

Exemple :

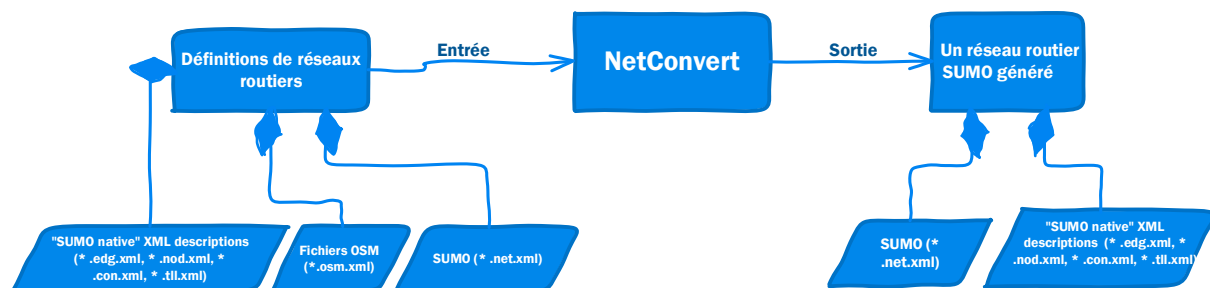
Réseaux / PlainXML

SUMO -Networks a deux représentations:

- Un ensemble de fichiers *plain-xml* qui décrivent la topologie et la géométrie du réseau
- Le fichier *.net.xml* qui est chargé dans la simulation. Il contient de nombreuses informations générées telles que les structures dans une logique d'intersection et de droit de passage.

NETCONVERT peut convertir librement et sans perte d'informations entre ces deux formats. Seul le format *plain-xml* est destiné à être édité par les utilisateurs. En revanche, le format *.net.xml* a beaucoup d'interdépendances subtiles entre ses éléments et ne doit jamais être modifié à la main. Le format *plain-xml* est décrit ci-dessous.

Il est possible de charger un fichier *.net.xml* avec des fichiers correctifs *plain-xml* dans NETCONVERT pour modifier certains aspects d'un réseau existant.



1. Création manuel de réseau routière (nœuds et segments)

a. nodes file | Villes.nod.xml

```
1 <nodes>
2 <node id="Ariana" x = "-375" y="0"/>
3 <node id="Tunis" x = "-125" y="0"/>
4 <node id="Marsa" x = "0" y="125"/>
5 <node id="Bardo" x = "0" y="-125"/>
6 <node id="Benarous" x = "125" y="0"/>
7 <node id="Rades" x = "375" y="0"/>
8 </nodes>
```

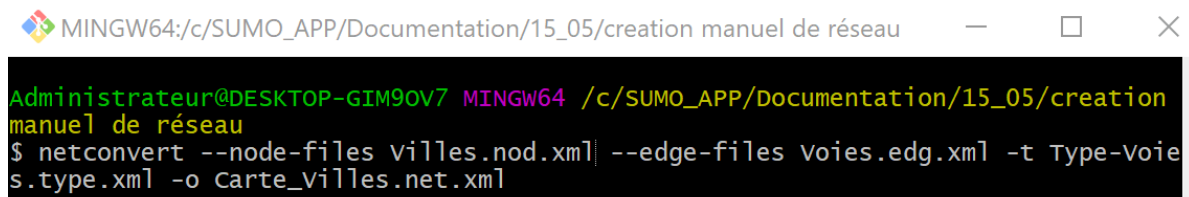
b. edges file | Voies.edg.xml

```
<edges>
<edge from="Ariana" to="Tunis" id="Ariana-Tunis" type="Type-Ariana-Tunis"/>
<edge from="Tunis" to="Ariana" id="Tunis-Ariana" type="Type-Tunis-Ariana"/>
<edge from="Tunis" to="Marsa" id="Tunis-Marsa" type="Type-Tunis-Marsa"/>
<edge from="Marsa" to="Tunis" id="Marsa-Tunis" type="Type-Marsa-Tunis"/>
<edge from="Tunis" to="Bardo" id="Tunis-Bardo" type="Type-Tunis-Bardo"/>
<edge from="Bardo" to="Tunis" id="Bardo-Tunis" type="Type-Bardo-Tunis"/>
<edge from="Marsa" to="Benarous" id="Marsa-Benarous" type="Type-Marsa-Benarous"/>
<edge from="Benarous" to="Marsa" id="Benarous-Marsa" type="Type-Benarous-Marsa"/>
<edge from="Bardo" to="Benarous" id="Bardo-Benarous" type="Type-Bardo-Benarous"/>
<edge from="Benarous" to="Bardo" id="Benarous-Bardo" type="Type-Benarous-Bardo"/>
<edge from="Benarous" to="Rades" id="Benarous-Rades" type="Type-Benarous-Rades"/>
<edge from="Rades" to="Benarous" id="Rades-Benarous" type="Type-Rades-Benarous"/>
</edges>
```

c. Type edges file | Type-Voies.type.xml

```
<types>
<type id="Type-Ariana-Tunis" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Tunis-Ariana" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Tunis-Marsa" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Marsa-Tunis" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Tunis-Bardo" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Bardo-Tunis" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Marsa-Benarous" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Benarous-Marsa" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Bardo-Benarous" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Benarous-Bardo" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Benarous-Rades" priority="-1" numLanes="2" speed="120"/>
<type id="Type-Rades-Benarous" priority="-1" numLanes="2" speed="120"/>
</types>
```

d. Application netconvert



The screenshot shows a terminal window titled "MINGW64:/c/SUMO_APP/Documentation/15_05/creation manuel de réseau". The prompt is "Administrateur@DESKTOP-GIM9OV7 MINGW64". The command entered is "\$ netconvert --node-files villes.nod.xml --edge-files Voies.edg.xml -t Type-Voies.type.xml -o Carte_villes.net.xml".

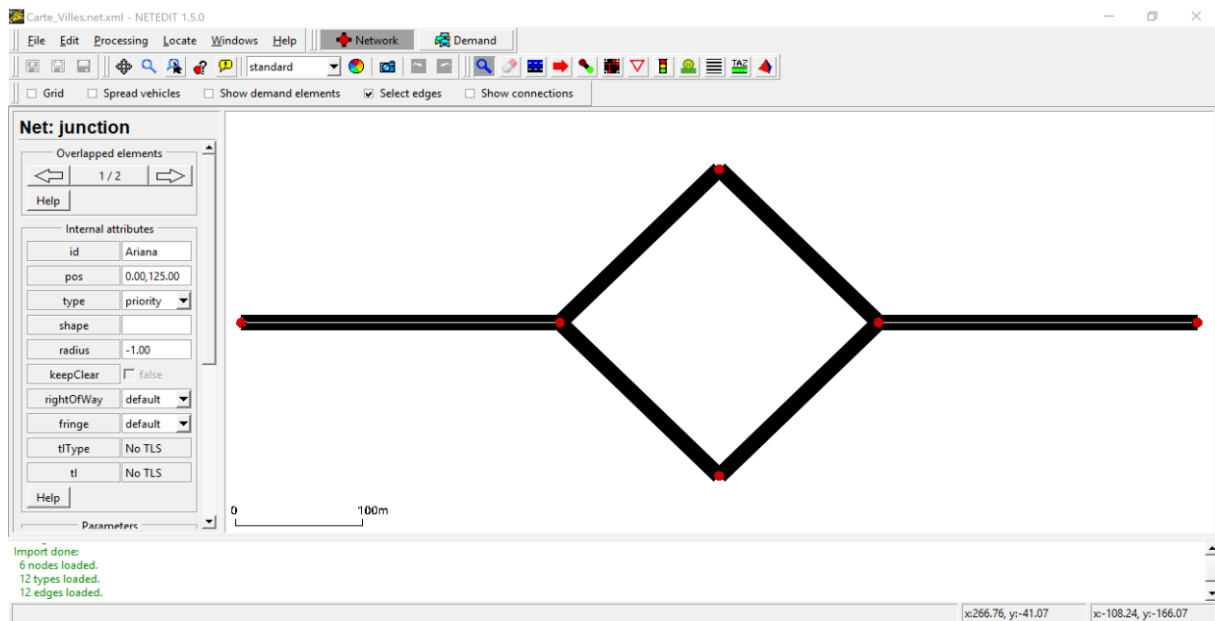
```
MINGW64:/c/SUMO_APP/Documentation/15_05/creation manuel de réseau
Administrateur@DESKTOP-GIM9OV7 MINGW64 /c/SUMO_APP/Documentation/15_05/creation
manuel de réseau
$ netconvert --node-files villes.nod.xml --edge-files Voies.edg.xml -t Type-Voie
s.type.xml -o Carte_villes.net.xml
```

```
MINGW64:/c/SUMO_APP/Documentation/15_05/creation manuel de réseau
Administrateur@DESKTOP-GIM9OV7 MINGW64 /c/SUMO_APP/Documentation/15_05/creation
manuel de réseau
$ netconvert --node-files Villes.nod.xml --edge-files Voies.edg.xml -t Type-Voie
s.type.xml -o Carte_Villes.net.xml
Warning: Speed of turning connection 'Benarous-Bardo_0->Bardo-Tunis_0' reduced b
y 116.10 due to turning radius of 2.77 (length=2.58, angle=90.00).
Warning: Speed of turning connection 'Benarous-Bardo_1->Bardo-Tunis_1' reduced b
y 113.92 due to turning radius of 6.71 (length=7.74, angle=90.00).
Warning: Speed of turning connection 'Tunis-Bardo_0->Bardo-Benarous_0' reduced b
y 111.04 due to turning radius of 14.60 (length=18.06, angle=90.00).
Warning: Speed of turning connection 'Tunis-Bardo_1->Bardo-Benarous_1' reduced b
y 112.34 due to turning radius of 10.66 (length=12.90, angle=90.00).
Warning: Speed of turning connection 'Rades-Benarous_0->Benarous-Marsa_0' reduce
d by 108.38 due to turning radius of 24.56 (length=12.44, angle=45.00).
Warning: 24 total messages of type: Speed of % connection '%' reduced by % due t
o turning radius of % (length=%, angle=%).
Success.

Administrateur@DESKTOP-GIM9OV7 MINGW64 /c/SUMO_APP/Documentation/15_05/creation
manuel de réseau
$
```

e. Carte_Villes.net.xml:

```
"http://sumo.dlr.de/xsd/net_file.xsd">
24
25
26
27 <location netOffset="375.00,125.00" convBoundary="0.00,0.00,750.00,250.00" origBoundary="-375.00,-125.00,375.00,125.00" projParameter="!"/>
28
29 <type id="Type-Ariana-Tunis" priority="-1" numLanes="2" speed="120.00"/>
30 <type id="Type-Bardo-Benarous" priority="-1" numLanes="2" speed="120.00"/>
31 <type id="Type-Bardo-Tunis" priority="-1" numLanes="2" speed="120.00"/>
32 <type id="Type-Benarous-Bardo" priority="-1" numLanes="2" speed="120.00"/>
33 <type id="Type-Benarous-Marsa" priority="-1" numLanes="2" speed="120.00"/>
34 <type id="Type-Benarous-Rades" priority="-1" numLanes="2" speed="120.00"/>
35 <type id="Type-Marsa-Benarous" priority="-1" numLanes="2" speed="120.00"/>
36 <type id="Type-Marsa-Tunis" priority="-1" numLanes="2" speed="120.00"/>
37 <type id="Type-Rades-Benarous" priority="-1" numLanes="2" speed="120.00"/>
38 <type id="Type-Tunis-Bardo" priority="-1" numLanes="2" speed="120.00"/>
39 <type id="Type-Tunis-Marsa" priority="-1" numLanes="2" speed="120.00"/>
40
41 <edge id="Ariana_0" function="internal">
42 <lane id="Ariana_0_0" index="0" speed="3.65" length="4.67" shape="0.00,126.60 -1.20,125.80 -1.60,125.00 -1.20,124.20 0.00,123.40"/>
43 </edge>
44 <edge id="Bardo_0" function="internal">
45 <lane id="Bardo_0_0" index="0" speed="3.90" length="2.58" shape="376.13,7.92 375.57,7.50 375.00,7.35 374.43,7.50 373.87,7.92"/>
46 </edge>
47 <edge id="Bardo_1" function="internal">
48 <lane id="Bardo_1_0" index="0" speed="6.08" length="7.74" shape="378.39,5.66 376.70,4.38 375.00,3.96 373.30,4.38 371.61,5.66"/>
49 </edge>
50 <edge id="Bardo_2" function="internal">
51 <lane id="Bardo_2_0" index="0" speed="8.96" length="18.06" shape="367.08,1.13 371.04,-1.84 375.00,-2.83 378.96,-1.84 382.92,1.13"/>
52 </edge>
53 <edge id="Bardo_3" function="internal">
54 <lane id="Bardo_3_0" index="0" speed="7.66" length="12.90" shape="369.34,3.39 372.17,1.27 375.00,0.57 377.83,1.27 380.66,3.39"/>
55 </edge>
56 <edge id="Benarous_0" function="internal">
57 <lane id="Benarous_0_0" index="0" speed="11.62" length="12.44" shape="506.65,129.80 504.24,130.17 501.67,131.29 498.93,133.15 496.04,135.75"/>
58 </edge>
59 <edge id="Benarous_1" function="internal">
60 <lane id="Benarous_1_0" index="0" speed="12.70" length="14.95" shape="506.65,126.60 503.60,127.03 500.44,128.32 497.16,130.47 493.78,133.49"/>
61 </edge>
```



2. Ajout de la demande(O/D)

a. Traffic Assignment Zone (TAZ) definition File | TAZ_file.taz.xml

```

1 <additional>
2 <tazs>
3 <taz id="1" edges="Ariana-Tunis">
4 </taz>
5 <taz id="2" edges="Benarous-Rades">
6 </taz>
7 </tazs>
8 </additional>

```

b. Origin-Destination Matrix File | OD_Matrice.od

```

1 $O;D2
2 * From-Time To-Time
3 0.00 1.00
4 * Factor
5 1.00
6 *
7 * some
8 * additional
9 * comments
10 1 2 1
11

```

c. Application Od2trips

```
MINGW64:/c/SUMO_APP/Documentation/15_05/creation manuel de réseau
Administrateur@DESKTOP-GIM9OV7 MINGW64 /c/SUMO_APP/Documentation/15_05/creation
manuel de réseau
$ od2trips -n TAZ_file.taz.xml -d OD_Matrice.od -o Trajets.odtrips.xml
Success.time 2488.08

Administrateur@DESKTOP-GIM9OV7 MINGW64 /c/SUMO_APP/Documentation/15_05/creation
manuel de réseau
$
```

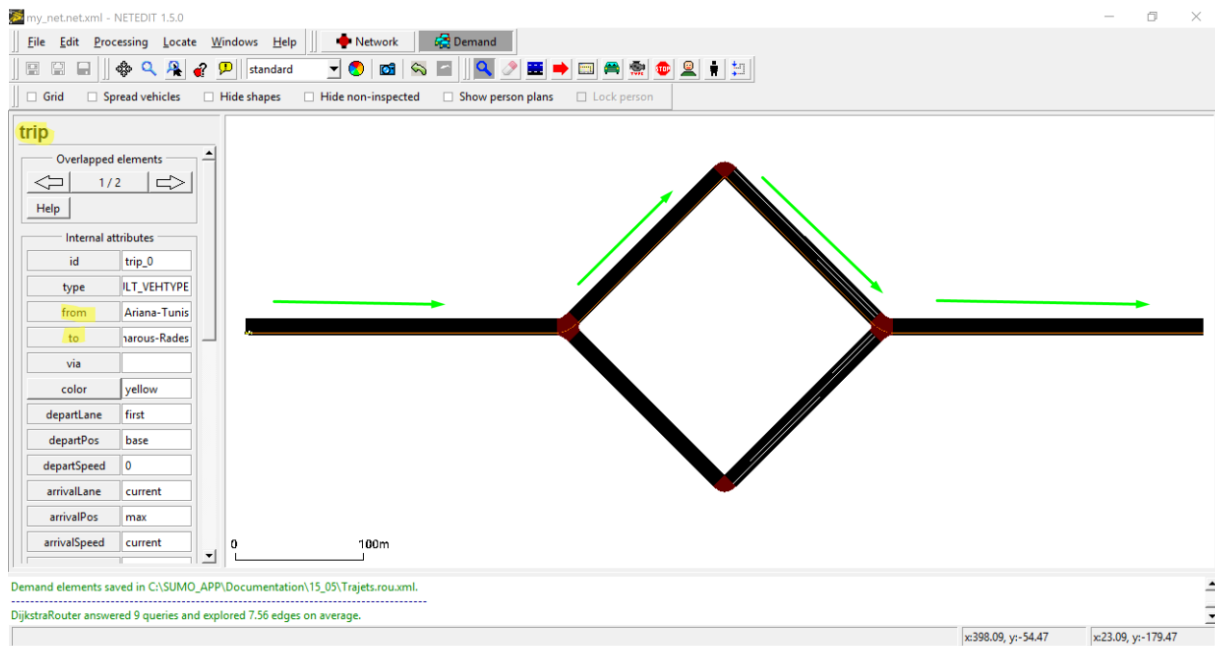
d. Trajets.odtrips.xml

```
1 <?xml version="1.0" encoding="UTF-8"?>
2
3 <!-- generated on 05/15/20 13:46:24 by Eclipse SUMO od2trips Version 1.5.0
4 <configuration xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://sumo.dlr.de/xsd/od2tripsConfiguration.xsd">
5
6   <input>
7     <taz-files value="TAZ_file.taz.xml"/>
8     <od-matrix-files value="OD_Matrice.od"/>
9   </input>
10
11   <output>
12     <output-file value="Trajets.odtrips.xml"/>
13   </output>
14 </configuration>
15 -->
16
17 <routes xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://sumo.dlr.de/xsd/routes_file.xsd">
18   <trip id="0" depart="2488.08" from="Ariana-Tunis" to="Benarous-Rades" fromTaz="1" toTaz="2" departLane="free" departSpeed="max"/>
19 </routes>
20
21
```

e. Fichier route Trajets.rou.xml

```
1 <?xml version="1.0" encoding="UTF-8"?>
2
3 <routes xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:noNamespaceSchemaLocation="http://sumo.dlr.de/xsd/routes_file.xsd">
4   <trip id="0" depart="2488.08" from="Ariana-Tunis" to="Benarous-Rades" fromTaz="1" toTaz="2" departLane="free" departSpeed="max"/>
5 </routes>
6
```

3. Ouvrir la carte et la demande dans l'application Netedit(optionnel) :



4. SUMO

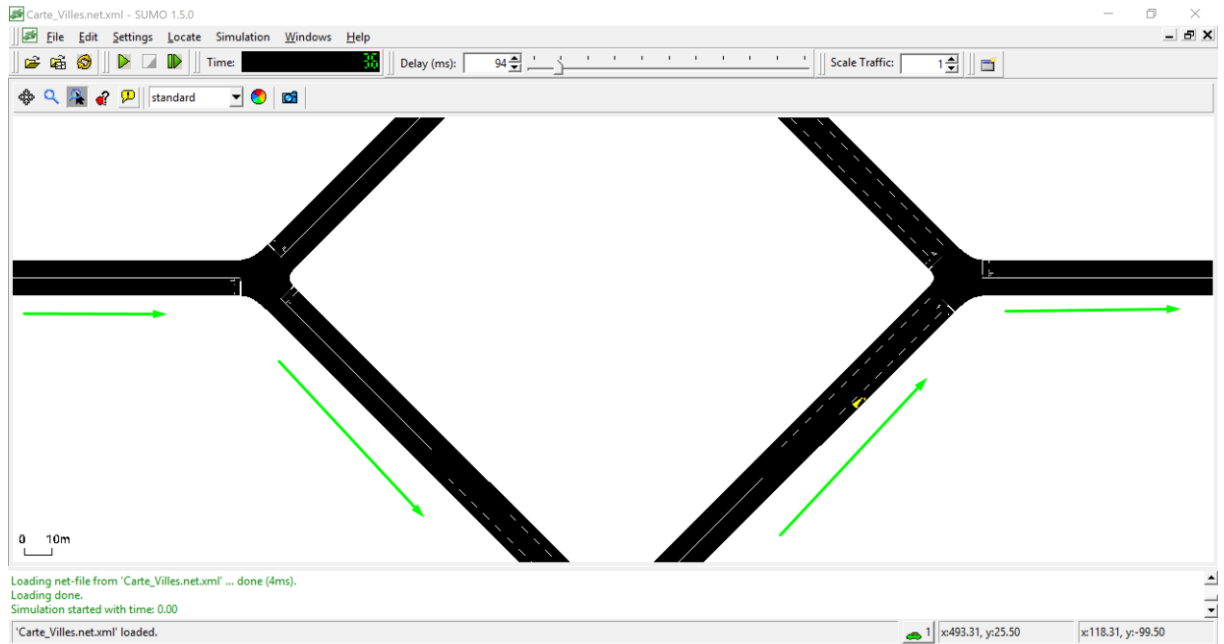
```

MINGW64:/c/SUMO_APP/Documentation/15_05/creation manuel de réseau
Administrateur@DESKTOP-GIM9OV7 MINGW64 /c/SUMO_APP/Documentation/15_05/creation
manuel de réseau
$ sumo -n Carte_Villes.net.xml -r Trajets.rou.xml
Step #0.00 (1ms ~= 1000.00*RT, ~1000.00UPS, vehicles TOT 1 ACT 1 BUF 0)
Step #52.00 (0ms ?*RT. ?UPS, vehicles TOT 1 ACT 0 BUF 0)

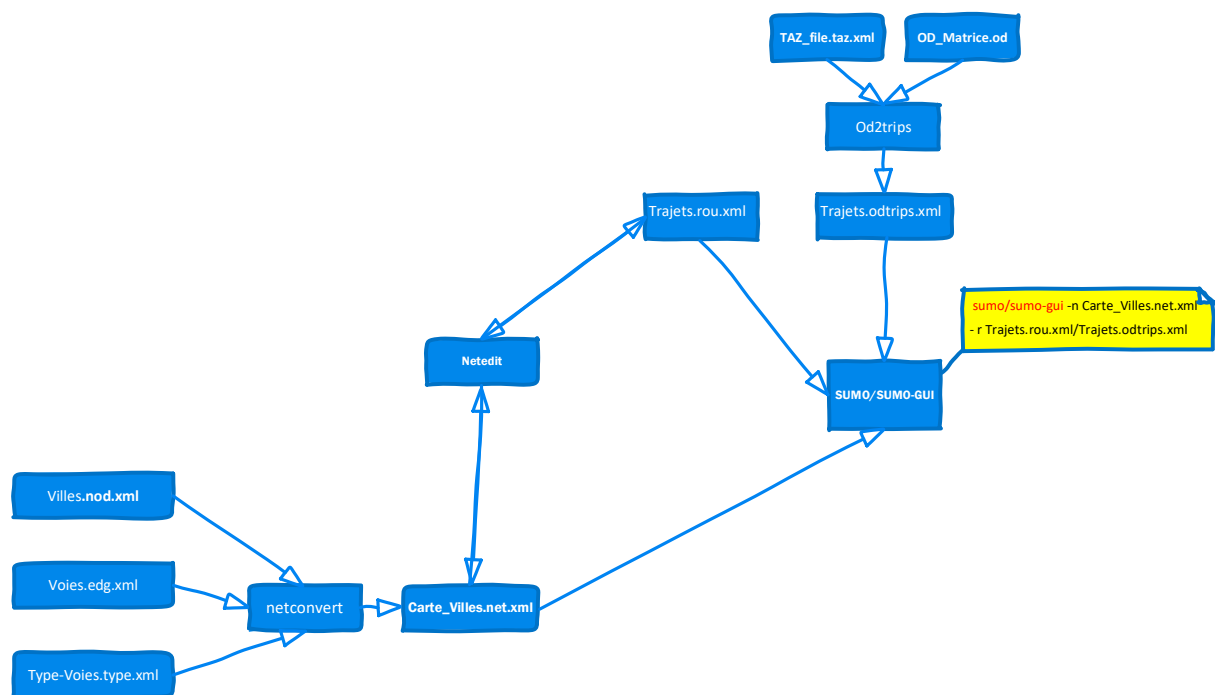
Administrateur@DESKTOP-GIM9OV7 MINGW64 /c/SUMO_APP/Documentation/15_05/creation
manuel de réseau
$

```

5. SUMO-GUI

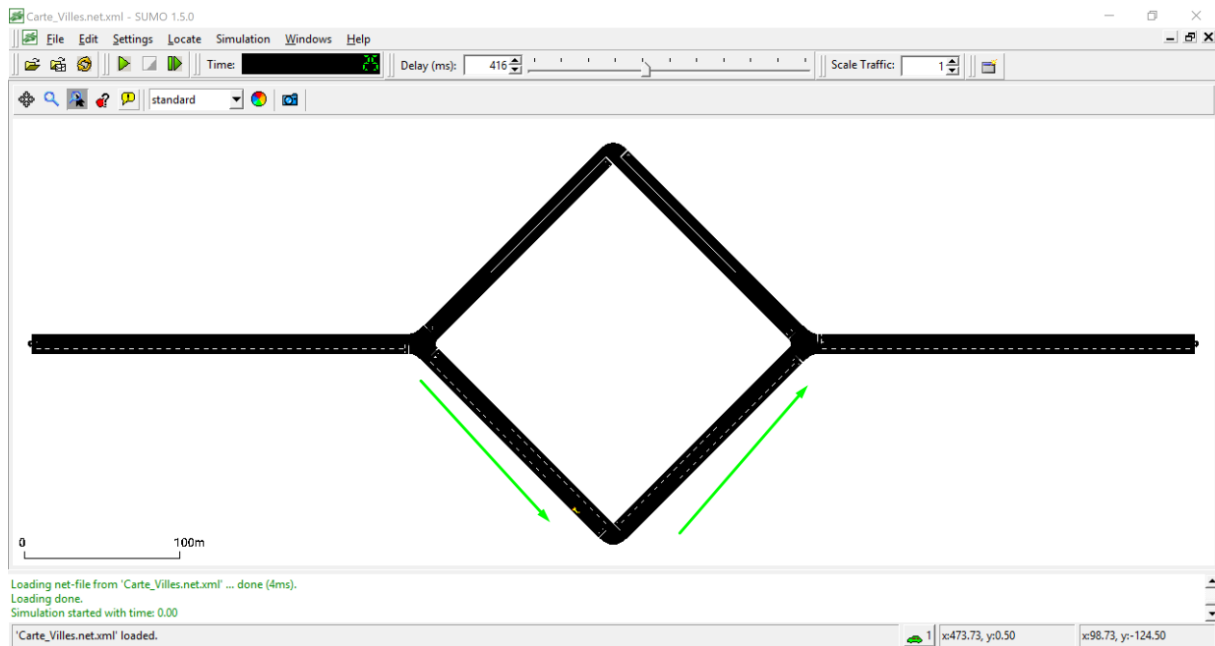
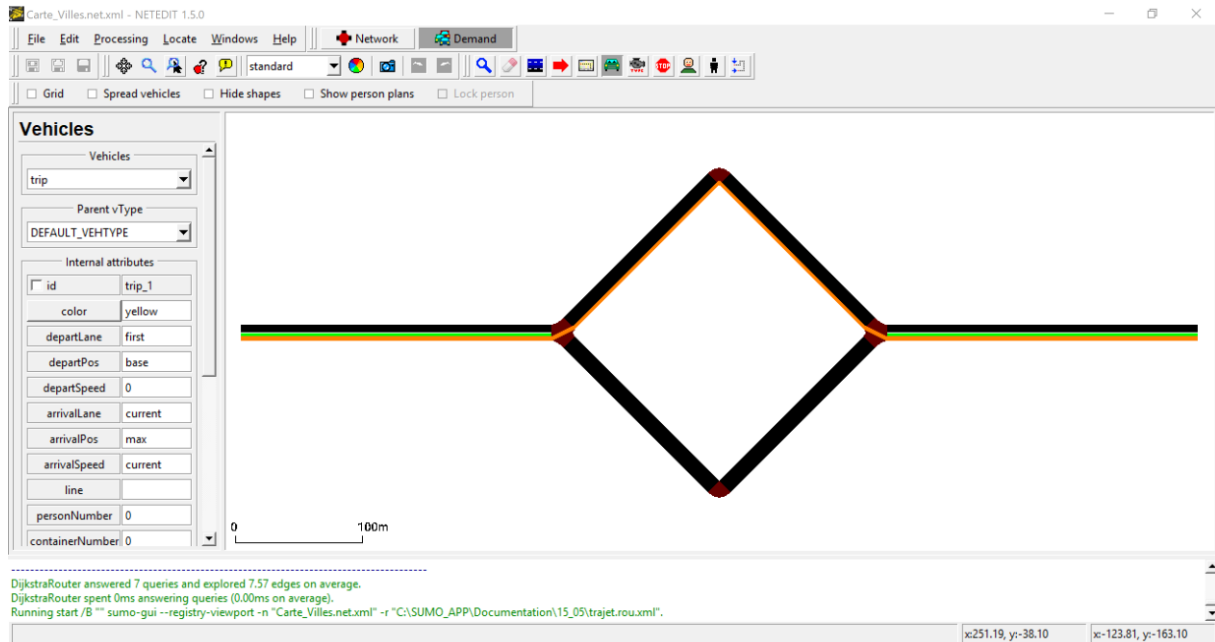


6. Organigramme explicatif

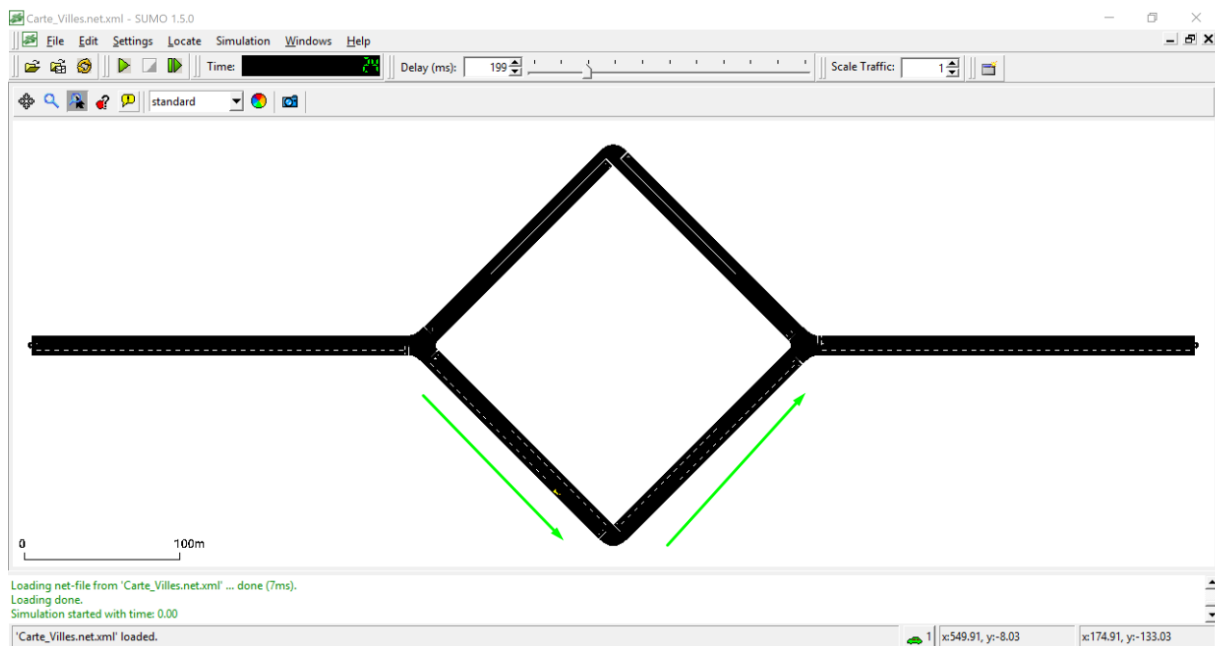
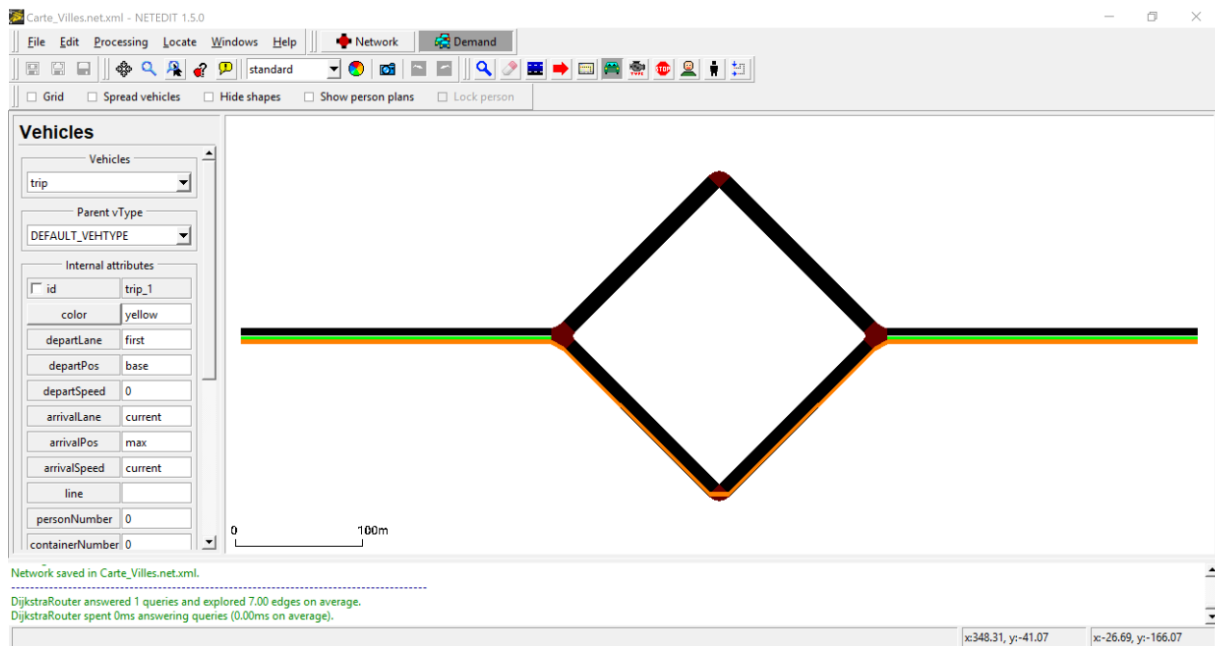


7. Evaluation

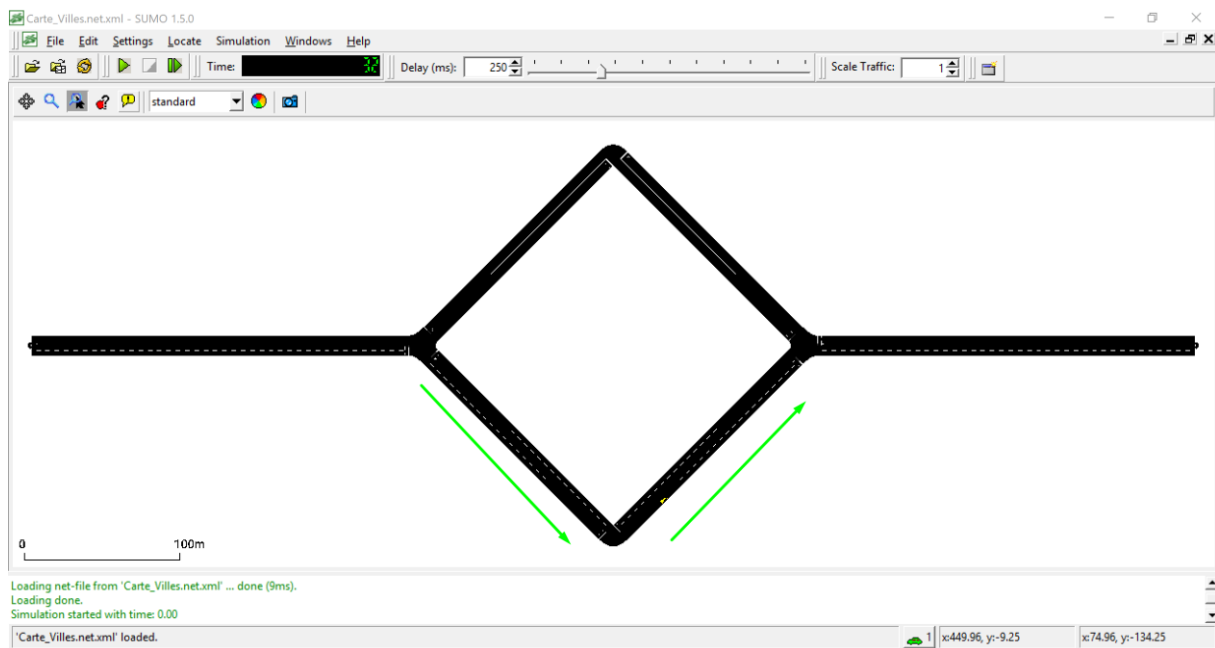
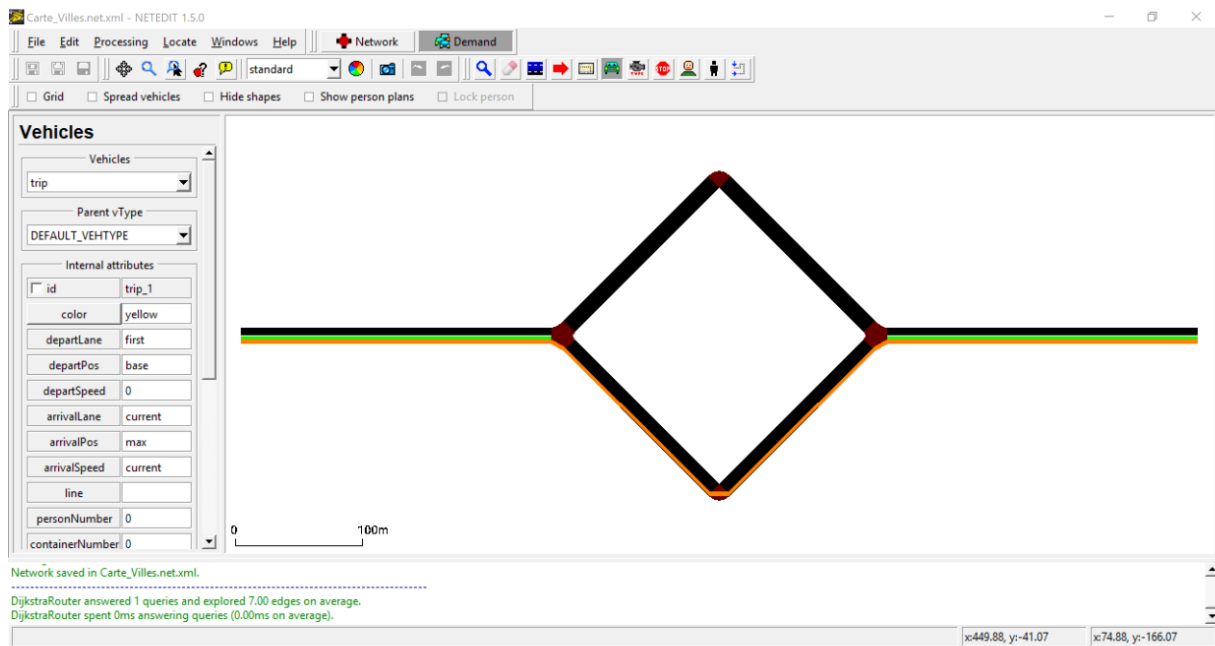
Speed =120 (Tunis-Marsa et Marsa-Benarous)



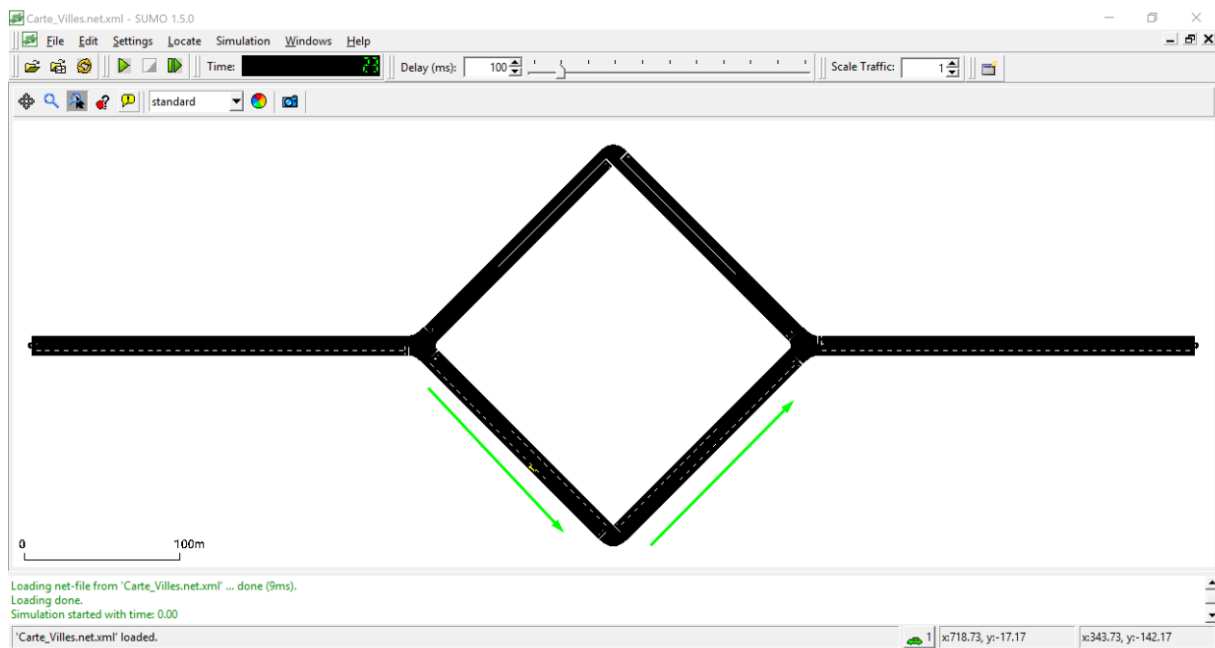
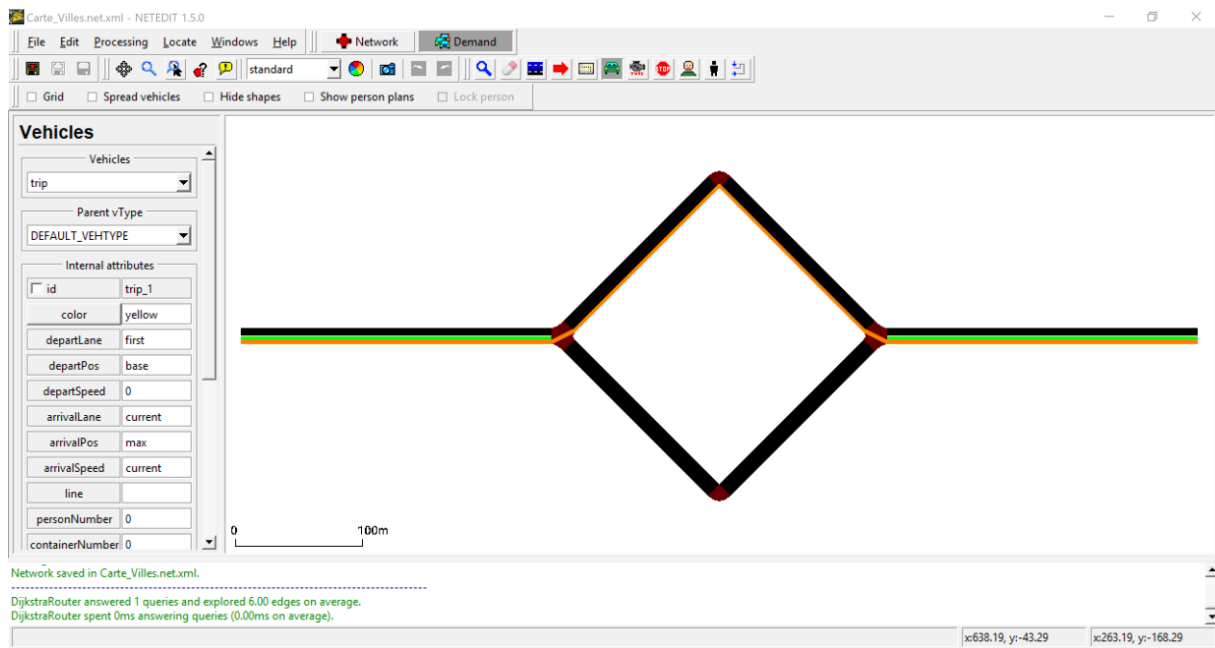
Speed = 60



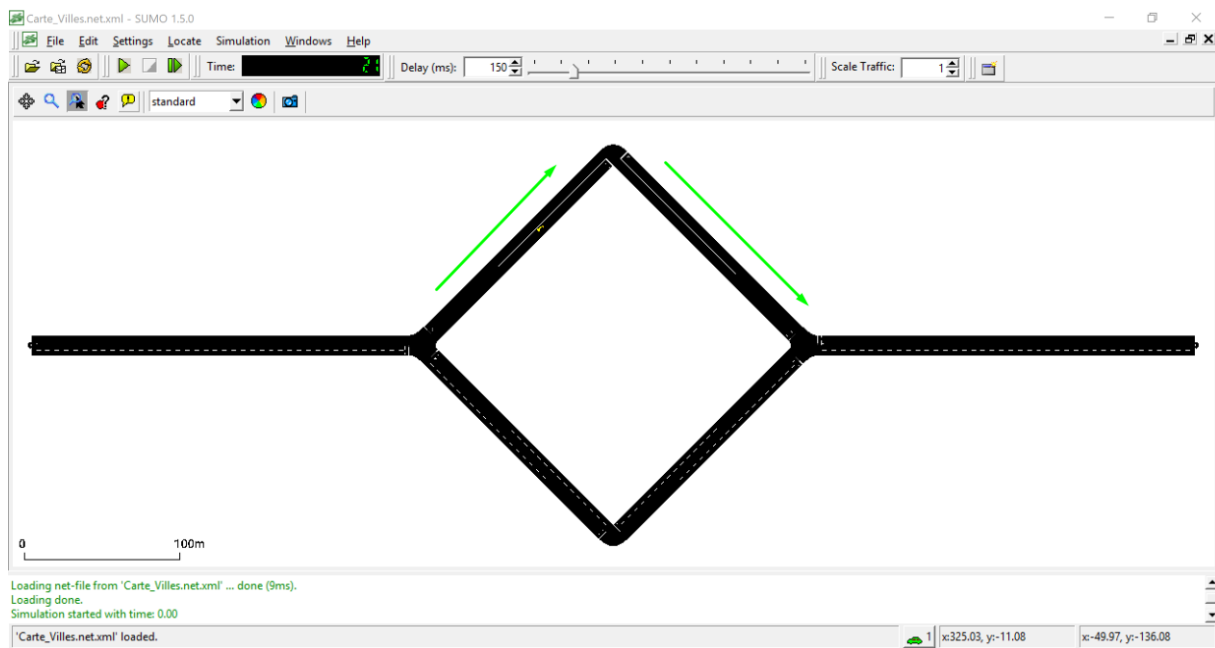
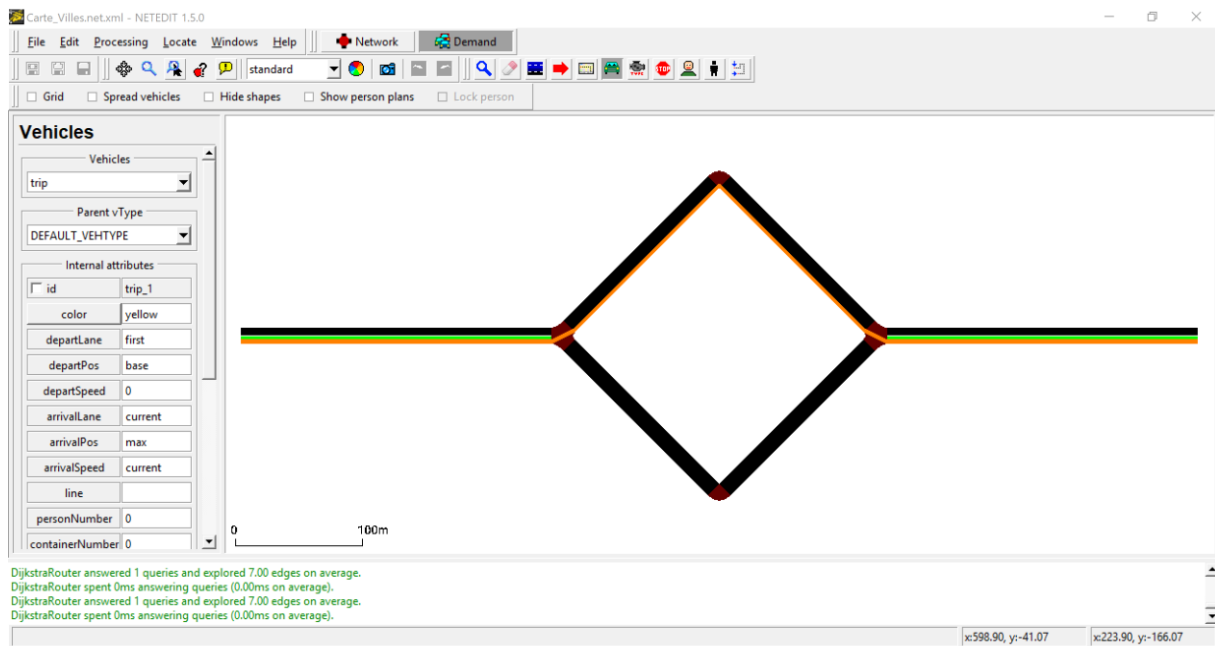
Speed = 20



Length = 159.98



Length = 100



Length = 50

