TABLE\_PROCESSOR Class

# Description

This class is designed to transform any input CSV table layout into any required CSV layout by using a set of predefined transformation instructions. This is useful because frequently devices will output data in one layout but the data needs to be logged in a different device that cannot accept data in that layout. This class can be integrated into the toolchain to allow communication between a variety of devices.

# Layout

# Instruction Set

## CSV (CSV LOAD IN)

### Description

This instruction load the source file and processes it into the DataTable. This should always be the first instruction of any instruction set.

## DMC[ORDINAL] (DEFINE MOVE COLUMN)

### Description

This instruction defines a column to be moved. This instruction should always be immediately followed by an EMC instruction.

### Example

[DMC1][EMC3] will move the column at ordinal (position) 5 to ordinal 10.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| [ORDINAL] 0 | [ORDINAL] 1 | [ORDINAL] 2 | [ORDINAL] 3 | [ORDINAL] 4 | [ORDINAL] 5 |
| DATA 0 | DATA 1 | DATA 2 | DATA 3 | DATA 4 | DATA 5 |

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| [ORDINAL] 0 | [ORDINAL] 1 | [ORDINAL] 2 | [ORDINAL] 3 | [ORDINAL] 4 | [ORDINAL] 5 |
| DATA 0 | DATA 2 | DATA 3 | DATA1 | DATA 4 | DATA 5 |

## DMR[INDEX] (DEFINE MOVE ROW)

### Description

This instruction defines a row to be moved. This instruction should always be immediately followed by an EMR instruction.

### Example

[DMR1][EMR3] will move the row at index 1 to index 3.

|  |  |
| --- | --- |
| [INDEX] 0 | DATA 0 |
| [INDEX] 1 | DATA 1 |
| [INDEX] 2 | DATA 2 |
| [INDEX] 3 | DATA 3 |
| [INDEX] 4 | DATA 4 |

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|  |  |
| --- | --- |
| [INDEX] 0 | DATA 0 |
| [INDEX] 1 | DATA 2 |
| [INDEX] 2 | DATA 3 |
| [INDEX] 3 | DATA 1 |
| [INDEX] 4 | DATA 4 |

## EMC[ORDINAL] (EXECUTE MOVE COLUMN)

### Description

This instruction defines where the column previously defined by DMC will be moved to. It will also execute the move.

### Example

[DMC1][EMC3] will move the column at ordinal (position) 5 to ordinal 10.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| [ORDINAL] 0 | [ORDINAL] 1 | [ORDINAL] 2 | [ORDINAL] 3 | [ORDINAL] 4 | [ORDINAL] 5 |
| DATA 0 | DATA 1 | DATA 2 | DATA 3 | DATA 4 | DATA 5 |

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| [ORDINAL] 0 | [ORDINAL] 1 | [ORDINAL] 2 | [ORDINAL] 3 | [ORDINAL] 4 | [ORDINAL] 5 |
| DATA 0 | DATA 2 | DATA 3 | DATA1 | DATA 4 | DATA 5 |

## EMR[INDEX] (EXECUTE MOVE ROW)

### Description

This instruction defines where the row previously defined by DMR will be moved to. It will also execute the move.

### Example

[DMR1][EMR3] will move the row at index 1 to index 3.

|  |  |
| --- | --- |
| [INDEX] 0 | DATA 0 |
| [INDEX] 1 | DATA 1 |
| [INDEX] 2 | DATA 2 |
| [INDEX] 3 | DATA 3 |
| [INDEX] 4 | DATA 4 |

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|  |  |
| --- | --- |
| [INDEX] 0 | DATA 0 |
| [INDEX] 1 | DATA 2 |
| [INDEX] 2 | DATA 3 |
| [INDEX] 3 | DATA 1 |
| [INDEX] 4 | DATA 4 |

## INV (INVERT ARGUMENT INDEX)

### Description

This instruction inverts the index of the proceeding arguments instruction. In other words, instead of counting from the first column or row it will count backwards from the last column or row. Note that the count is still 0 indexed (the first position is referred to as 0, not 1). Note that this instruction does not apply to instructions that have independent invert flags.

### Example

[INV][RRI4] will remove the 4th row from the bottom.

|  |  |  |
| --- | --- | --- |
| [NORMAL INDEX] 0 | [INV INDEX] 5 |  |
| [NORMAL INDEX] 1 | [INV INDEX] 4 | This row will be removed. |
| [NORMAL INDEX] 2 | [INV INDEX] 3 |  |
| [NORMAL INDEX] 3 | [INV INDEX] 2 |  |
| [NORMAL INDEX] 4 | [INV INDEX] 1 |  |
| [NORMAL INDEX] 5 | [INV INDEX] 0 |  |

## RCO[ORDINAL] (REMOVE COLUMN AT ORDINAL)

### Description

This instruction removes the column at the specified ordinal.

### Example

[RCO3] will remove the column at ordinal 3.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| [ORDINAL] 0 | [ORDINAL] 1 | [ORDINAL] 2 | [ORDINAL] 3 | [ORDINAL] 4 | [ORDINAL] 5 |
| DATA 0 | DATA 1 | DATA 2 | DATA 3 | DATA 4 | DATA 5 |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ORDINAL] 0 | [ORDINAL] 1 | [ORDINAL] 2 | [ORDINAL] 3 | [ORDINAL] 4 |
| DATA 0 | DATA 1 | DATA 2 | DATA 4 | DATA 5 |

## REC (REMOVE EMPTY COLUMNS)

### Description

This instruction removes all empty columns in a table.

### Example

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| [ORDINAL] 0 | [ORDINAL] 1 | [ORDINAL] 2 | [ORDINAL] 3 | [ORDINAL] 4 | [ORDINAL] 5 |
| DATA 0 | EMPTY | DATA 2 | EMPTY | DATA 4 | DATA 5 |

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|  |  |  |  |
| --- | --- | --- | --- |
| [ORDINAL] 0 | [ORDINAL] 1 | [ORDINAL] 2 | [ORDINAL] 3 |
| DATA 0 | DATA 2 | DATA 4 | DATA 5 |

## RER (REMOVE EMPTY ROWS)

### Description

This instruction removes all empty rows in a table.

### Example

|  |  |
| --- | --- |
| [INDEX] 0 | DATA 0 |
| [INDEX] 1 | EMPTY |
| [INDEX] 2 | DATA 2 |
| [INDEX] 3 | EMPTY |
| [INDEX] 4 | DATA 4 |

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|  |  |
| --- | --- |
| [INDEX] 0 | DATA 0 |
| [INDEX] 1 | DATA 2 |
| [INDEX] 2 | DATA 4 |

## RRI[INDEX] (REMOVE ROW AT INDEX)

### Description

This instruction removes the row at the specified index.

### Example

[RRI1] will remove the row at index 1.

|  |  |
| --- | --- |
| [INDEX] 0 | DATA 0 |
| [INDEX] 1 | DATA 1 |
| [INDEX] 2 | DATA 2 |
| [INDEX] 3 | DATA 3 |

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|  |  |
| --- | --- |
| [INDEX] 0 | DATA 0 |
| [INDEX] 1 | DATA 2 |
| [INDEX] 2 | DATA 3 |

## RVC (REVERSE COLUMN ORDER)

### Description

This instruction reverses the order of all the columns.

### Example

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| [ORDINAL] 0 | [ORDINAL] 1 | [ORDINAL] 2 | [ORDINAL] 3 | [ORDINAL] 4 | [ORDINAL] 5 |
| DATA 0 | DATA 1 | DATA 2 | DATA 3 | DATA 4 | DATA 5 |

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|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| [ORDINAL] 0 | [ORDINAL] 1 | [ORDINAL] 2 | [ORDINAL] 3 | [ORDINAL] 4 | [ORDINAL] 5 |
| DATA 5 | DATA 4 | DATA 3 | DATA 2 | DATA 1 | DATA 0 |

## RVR (REVERSE ROW ORDER)

### Description

This instruction reverses the order of all the rows.

### Example

|  |  |
| --- | --- |
| [INDEX] 0 | DATA 0 |
| [INDEX] 1 | DATA 1 |
| [INDEX] 2 | DATA 2 |
| [INDEX] 3 | DATA 3 |
| [INDEX] 4 | DATA 4 |

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|  |  |
| --- | --- |
| [INDEX] 0 | DATA 4 |
| [INDEX] 1 | DATA 3 |
| [INDEX] 2 | DATA 2 |
| [INDEX] 3 | DATA 1 |
| [INDEX] 4 | DATA 0 |

## SCD[COLUMN],[ROW],[IC],[IR],[DATA] (SUBSTITUTE CELL DATA)

### Description

This instruction will substitute data into a specified cell.

### [COLUMN]

The column ordinal of the cell.

### [ROW]

The row index of the cell.

### [IC]

Invert column flag. 1 = true, 0 = false. This behaves the same as the [INV] instruction.

### [IR]

Invert row flag. 1 = true, 0 = false. This behaves the same as the [INV] instruction.

### [DATA]

Data to insert into the cell.

## TDD (TRAILING DELIMITER DISABLE)

### Description

This is the default writing mode. When the [WRT] instruction is writing, the row terminates with data and a CRLF. There is no trailing delimiter.

### Example

[TDE] Output data: 0,1,2,3,4,5,6,7,8,

[TDD]Output data: 0,1,2,3,4,5,6,7,8

## TDE (TRAILING DELIMITER ENABLE)

### Description

If this instruction is activated, during the [WRT] instruction a trailing delimiter is added to the end of every line of the output file.

### Example

[TDE] Output data: 0,1,2,3,4,5,6,7,8,

[TDD]Output data: 0,1,2,3,4,5,6,7,8

## TRP (TRANSPOSE)

### Description

This instruction transposes the table (rows become columns, columns become rows).

### Example

|  |  |  |
| --- | --- | --- |
| A | B | C |
| D | E | F |
| G | H | I |

↓↓↓↓↓↓

|  |  |  |
| --- | --- | --- |
| A | D | G |
| B | E | H |
| C | F | I |

## WRT (WRITE TABLE)

### Description

Write the modified table to the output CSV.