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# MarcNX Intersection Volume Reader

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## INTRODUCTION

This program was developed by the Advanced Traffic Analysis Center (ATAC) to store, process, and analyze volume data from Eagle EPAC 300 traffic controllers. To generate detector volume data, please refer to the *Developing Detector Volume Reports from MarcNX* document developed by ATAC. Specifically, this tool utilizes the “Detector Volume Report” of MarcNX (Siemens ITS). Prior to using this tool, users must have volume detectors implemented (preferably for each approach lane) and have Detector Volume Reports generated by MarcNX having a .CSV extension. This tool was written in JAVA; therefore, a Java runtime environment must be installed on the computer.

### Data Import and Database Setup

1. Open the MarcNX Volume Reader.JAR file (Figure 1).
  - From the main screen (Figure 1), users can initially select “Import CSV file” or “Open MDB file”. The “Open MDB file” can be used if the data has previously been loaded into the intersection database (see Step #13).

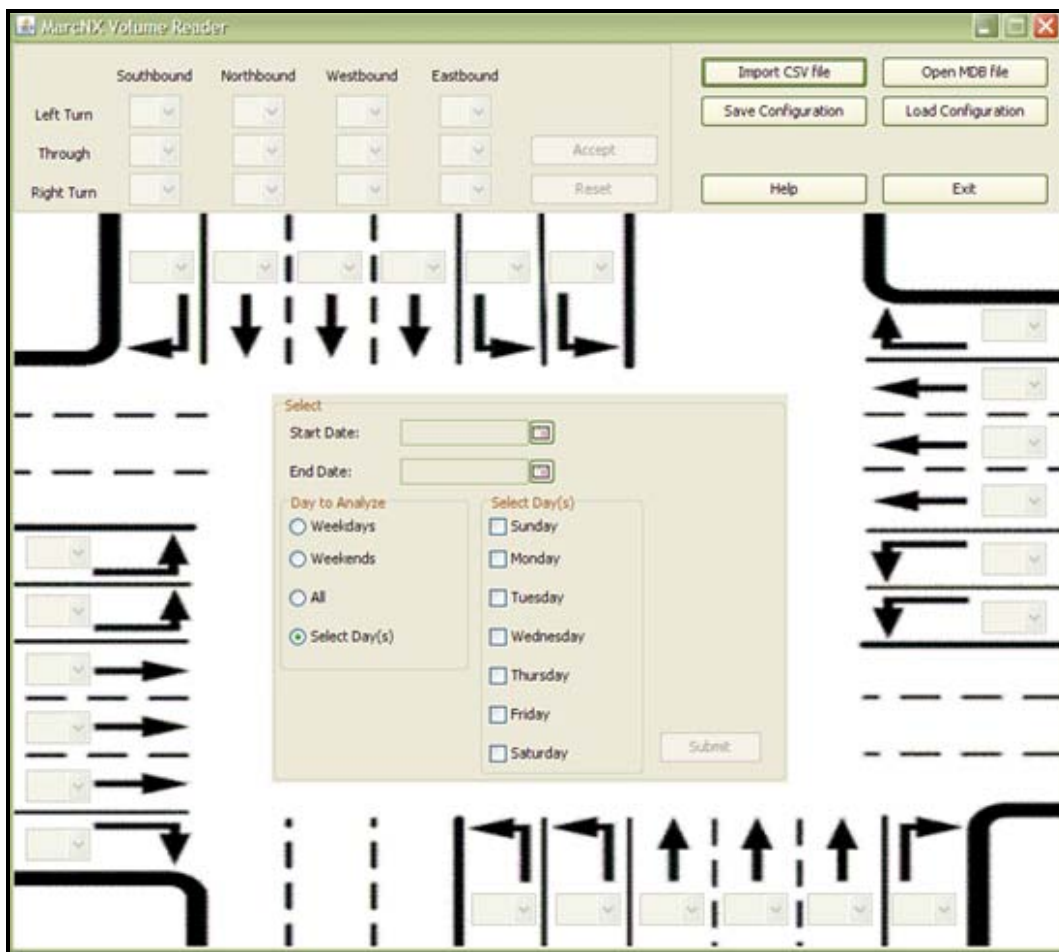


Figure 1. Initial MarcNX screen image.

2. Select “Import CSV file” button.
3. Browse to the appropriate .CSV file containing a Detector Volume Report created by the MARC NX software.
4. Enter a database name (.MDB file), which should correspond to the intersection name or number, and select Save.

- The program will read the relevant data from the .CSV file into the .MDB file. This process can take a few minutes and is dependent upon how much data is stored in the .CSV file.
- Once the .MDB file has been saved, the turning movement pull-down lists for the four approaches will become active.

Note: Once the data from the .CSV file has been added (imported) to the database, exit the program. To process the volume data, open the MDB file, and load the configuration file.

## **Intersection Configuration**

1. the appropriate turning lane information and select the “Accept” button.
  - Up to 24 volume detectors are available for Eagle EPAC300 controllers. Due to this limitation, each approach was allowed 6 detectors: 1 right-turn, 2 left-turn, and 3 thru lanes.
  - Once the “Accept” button is selected, pull-down lists are available for the appropriate lane configuration.
2. Using the pull-down lists, select the volume detector number that corresponds to each intersection lane (Figure 2).
  - As each detector number is used, it is removed from the pull-down list.
  - If an error is made during the lane configuration setup, select the “Reset” button to go back and make the necessary changes.
3. Save the lane and detector configuration by selecting the “Save Configuration” button and entering a name for the .CFG file.
  - The configuration file will be used for performing additional analyses on existing data or new analyses on future data.

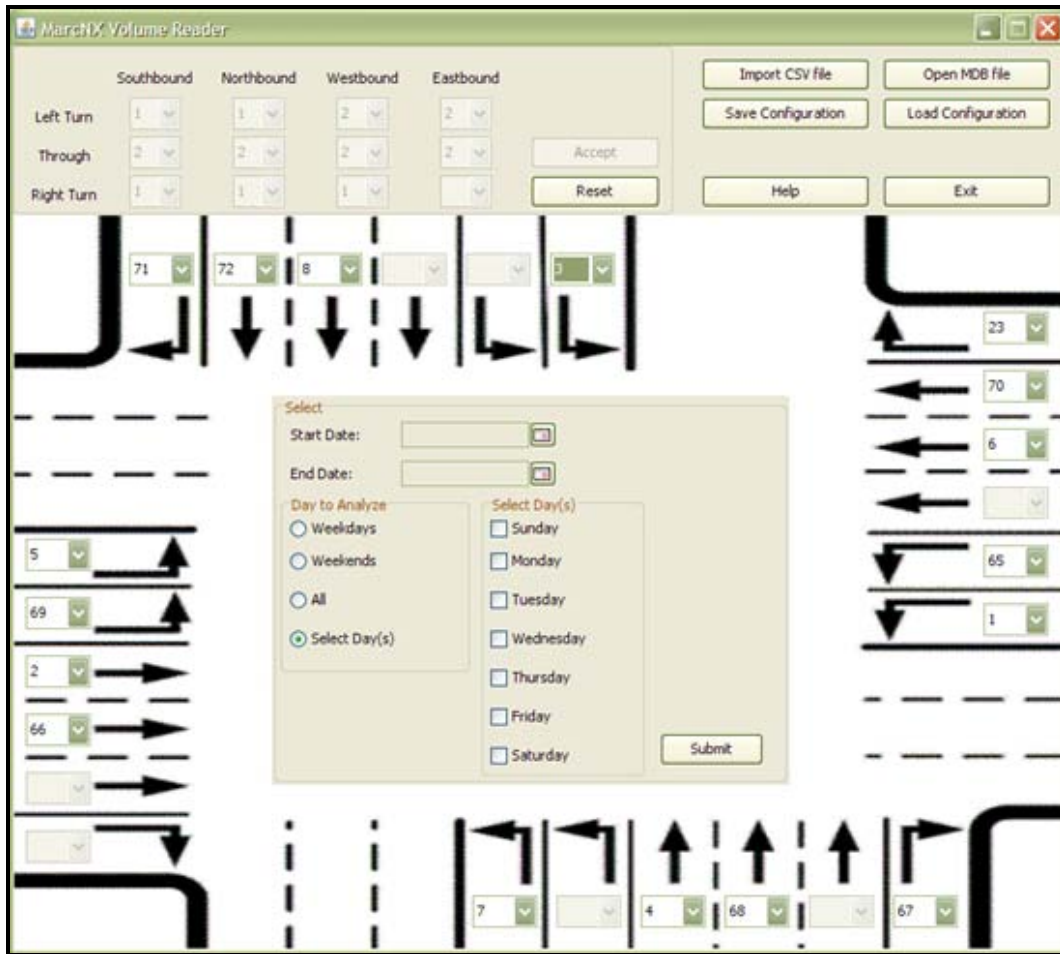


Figure 2. Mapping detector number to approach lane.

### Analysis Duration/Days

4. Based on the data collection dates contained in the .CSV file, select the appropriate Start Date and End Date by selecting the calendar button (Figure 3).
  - If the start and end dates are the same, only data for the specific day will be analyzed.
5. Select the appropriate day(s) of the week to analyze.
  - Users can analyze Weekdays, Weekends, All, or Select Day(s).
  - If Select Day(s) is active, any combination of the days of the week may be selected for analysis.

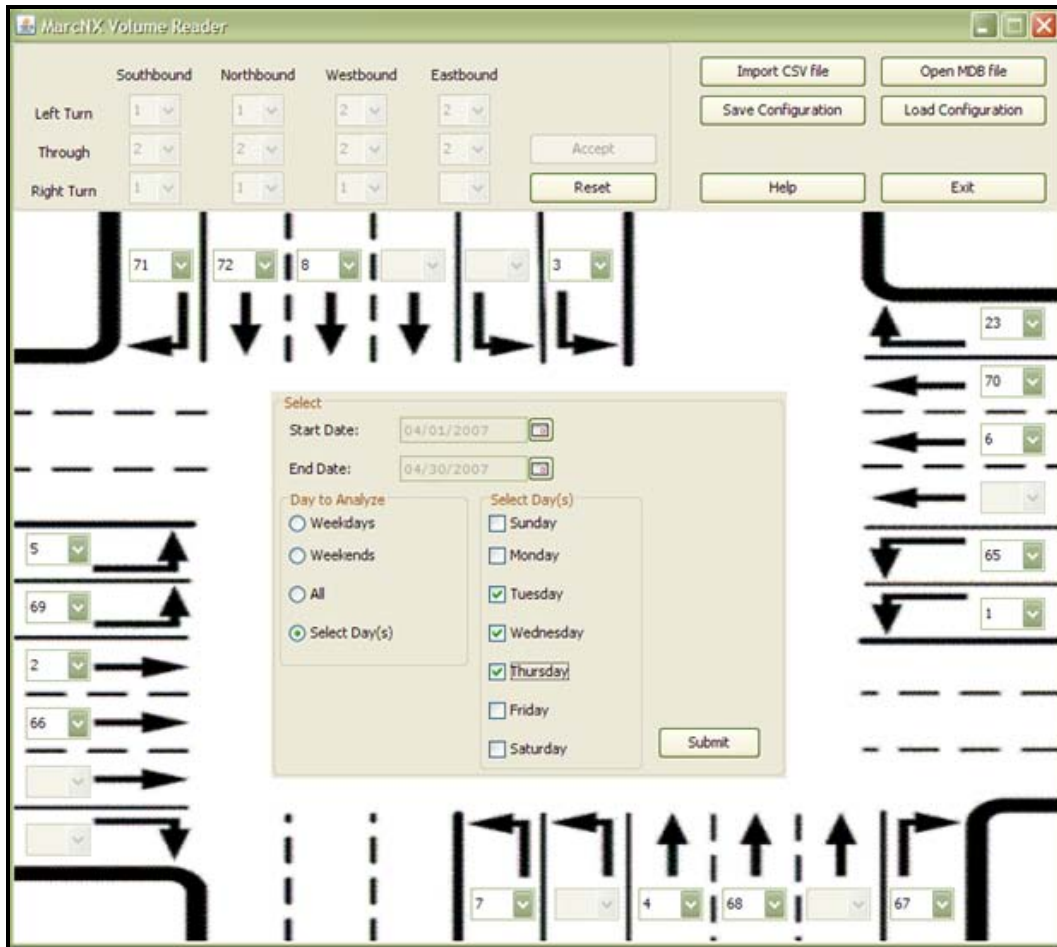


Figure 3. Analysis duration and days of the week.

## Processing Volume Data

6. Select the "Submit" button to process the detector volume data.
  - Once this is performed, a "Results" window will be generated showing the traffic volume data.
  - The 1<sup>st</sup> column shows the start time of the row of data.
  - The preceding column headings show the intersection turning movements based on the user input (labeled in order from EB, WB, NB, and SB, as well as by movement Left, Thru, and Right. Total columns are illustrated for each approach, as well as the total intersection.
  - If an approach or movement is not used, it is simply not displayed.
  - If more than one day of data were selected, the cell values represent the average for that time interval and the selected day(s) of the week.
  - If communication were lost to the controller causing gaps in the recorded data, the averages would be based on the available data.

Time	EB Left	EB Thru	EB Total	WB Left	WB Thru	WB Right	WB Total	NB Left	NB Thru	NB Right	NB Total	SB Left	SB Thru	SB Right	SB Total	Total
0:00 AM	3	15	18	7	15	11	33	4	16	92	112	2	30	11	43	205
0:15 AM	2	9	11	6	16	5	27	2	12	58	72	2	16	5	22	132
0:30 AM	2	10	12	4	12	6	21	2	13	53	68	1	13	6	20	121
0:45 AM	2	9	11	5	11	6	22	1	9	18	28	2	15	6	22	83
1:00 AM	3	11	14	4	9	4	17	1	7	19	28	1	12	4	18	76
1:15 AM	2	8	10	2	9	4	14	1	6	5	12	2	11	4	16	52
1:30 AM	2	7	9	3	7	5	15	1	6	14	21	2	10	5	16	60
1:45 AM	2	8	10	4	8	3	15	1	6	20	27	1	8	3	11	63
2:00 AM	3	10	13	4	11	5	20	1	5	55	61	3	13	5	20	114
2:15 AM	2	8	9	2	8	3	13	1	5	40	46	0	7	3	10	79
2:30 AM	2	8	10	3	6	4	13	1	7	36	43	1	7	4	13	79
2:45 AM	3	10	13	3	5	3	11	1	8	29	38	1	6	3	10	71
3:00 AM	3	8	11	3	5	8	16	0	5	46	51	1	12	8	21	99
3:15 AM	2	8	10	2	5	4	12	1	6	8	15	1	10	4	15	51
3:30 AM	2	10	12	2	4	2	8	0	5	6	12	1	10	2	13	45
3:45 AM	5	12	17	2	6	2	10	1	6	17	24	0	6	2	8	59
4:00 AM	8	24	32	2	6	3	11	1	5	5	10	0	7	3	10	63
4:15 AM	10	23	33	2	6	4	12	1	9	4	14	1	6	4	10	69
4:30 AM	11	23	33	2	8	3	13	2	11	15	27	2	9	3	13	88
4:45 AM	15	29	44	3	11	4	17	1	17	5	24	2	10	4	15	100
5:00 AM	16	36	51	3	11	3	17	3	15	4	21	2	8	3	13	102
5:15 AM	27	49	76	13	26	4	43	4	26	8	38	2	10	4	15	172
5:30 AM	41	83	124	4	45	5	55	12	42	15	69	3	13	6	22	269
5:45 AM	55	105	159	5	50	11	65	12	64	17	92	5	21	10	36	352
6:00 AM	43	123	166	5	27	7	39	6	72	15	93	9	30	7	46	343
6:15 AM	52	129	181	10	39	10	58	8	54	23	85	7	28	10	45	368
6:30 AM	71	168	239	7	58	12	76	10	89	26	126	7	41	12	61	502
6:45 AM	69	195	264	15	76	26	117	19	127	39	185	11	74	26	111	677
7:00 AM	53	170	223	12	59	21	92	13	92	32	137	15	73	22	109	561
7:15 AM	86	234	320	18	81	30	129	15	122	39	177	18	80	30	129	754
7:30 AM	87	293	380	20	103	29	151	20	164	65	269	17	86	30	133	933
7:45 AM	97	313	411	32	117	39	188	31	192	73	296	20	121	39	180	1074
8:00 AM	58	239	297	25	96	27	148	22	109	76	206	22	104	28	153	805
8:15 AM	44	174	219	22	85	24	131	17	88	61	166	21	80	25	126	641
8:30 AM	48	162	209	23	83	22	128	17	87	42	146	20	75	22	117	600

Figure 4. Processed data in Result Window.

7. Print the displayed information using the File menu pull-down. Once "Print" is selected, a dialog box will be displayed for entering the intersection name. Next, select the desired printer for printing the results.
8. To graph or perform statistical analyses with the data, select (left mouse click) the 0:00 AM interval. While holding down the left mouse button, drag the mouse cursor to the bottom right interval so all of the data are highlighted. Using the keyboard press and hold the "Ctrl" key while selecting the letter "c". This will copy the data to the computers memory. Open Excel (or equivalent) and paste the data (press and hold the "Ctrl" key while selecting the letter "v").
  - The user can select portions or all of the data to copy and paste into a spreadsheet program.

## DATABASE INFORMATION

9. If users have previously imported a .CSV file and wish to perform additional analyses with the data, select "Open MDB file".
  10. Browse to the appropriate .MDB file that was previously created by the MarcNX Volume Reader program.
  11. Select "Load Configuration" and browse to the appropriate .CFG file. This assumes that a configuration file was saved during a previous session. If not, follow Steps 5-7.
    - It is important to load the appropriate .CFG file that correlates to the appropriate .MDB file.
- NOTE: The database (.MDB) file should correlate to the intersection name. Additional volume information from the .CSV files is added to the current .MDB file. Only new volume data (based on the Date/Time field) will be added to the .MDB file and overlapping data will be disregarding.

## SYSTEM REQUIREMENTS

- MarcNX Versions 3.2.0 and 3.3.4 have been tested. Older versions may also work.
- J2SE (Java 2, Standard Edition) Runtime Environment can be downloaded free of charge from <http://java.sun.com>.

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