business bidding credit. We emphasize that the scenarios and bidding examples provided are not meant to reflect any predictions or assumptions by the Commission regarding bidding activity, the number of rounds, or the outcome of Auction 107.

2. Bidder Download Files

This section provides the specifications of the download files available to bidders during the assignment phase of the auction.

2.1. My Bid Options Template

File name: my_current_bid_options.csv

The My Bid Options template contains all bidding options that the bidder can bid for, starting with the current round. The template provides a starting point for the bidder. The template does not contain options for pre-assigned markets or any auto-assigned options. The template does not include any bidding options for rounds that have closed. The My Bid Options template is available when the round is announced up to the time that the round ends.

File Structure:

- CSV file (first row contains header)
- One record for each bidding option for the bidder where the bidder can bid

Field	Description	Data Type	Example/*Notes*
ROUND	Round number	Integer	11 *Information about Round 0 (pre-assigned markets and auto-assigned options) is not included in this file.*
REGION	The REAG of the Partial Economic Area(s) except for PEAs 1–20. For PEAs 1–20, "TOP 20"	String [TOP 20| REAG 1| REAG 2| REAG 3| REAG 4| REAG 5| REAG 6]	REAG 2 TOP 20

Field	Description	Data Type	Example/*Notes*
ASSIGNMENT_ CATEGORY	The assignment category associated with the bidding option	String [A|A+BC|ABC] {1,4}	A A+BC ABC
OPTION	The specific blocks in the bidding option	String	A3.A4.A5 *Each block is separated from the next block with a period.*
ASSIGNMENT_ ROUND_BID	The bid amount submitted for the bidding option	Integer	129000 *If the bidder has a submitted bid for this option, this field contains the bid amount. For any option that the bidder has not already submitted a bid, this field is 0.*
bidder	Bidder name	String	Company XYZ "ABC, Inc."
frn	The bidder's FCC Registration Number (FRN), which uniquely identifies a bidder	String [0-9]{10}	0003645844
market_number	The PEA ID(s) associated with the bidding option	String	PEA001 PEA077;PEA138 *Multiple PEAs are separated with semicolons.*
market_name	The PEA name(s) associated with the bidding option	String	"New York, NY" "Portland, ME;Burlington, VT" *Multiple PEAs are separated with semicolons.*
assignment_categ ory_name	Name of assignment category	String	Interim Assignment Final Assignment Assignment

Field	Description	Data Type	Example/*Notes*
winnings	The number of blocks that the bidder has won in this assignment category per PEA	Integer	3 *If the assignment category is A+BC and the bidder won 1 Category A block and 2 Category BC blocks in the clock phase in a given PEA, the value of this field will be 3.* *If the grouping includes 3 PEAs and the bidder won 2 blocks in Assignment Category ABC in each PEA, the value will be 2.*
clock_payment	The clock phase payment for the option, summed across products in the bidding option	Integer	2873499 *If the assignment category is A or ABC, the clock phase payment is calculated as the number of blocks won by the bidder in the assignment category in each PEA associated with the bidding option multiplied by the sum of the final clock phase prices of all PEAs associated with the option.* *If the assignment category is A+BC, the clock phase payment is calculated as the sum of the clock phase payment for Category A and the clock phase payment for Category BC.*

2.2. My Bidding Errors

File name: my_bidding_errors_round_#_timestamp.csv

This file contains a detailed account of errors from the last time the bidder's upload had errors. Up to 50 errors will be reported for an unsuccessful upload.

This file is available if the last upload was unsuccessful. It is not available if the last action was a successful upload or a successful bid submission via the Place Bids screen, if the results are posted and next round is announced, or if the auction concludes.

File Structure:

* CSV file (first row contains header)
* The number of rows depends on the number of errors.

Field	Description	Data Type	Examples/*Notes*
auction_id	The FCC auction number	String	107
bidder	Bidder name	String	Company XYZ "ABC, Inc."
frn	The bidder's FCC Registration Number (FRN), which uniquely identifies a bidder	String [0-9]{10}	0003645844
line_no	Line number containing the error	Integer	102 *Null if error is not specific to a row*
error_code	Error code	String	E141
error_description	Error description	String	OPTION (A4.A5.B1.B3) is invalid.
ROUND	Round number specified in the bid	Integer	2 *NULL if error is not specific to a row*
REGION	Region specified in the bid	String	TOP 20 REAG 1 *NULL if error is not specific to a row*
ASSIGNMENT_CATEGORY	The assignment category specified in the bid	String	A A+BC ABC *NULL if error is not specific to a row*
OPTION	The bidding option specified in the bid	String	A3.A4.A5 *NULL if error is not specific to a row*
ASSIGNMENT_ROUND_BID	The bid amount specified in the bid	Integer	129000 *NULL if error is not specific to a row*

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Field	Description	Data Type	Examples/*Notes*
market_number	The PEA ID(s) associated with the bidding option	String	PEA001 PEA077;PEA138 *Multiple PEAs are separated with semicolons.* *NULL if error is not specific to a row, or the round or region is not valid*
market_name	The PEA name(s) associated with the bidding option	String	"New York, NY" "Portland, ME;Burlington, VT" *Multiple PEAs are separated with semicolons.* *NULL if error is not specific to a row, or the round or region is not valid*
assignment_category_name	Name of assignment category	String	Interim Assignment Final Assignment Assignment *NULL if error is not specific to a row*

Field	Description	Data Type	Examples/*Notes*
winnings	The number of blocks that the bidder has won in this assignment category per PEA	Integer	3 *If the assignment category is A+BC and the bidder won 1 Category A block and 2 Category BC blocks in the clock phase in a given PEA, the value of this field will be 3.* *If the grouping includes 3 PEAs and the bidder won 2 blocks in Assignment Category ABC in each PEA, the value will be 2.* *NULL if error is not specific to a row, or the round or region is not valid*
clock_payment	The clock phase payment for the option, summed across products in the bidding option	Integer	2873499 *If the assignment category is A or ABC, the clock phase payment is calculated as the number of blocks won by the bidder in the assignment category in each PEA associated with the bidding option multiplied by the sum of the final clock phase prices of all PEAs associated with the option.* *If the assignment category is A+BC, the clock phase payment is calculated as the sum of the clock phase payment for Category A and the clock phase payment for Category BC.* *NULL if error is not specific to a row, or the round or region is not valid*

Field	Description	Data Type	Examples/*Notes*
upload_filename	Name of file that the bidder uploaded	String	Sample_bid1.csv
placed_by	Name of authorized bidder who submitted the bid	String	John Smith
placed_time	The time the bid was submitted YYYY-MM-DD HH:MM:SS	String	2020-12-20 13:21:47 *All times are in Eastern Time.*

2.3. My Bids

File name: my_bids_round_#_timestamp.csv

The My Bids file provides the details of the bidding options available to the bidder in each round in which the bidder may participate based on its winnings in the clock phase, and it includes the round number associated with each assignment phase market. For all bidding options that the bidder is permitted to bid on, bid-related data — including the submitted bid amount, the name of the authorized bidder that submitted the bid, and the date and time that the bid was submitted — appears in this file after the bidder has submitted the bids.

File Structure:

- CSV file (first row contains header
- One record for each available bidding option for the bidder

Field	Description	Data Type	Example/*Notes*
auction_id	The FCC auction number	String	107
round	Round number	Integer	11 *Information about Round 0 (pre-assigned markets and auto-assigned options) is not included in this file.*
bidder	Bidder name	String	Company XYZ "ABC, Inc."
frn	The bidder's FCC Registration Number (FRN), which uniquely identifies a bidder	String [0-9]{10}	0003645844
region	The REAG of the Partial Economic Area(s) except for PEAs 1–20. For PEAs 1–20, "TOP 20"	String [TOP 20| REAG 1| REAG 2| REAG 3| REAG 4| REAG 5| REAG 6]	REAG 2 TOP 20

Field	Description	Data Type	Example/*Notes*
market_number	The PEA ID(s) associated with the bidding option	String	PEA001 PEA077;PEA138 *Multiple PEAs are separated with semicolons.*
market_name	The PEA name(s) associated with the bidding option	String	"New York, NY" "Portland, ME;Burlington, VT" *Multiple PEAs are separated with semicolons.*
assignment_category	The assignment category associated with the bidding option	String [A|A+BC|ABC] {1,4}	A A+BC ABC
assignment_category_name	Name of assignment category	String	Interim Assignment Final Assignment Assignment
winnings	The number of blocks that the bidder has won in this assignment category per PEA	Integer	3 *If the assignment category is A+BC and the bidder won 1 Category A block and 2 Category BC blocks in the clock phase in a given PEA, the value of this field will be 3.* *If the grouping includes 3 PEAs and the bidder won 2 blocks in Assignment Category ABC in each PEA, the value will be 2.*
option	The specific blocks in the bidding option	String	A3.A4.A5 *Each block is separated from the next block with a period.*
assignment_round_bid	The bid amount submitted for the bidding option	Integer	129000 *NULL for a bidding option where it is the only option for the bidder. Otherwise, 0 by default or the bid amount submitted by the bidder.*

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Field	Description	Data Type	Example/*Notes*
random_number	The pseudo-random number associated with the bid used for tie-breaking purposes.	Integer {1,9}	15435468 *This field is populated after the round results have been calculated.* *NULL for a bidding option where it is the only option for the bidder.*
clock_payment	The clock phase payment for the option, summed across products in the bidding option	Integer	2873499 *If the assignment category is A or ABC, the clock phase payment is calculated as the number of blocks won by the bidder in the assignment category in each PEA associated with the bidding option multiplied by the sum of the final clock phase prices of all PEAs associated with the option.* *If the assignment category is A+BC, the clock phase payment is calculated as the sum of the clock phase payment for Category A and the clock phase payment for Category BC.*
placed_by	Name of authorized bidder who submitted the bid. If a telephonic bid assistant submits the bid on behalf of the authorized bidder, it also includes the name of the telephonic bid assistant.	String	John Smith Bob Smith (Telephonic Bid Assistant) acting on behalf of Joe Smith System *System for a bidding option where it is the only option for the bidder or if the bidder has not submitted any bids for the round and region and the round results have been calculated.* *NULL if round results have not been yet calculated and the bidder has not submitted any bids for the round and region.*

Field	Description	Data Type	Example/*Notes*
placed_time	The date and time that the bid was submitted	String YYYY-MM-DD HH:MM:SS	2020-12-20 13:21:47 *All times are in Eastern Time.* *Time that Round 1 was announced for a bidding option where it is the only option for the bidder.* *NULL if round results have not been yet calculated and the bidder has not submitted any bids for the round and region. Otherwise, the time when the round results have been calculated.*

2.4. My Results

File name: my_results.csv

The My Results file provides the assignment results for the bidder, listing each bidding option that was won by the bidder (its "winning assignment") and its assignment phase payment, if any. The file also includes winning assignments that were pre-assigned to the bidder in advance of the first assignment round, if any (the file will contain these pre-assignments before the first assignment round).

File Structure:

- CSV file (first row contains header)
- One record per winning assignment

Field	Description	Data Type	Example/*Notes*
auction_id	The FCC auction number	String	107
round	Round number	Integer	2 *This will be 0 for any pre-assigned bidding options.*
bidder	Bidder name	String	Company XYZ "ABC, Inc."
frn	The bidder's FCC Registration Number (FRN), which uniquely identifies a bidder	String [0-9]{10}	0003645844

Field	Description	Data Type	Example/*Notes*
region	The REAG of the Partial Economic Area(s) except for PEAs 1–20. For PEAs 1–20, "TOP 20"	String [TOP 20| REAG 1| REAG 2| REAG 3| REAG 4| REAG 5| REAG 6]	REAG 2 TOP 20
market_number	The PEA ID(s) associated with the bidding option	String	PEA001 PEA077;PEA138 *Multiple PEAs are separated with semicolons.*
market_name	The PEA name(s) associated with the bidding option	String	"New York, NY" "Portland, ME;Burlington, VT" *Multiple PEAs are separated with semicolons.*
assignment_category	The assignment category associated with the bidding option	String [A|A+BC|ABC] {1,4}	A A+BC ABC
assignment_category_name	Name of assignment category	String	Interim Assignment Final Assignment Assignment
winnings	The number of blocks that the bidder has won in this assignment category per PEA	Integer	3 *If the assignment category is A+BC and the bidder won 1 Category A block and 2 Category BC blocks in the clock phase in a given PEA, the value of this field will be 3.* *If the grouping includes 3 PEAs and the bidder won 2 blocks in Assignment Category ABC in each PEA, the value will be 2.*

Field	Description	Data Type	Example/*Notes*
clock_payment	The clock phase payment for the option, summed across products in the bidding option	Integer	2873499 *If the assignment category is A or ABC, the clock phase payment is calculated as the number of blocks won by the bidder in the assignment category in each PEA associated with the bidding option multiplied by the sum of the final clock phase prices of all PEAs associated with the option.* *If the assignment category is A+BC, the clock phase payment is calculated as the sum of the clock phase payment for Category A and the clock phase payment for Category BC.*
option_assigned	The specific blocks in the assigned bidding option	String	A3.A4.A5 *Each block is separated from the next block with a period.*
assignment_round_bid	The bid amount submitted for the bidding option	Integer	182000 *NULL for a bidding option where it is the only option for the bidder*
assignment_payment	The assignment phase payment for the winning assignment	Integer	156000 *0 for a bidding option where it is the only option for the bidder or if no additional assignment payment is necessary*

Field	Description	Data Type	Example/*Notes*
gross_payment	The gross payment amount for the winning assignment is the sum of the clock phase payment and the assignment phase payment, not taking into account any bidding credit discounts	Integer	3457884

2.5. My Bidder Status

File name: my_bidder_status.csv

The My Bidder Status file contains the cumulative payment amounts for the bidder after each round. The file contains one record for every assignment round. After each round's results are posted, one additional row will be added to the file. This file therefore provides a running estimate of the final auction payment based on the information known at the time of that assignment round. For bidders with a bidding credit, this file includes additional information about discounts and bidding credit caps.

File Structure:

- CSV file (first row contains header)
- One row providing the payment status as of the completion of an assignment round is added when the results of that round are posted.
- For bidders with no bidding credit, the file contains five columns; for bidders with a rural service provider bidding credit, the file contains eight columns; for bidders with a small business bidding credit, the file contains nine columns. The additional columns provide information about the discounts associated with the bidding credits.

Field	Description	Data Type	Example/*Notes*
auction_id	The FCC auction number	String	107
round	Round number of the last posted round covered by the data, or 0 for data relating to pre-assignments	Integer	2
bidder	Bidder name	String	Company XYZ "ABC, Inc."

Field	Description	Data Type	Example/*Notes*
frn	The bidder's FCC Registration Number (FRN), which uniquely identifies a bidder	String [0-9]{10}	0003645844
gross_payment	The sum of the clock phase payments for all of the bidder's clock phase winnings and the bidder's assignment phase payments for all assignment rounds completed, not taking into account any bidding credit discounts	Integer	1100000000
discount	The discount to the gross amount for all markets calculated taking into account the small market cap (if applicable) and the overall cap	Integer	165000000 *NULL if the bidder is not eligible for a bidding credit*
net_payment	The gross payment minus the capped bidding credit discount	Integer	175000000 *NULL if the bidder is not eligible for a bidding credit*
discount_uncapped	The discount to the gross payment amount for all markets calculated without taking into account the small market cap (if applicable) or the overall cap	Integer	165000000 *NULL if the bidder is not eligible for a bidding credit*
discount_uncapped_small	The discount to the gross payment amount for small markets calculated for small markets without taking into account the small market cap	Integer	11000000 *NULL if the bidder is not eligible for the small business bidding credit*

2.6. My Bidder Assignment Rounds

File name: my_bidder_assignment_rounds.csv

The My Bidder Assignment Rounds file provides information regarding the rounds, regions, markets and assignment categories for which the bidder has clock phase winnings. The file also indicates the numbers of blocks won, the clock phase payments, and whether the markets and assignment categories are biddable by the bidder or were assigned automatically.

File Structure:

- CSV file (first row contains header)
- One record per market and category combination with clock phase winnings

Field	Description	Data Type	Example/*Notes*
auction_id	The FCC auction number	String	107
round	Round number, or 0 for data relating to pre-assignments	Integer	2
bidder	Bidder name	String	Company XYZ "ABC, Inc."
frn	The bidder's FCC Registration Number (FRN), which uniquely identifies a bidder	String [0-9]{10}	0003645844
region	The REAG of the Partial Economic Area(s) except for PEAs 1–20. For PEAs 1–20, "TOP 20"	String [TOP 20| REAG 1| REAG 2| REAG 3| REAG 4| REAG 5| REAG 6]	REAG 2 TOP 20
market_number	The PEA ID(s) associated with the bidding option	String	PEA001 PEA077;PEA138 *Multiple PEAs are separated with semicolons.*
market_name	The PEA name(s) associated with the bidding option	String	"New York, NY" "Portland, ME;Burlington, VT" *Multiple PEAs are separated with semicolons.*
assignment_category	The assignment category associated with the bidding option	String [A|A+BC|A BC] {1,4}	A A+BC ABC

Field	Description	Data Type	Example/*Notes*
assignment_category_name	Name of assignment category	String	Interim Assignment Final Assignment Assignment
biddable	Indication if the bidder has the option to bid, or if all of the blocks were automatically assigned to the bidder	String	Y A
winnings	The number of blocks that the bidder has won in this assignment category per PEA	Integer	3 *If the assignment category is A+BC and the bidder won 1 Category A block and 2 Category BC blocks in the clock phase in a given PEA, the value of this field will be 3.* *If the grouping includes 3 PEAs and the bidder won 2 blocks in Assignment Category ABC in each PEA, the value will be 2.*
clock_payment	The clock phase payment for the option, summed across products in the bidding option	Integer	2873499 *If the assignment category is A or ABC, the clock phase payment is calculated as the number of blocks won by the bidder in the assignment category in each PEA associated with the bidding option multiplied by the sum of the final clock phase prices of all PEAs associated with the option.* *If the assignment category is A+BC, the clock phase payment is calculated as the sum of the clock phase payment for Category A and the clock phase payment for Category BC.*

2.7. My Bidder Audit Log

File name: my_bidder_audit_log_round_#.csv

The My Bidder Audit Log file records all overall bid submissions and all individual bid changes for specific bidding options. This file is only available by round. The My Bidder Audit Log file is available to the bidder on the Downloads screen. It is also available on the Upload Bids screen after a successful bid upload. The file updates after each submission of bids.

File Structure:

- CSV file (first row contains header)
- One record for each audit log entry that corresponds to bidding

Field	Description	Data Type	Examples/*Notes*
log_entry_time	The date and time of event	String YYYY-MM-DD HH:MM:SS	2020-12-20 13:21:47 *All times are in Eastern Time.*
round_entered	Round number that an action was taken	Integer	12
round_state	Round state	String	Open
category	Category/ activity	String	Bid Bid.Batch
subcategory	Activity for a bid upload or change of bids on the Place Bids screen	String	*Examples when category = Bid:* Bid.Modify *Examples when category = Bid.Batch:* Upload.Submit Upload.Success Upload.Fail Submit.Bids Submit.Success
user	User performing action	String	Joe Smith Bob Smith (Telephonic Bid Assistant) acting on behalf of Joe Smith
bidder	Bidder name (if applicable)	String	0003645844 (Company XYZ) *FRN and (full name)*
round	Round number	Integer	11 *Information about Round 0 is not included in this file.* *NULL for Bid.Batch*
region	The REAG of the Partial Economic Area(s) except for PEAs 1–20. For PEAs 1–20, "TOP 20"	String [TOP 20| REAG 1| REAG 2| REAG 3| REAG 4| REAG 5| REAG 6]	REAG 2 TOP 20 *NULL for Bid.Batch*

Field	Description	Data Type	Examples/*Notes*
market_number	The PEA ID(s) associated with the bidding option	String	PEA001 PEA077;PEA138 *Multiple PEAs are separated with semicolons.* *NULL for Bid.Batch*
assignment_cat egory	The assignment category associated with the bidding option	String [A|A+BC|ABC] {1,4}	A A+BC ABC *NULL for Bid.Batch*
option	The specific blocks in the bidding option	String	A3.A4.A5 *Each block is separated from the next block with a period.* *NULL for Bid.Batch*
details	Descriptive text	String	*When category/subcategory are Bid.Batch/Upload.Submit: Request received at <timestamp>. Filename: <filename>.* *When category/subcategory are Bid.Batch/Submit.Bids: User clicked "Submit" on Place Bids.* *When category/subcategory are Bid/Bid.Modify: Bid changed from $0 to $129,000*

3.   Bidder Upload File

Bidders are permitted to upload bids at any time during the active round for current and future rounds. This can be done by downloading the "My Bid Options" template, entering the desired bid amounts in the "ASSIGNMENT_ROUND_BID" field, and uploading the revised file. A bid amount is required for all current and future bidding options that the bidder can bid on (a value of 0 is permissible).

A bidder may also create its own bid upload file. Bidders that choose to create their own bid upload files must ensure that the file contains a header row and a single row for every bidding option for the current and future rounds in which the bidder can place bids. Further requirements about a bid upload file are provided below.

File Requirements:

- The upload file must be in the CSV format. A particular file name is not required.
- The following fields are required and must have the exact field names as column headings in the first row. Column headers are not case sensitive. All other fields will be ignored.
    - Round number (column header "ROUND")
    - Region of the market (column header "REGION")
    - Assignment category (column header "ASSIGNMENT_CATEGORY")
    - Bidding option (column header "OPTION")
    - Bid amount (column header "ASSIGNMENT_ROUND_BID")
- A bid amount for each bidding option in which the bidder can place bids is required, but a value of 0 is permissible.
- A bid upload file will be rejected in its entirety if any of the following conditions occur:
    - It does not match the format described;
    - A bidding option for a current or future round for which bidder can bid is not included in the file;
    - A bidding option in which the bidder cannot place a bid (because it has only one option) or bidding options from past rounds are included in the file;
    - The combination of ROUND, REGION, ASSIGNMENT_CATEGORY, and OPTION is not consistent with the bidding options available to the bidder;
    - There is a duplicate combination of ROUND, REGION, ASSIGNMENT_CATEGORY, and OPTION in the file;
    - The price entered for the ASSIGNMENT_ROUND_BID is invalid (because it is null, negative, non-numeric, not an integer, not multiple of $10, or not between 0 and $999,999,990).

4.   Appendix: Data Type Definitions

The following is a guide to interpreting data types defined in this document. This guide is based on regular expressions used in XML.

Valid Data Types used in this Document

Character: A character is a single standard ASCII character. The following list has examples of valid ASCII characters:

- a
- D
- 3
- %

String: A string contains one or more characters and can contain whitespace. The following list has examples of valid strings:

- PEA001
- 005
- 588.3-593.3 MHz + 628.3-633.3 MHz
- Huntsville-Decatur-Florence, AL

Note that strings containing a comma that are included in a CSV formatted file need to include quotation marks around them. In the above example, "Huntsville-Decatur-Florence, AL" would be the correct format for the string in a CSV file.

Numeric: Numeric is a generic data type that covers a number of different underlying data types. As a result, anything defined as numeric could be any of the following:

- Decimal
- Integer
- Long

Decimal: The Decimal data type is used to specify a number that may optionally contain a fractional portion. The decimal numbers in the bidding system are made with 2 decimal places.
The following are examples of valid decimals:

- 123.45
- -0.15
- .67
- 0.30

The following are examples of invalid decimals:

- 123.4.5
- 5+6
- 1.4545E6
- 5,121.00

Integer: The integer data type is used to specify a numeric value without a fractional component.
- It's assumed that any integers defined in this document are unsigned and never include a (+) plus or (-) minus sign. Any signed integers containing a + or – are considered invalid.
- If the integer is of defined length, then curly brackets should be used. For example, {3} indicates the integer should be exactly 3 numbers long.

The following are examples of valid integers:
- 009
- 9
- 2147483647

The following are examples of invalid integers:
- -009
- +009

Null: Regardless of the data type, under certain conditions a field may be *null*, which means there is no data for that field (i.e., the field is blank).

Restricting values for a data type

Restrictions are used to define acceptable values for any given data type. The following lexicon is used when defining data types:
- Square brackets define the *pattern*.
  - e.g., [A-L] means only the uppercase letters A through L are allowed.
  - e.g., [U|D] means only the uppercase letters U or D are allowed.
  - e.g., [0-9] means only the numbers 0 through 9 are allowed.
- Curly brackets define the *length* including whitespace.
  - e.g., {3} means the value has to be exactly 3 characters long.
  - e.g., {1,3} means the value has to be a minimum of 1 character and a maximum of 3 characters.
  - e.g., {0,50} means the value has to be a minimum of 0 characters and a maximum of 50 characters.

Example 1:

The Data Type is defined as follows:

Integer
{3}

The curly brackets mean only a 3-digit integer is allowed.

Valid values for example 1:
- 009
- 056
- 103

Invalid values for example 1:
- 3502

- 1
- +12
- -35

Example 2:
The Data Type is defined as follows:

> **String**
> **[A-L]{1}**

The square brackets mean only the uppercase letters A through L are allowed and the curly brackets mean it must be exactly 1 character long.
Valid values for example 2:

- B
- L

Invalid values for example 2:

- a
- M
- 6

Example 3:
The Data Type is defined as follows:

> **String**
> **[0-9]{3}**

The square brackets mean only the numbers 0 through 9 are allowed and the curly brackets mean it must be 3 characters long.
Valid values for example 3:

- 001
- 023
- 358

Invalid values for example 3:

- 2
- 01
- 2026

Example 4:
The Data Type is defined as follows:

> **String**
> **[0-9]{1,2}**

The square brackets mean only the numbers 0 through 9 are allowed and the curly brackets mean it must be a minimum of 1 character long and a maximum of 2 characters long.
Valid values for example 4:

- 4
- 04

- 41

Invalid values for example 4:

- 123

- Blank or null value

Example 5:

The Data Type is defined as follows:

> **String**
> **[US|CA|MX]{2}**

The square brackets mean the pattern must be either US, CA or MX. The curly brackets mean it must be exactly 2 characters long.

Valid values for example 5:

- US

- CA

Invalid values for example 5:

- C

- USA

Example 6:

The Data Type is defined as follows:

> **String**
> **([PEA][0-9][0-9][0-9]){6}**

The square brackets inside the round brackets mean the pattern must be a concatenation of the text "PEA" followed by three single numbers, with each number ranging from 0 through 9. The curly brackets mean it must be exactly 6 characters long.

Valid values for example 6:

- PEA002

- PEA356

Invalid values for example 6:

- PEA0001

- PEA-005

- PEA-05

- PEA-0512

- PEA-2

Example 7:

The Data Type is defined as follows:

> **String**
> **{0,50}**

The absence of square brackets means there are no restrictions to the characters in this string. The curly brackets mean it must be a minimum of 0 characters long (i.e., can be blank/null) and a maximum of 50 characters long.

Valid values for example 7:
- 588.3-593.3 MHz + 628.3-633.3 MHz
- Albuquerque-Santa Fe, NM

Invalid values for example 7:
- Greenville-Spartanburg, SC-Asheville, NC-Anderson, SC
- This is an invalid string which is longer than 50 characters including spaces.