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Google Embedded Maps Connector

**INTEGRATE GOOGLE MAPS AS A PRO IN
YOUR OWN APPLICATIONS**

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GOOGLE EMBEDDED MAPS CONNECTOR

Install the software



Execute the EmbeddedbMaps.exe setup. This will install and register the software. Now you can add the automations in dynamics Navision. This will make the Google Maps API available within your applications.

For a complete list of features and properties please refer to :

<https://developers.google.com/maps/documentation/javascript/reference>

Following items are included :

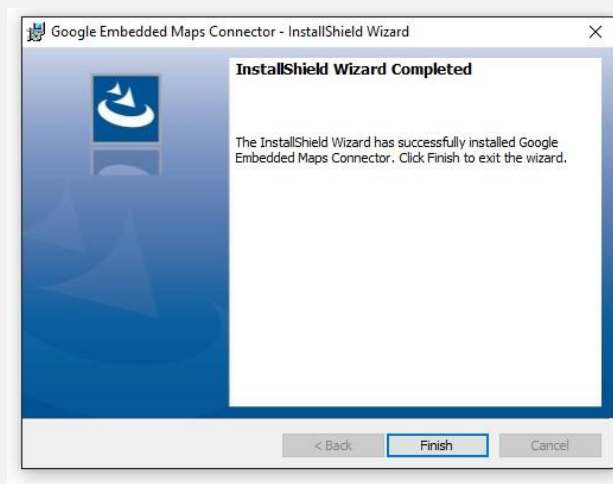
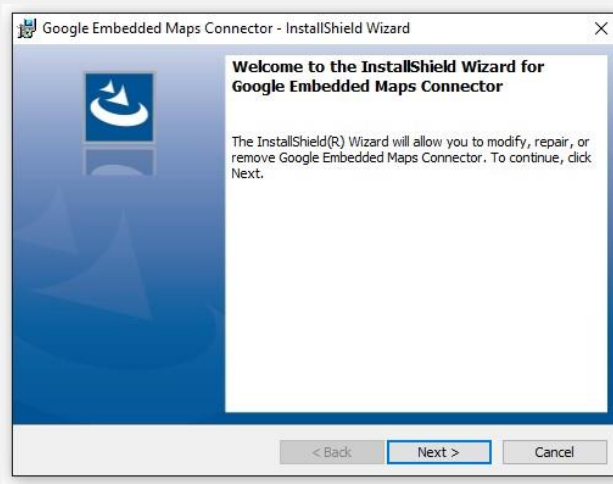
Codeunit :

- Google Maps Provider
- Google Maps Management (complete set of instructions to use google maps functionality)

Form :

- Google Maps Container (this form contains the integrated Google map)

The form contains a number of functions, that can be used to integrate cards, markers, etc on any form. (see examples)

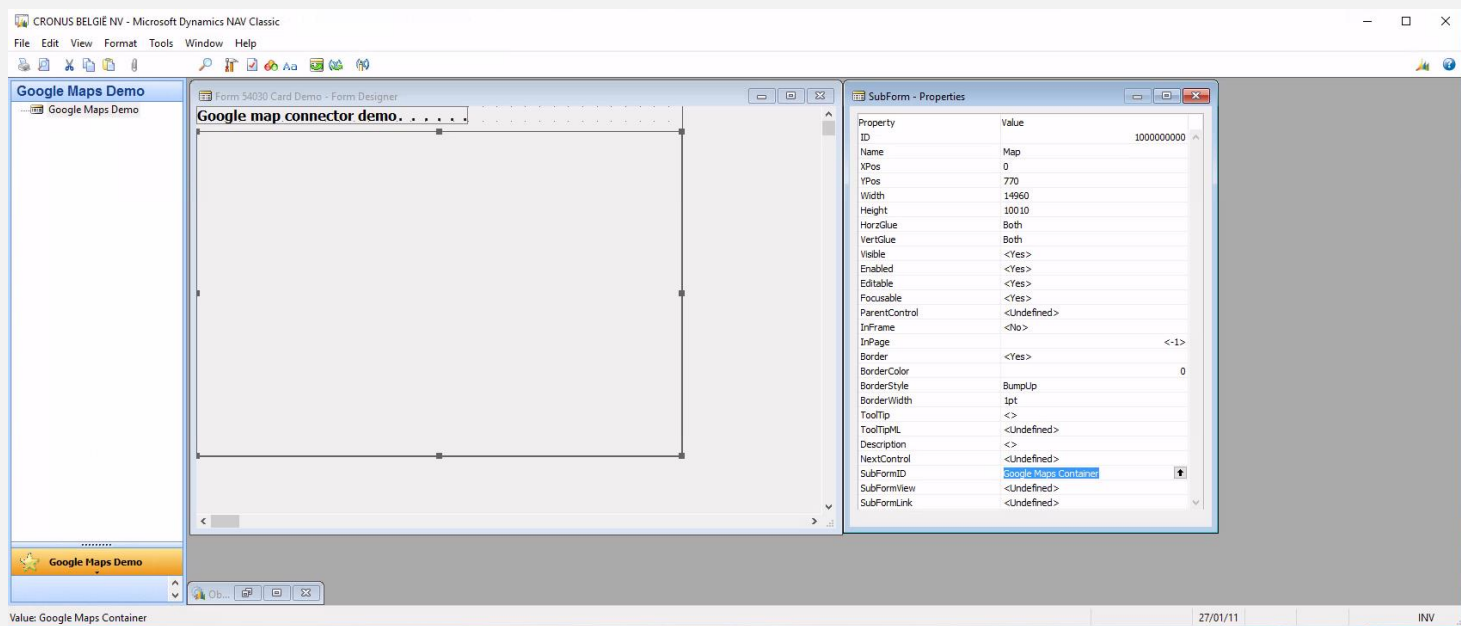


GOOGLE EMBEDDED MAPS CONNECTOR

Examples of integration

Create an integrated map

Easy creation of an integrated Google map in any form. Open the form and add a subform.
(Subform id = Google Maps Container).



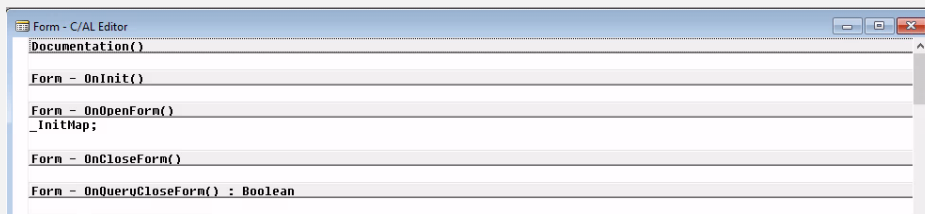
Add the following variables (copy paste)

Form - C/AL Globals		
Variables	Text Constants	Functions
Name		DataType Subtype
c_GoogleMapProvider		Codeunit Google Maps Provider
c_GoogleMapMgmt		Codeunit Google Maps Management
a_MapForm		Automa... 'FDDevelopments_GoogleMapsConnector_EmbeddedMaps'.BasicMapForm
tt_MyMap		Record Google Map
tt_Marker		Record Google Marker
a_Timer		Automa... 'Navision Timer 1.0'.Timer
t_Route		Record Google import route

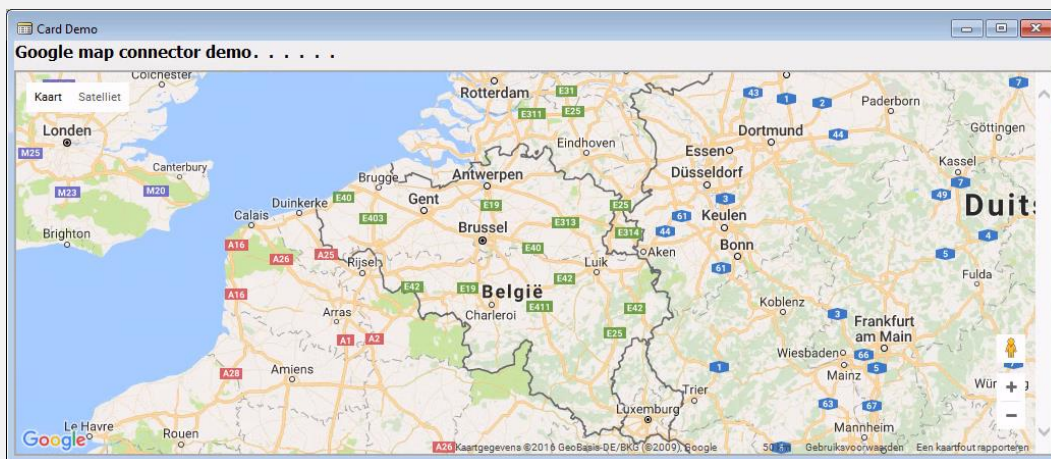
GOOGLE EMBEDDED MAPS CONNECTOR

Examples of integration

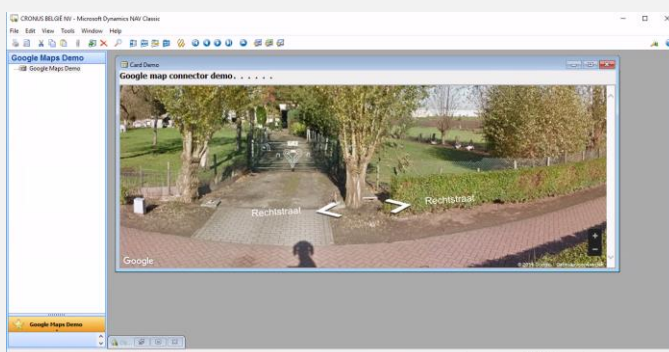
Add supplied function `_InitMap` on the `OnOpenForm` trigger.



Run the form, “here’s your first map !”



Fully functional google map with all the functionality. (Map, satellite, street view, zoom, drag) in your application.

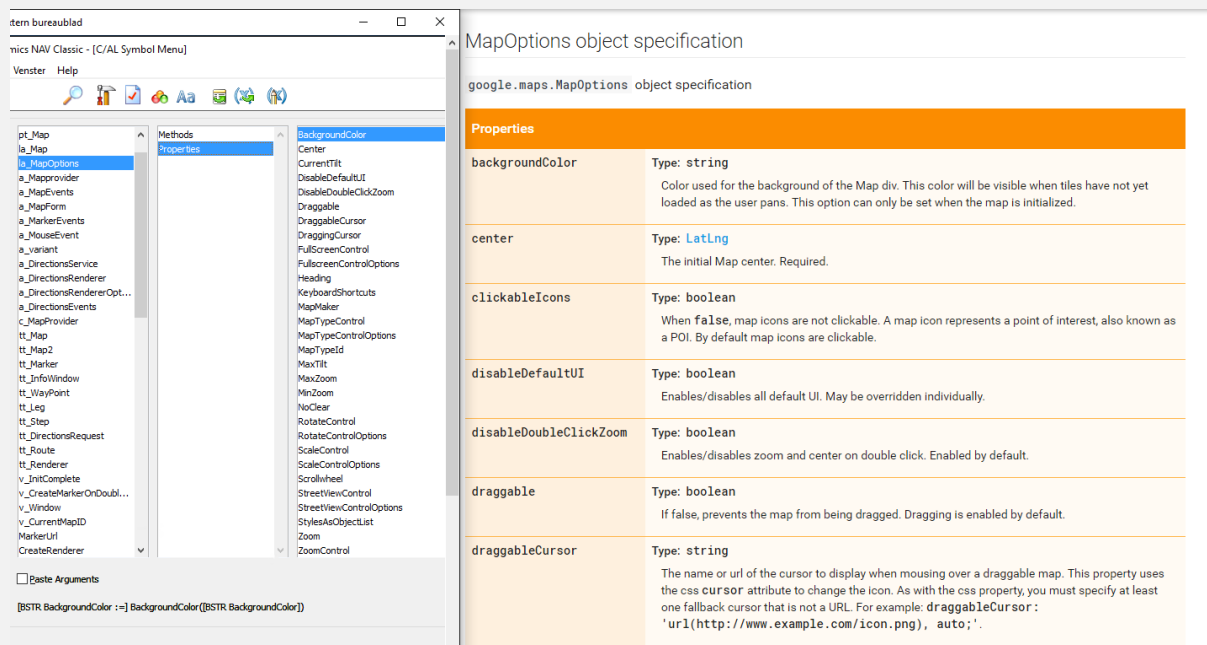


Google embedded maps connector

Examples of integration

For the available methods and properties, see Google's website :

<https://developers.google.com/maps/documentation/javascript/reference#Map>



The screenshot displays a software interface with a sidebar on the left containing a list of map-related properties and methods. The main area on the right is titled "MapOptions object specification" and shows the "google.maps.MapOptions" object specification. Below the title, there is a table with the following properties:

Properties	
backgroundColor	Type: string Color used for the background of the Map div. This color will be visible when tiles have not yet loaded as the user pans. This option can only be set when the map is initialized.
center	Type: LatLng The initial Map center. Required.
clickableIcons	Type: boolean When false , map icons are not clickable. A map icon represents a point of interest, also known as a POI. By default map icons are clickable.
disableDefaultUI	Type: boolean Enables/disables all default UI. May be overridden individually.
disableDoubleClickZoom	Type: boolean Enables/disables zoom and center on double click. Enabled by default.
draggable	Type: boolean If false, prevents the map from being dragged. Dragging is enabled by default.
draggableCursor	Type: string The name or url of the cursor to display when mousing over a draggable map. This property uses the css cursor attribute to change the icon. As with the css property, you must specify at least one fallback cursor that is not a URL. For example: draggableCursor : 'url(http://www.example.com/icon.png), auto;'.

Movie available on :

<http://fd-consultancy.be/wp-content/uploads/2016/06/google%20maps%20demo%206.mp4>

Google embedded maps connector

Examples of integration

Function AdMarker

```
Form - C/AL Editor

AddMarker(pv_Type : 'Vehicle,Task';Pv_TaskId : Code[20])
IF NOT tt_MyMap.FINDFIRST THEN
EXIT;
CASE pv_Type OF
//taak op map
pv_Type::Task : BEGIN
    It_TaskData.GET(Pv_TaskId);
    tt_Marker.INIT;
    tt_Marker.MapID := tt_MyMap.MapID;
    tt_Marker.Latitude := It_TaskData.Latitude;
    tt_Marker.Longitude := It_TaskData.Longitude;
    It_TaskData.CALCFIELDS ("Trace Type");
    IF It_TraceSourceType.GET (It_TaskData."Trace Type") THEN BEGIN
        IF (tt_Marker.Icon <> It_TraceSourceType.Icon) OR
            (tt_Marker."Custom Markericon URL" <> It_TraceSourceType."Custom MarkerIcon URL") THEN BEGIN
            tt_Marker.Icon := It_TraceSourceType.Icon;
            tt_Marker."Custom Markericon URL" := It_TraceSourceType."Custom MarkerIcon URL";
        END;
    END;
    tt_Marker.Title := It_TaskData."Task ID";
    c_GoogleMapMgmt.CreateMarker (tt_Marker);
END;
END;
```

Function DeleteMarker

```
Form - C/AL Editor

DeleteMarker(pv_Type : 'Vehicle,Task';Pv_TaskId : Code[20])
It_TaskData.GET(Pv_TaskId);
tt_Marker.INIT;
tt_Marker.MapID := tt_MyMap.MapID;
tt_Marker.Latitude := It_TaskData.Latitude;
tt_Marker.Longitude := It_TaskData.Longitude;
It_TaskData.CALCFIELDS ("Trace Type");
tt_Marker.Visible := FALSE;
IF It_TraceSourceType.GET (It_TaskData."Trace Type") THEN BEGIN
    IF (tt_Marker.Icon <> It_TraceSourceType.Icon) OR
        (tt_Marker."Custom Markericon URL" <> It_TraceSourceType."Custom MarkerIcon URL") THEN BEGIN
        tt_Marker.Icon := It_TraceSourceType.Icon;
        tt_Marker."Custom Markericon URL" := It_TraceSourceType."Custom MarkerIcon URL";
    END;
END;
tt_Marker.Title := It_TaskData."Task ID";
c_GoogleMapMgmt.UpdateMarker (tt_Marker);
```

Google embedded maps connector

Examples of integration

Once this code has been added, the tasks are visualized in real time on the map.

The screenshot displays a software interface titled "9999 - Vehicle card demo". It features a "Algemeen" (General) section with input fields for Code (9999), Name (Carcube), Number plate (VRT255), and Trimble reference (9999). Below these is a truck icon and buttons for "Calc Route" and "Show Route". A table lists tasks with columns for Sorting, Task ID, Trace Type, Type, Description, and Name. A "Task List V1" dialog box is open, showing a detailed view of a task with columns for Task ID, Source no., Source, Description, and Name. The main map area shows a Google Map of Belgium with red location markers. A "Picture" dropdown menu is visible at the bottom right.

Sorting	Task ID	Trace Type	Type	Description	Name
1	TD000054			Levering De Onderdelenwinkel	Order 45168-78
2	TD000052			Levering Anton Geestig Adviezen	Order 45168-98
4	TD000053			Levering Vanroy	Order 45168-21

Task ID	Source no.	Source	Description	Name
TD000051	2001	36	Levering Van Terp Kantoorinric...	Order 45168-21

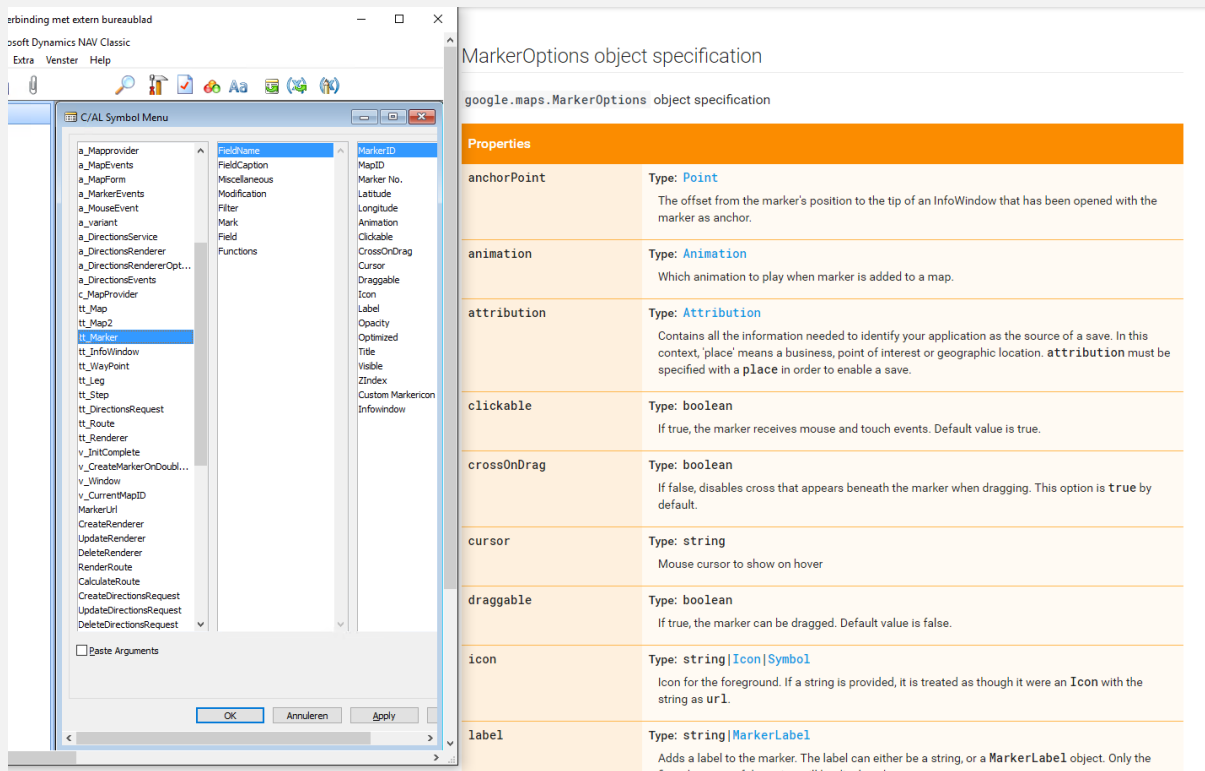
The markers are fully editable . For available functions and properties, see Google's website.

Google embedded maps connector

Examples of integration

Google's website :

<https://developers.google.com/maps/documentation/javascript/reference#MarkerOptions>



The screenshot displays a software interface with a list of symbols on the left and a detailed view of the `MarkerOptions` object specification on the right.

Left Panel: C/AL Symbol Menu

- Field Name: `MarkerID`
- Field Caption: `MarkerID`
- Miscellaneous: `Marker No.`
- Modification: `Latitude`
- Filter: `Longitude`
- Mark: `Animation`
- Functions: `Clickable`, `CrossOnDrag`, `Cursor`, `Draggable`, `Icon`, `Label`, `Opacity`, `Optimized`, `Title`, `Visible`, `ZIndex`, `Custom Markericon`, `Infowindow`

Right Panel: MarkerOptions object specification

google.maps.MarkerOptions object specification

Properties	
anchorPoint	Type: Point The offset from the marker's position to the tip of an InfoWindow that has been opened with the marker as anchor.
animation	Type: Animation Which animation to play when marker is added to a map.
attribution	Type: Attribution Contains all the information needed to identify your application as the source of a save. In this context, 'place' means a business, point of interest or geographic location. attribution must be specified with a place in order to enable a save.
clickable	Type: <code>boolean</code> If true, the marker receives mouse and touch events. Default value is true.
crossOnDrag	Type: <code>boolean</code> If false, disables cross that appears beneath the marker when dragging. This option is true by default.
cursor	Type: <code>string</code> Mouse cursor to show on hover
draggable	Type: <code>boolean</code> If true, the marker can be dragged. Default value is false.
icon	Type: <code>string</code> Icon Symbol Icon for the foreground. If a string is provided, it is treated as though it were an Icon with the string as url.
label	Type: <code>string</code> MarkerLabel Adds a label to the marker. The label can either be a string, or a <code>MarkerLabel</code> object. Only the first character of the label will be displayed.

Google embedded maps connector

Examples of integration

Manipulation of the markers on a map (route calculation)

We're going to add a button that optimizes the route for all tasks. For this, we fill a table "waypoints" with the coordinates of the truck and all tasks. We call one function "CalculateRoute" and the connector does the rest...

```
CommandButton - C/AL Editor

tt_Marker.SETFILTER (Title,'<>%1', COPYSTR ("Number plate",1,MAXSTRLEN(tt_Marker.Title)));
tt_Marker.FINDFIRST;
REPEAT
    tt_WayPoints.INIT;
    tt_WayPoints."Directions ID" := tt_Directions."Directions ID";
    tt_WayPoints."Map ID" := tt_MyMap.MapID;
    tt_WayPoints.Latitude := tt_Marker.Latitude;
    tt_WayPoints.Longitude := tt_Marker.Longitude;
    tt_WayPoints.Stopover := TRUE;
    tt_WayPoints."Source No." := tt_Marker.MarkerID;
    IF (tt_WayPoints.Latitude <> 0) AND (tt_WayPoints.Longitude <> 0) THEN BEGIN
        c_GoogleMapMgmt.CreateWayPoint(tt_WayPoints);
        tt_Route."Line No." += 10000;
        tt_Route.WaypointID := tt_WayPoints."Waypoint ID";
        tt_Route.INSERT;
    END;
UNTIL tt_Marker.NEXT = 0;

c_GoogleMapMgmt.CalculateRoute (tt_Directions);
IF ISCLEAR (a_Timer) THEN
    CREATE (a_Timer);
v_WaitForRoute := TRUE;
a_Timer.Interval := 1000;
a_Timer.Enabled := TRUE;
```

All the data is stored in own tables and can be used in your own application.

The screenshot displays a software application interface for route calculation. On the left, there is a form titled "Algemeen" (General) with fields for "Code" (9999), "Name" (Carube), "Number plate" (VRT255), and "Trimble reference" (9999). Below the form is a small image of a white truck. To the right of the form is a table with columns "Task ID", "Type", and "Type Description". The table contains three rows of data. Below the table is a map showing a route from Brussels to Maastricht, with various locations marked. On the right side of the application, there is a "Step List" table with columns "Instructions", "Distance", "Duration", and "Travelmode". The table contains 25 rows of detailed route instructions, including distances and durations for each step.

Task ID	Type	Type Description
1	TD000054	Levens
2	TD000053	Levens
3	TD000052	Levens

Instructions	Distance	Duration	Travelmode
De Grotestraat/de N75a draait naar rechts en wordt de Centrumlaan	0,1 km	1 min.	DRIVING
Neem op de rotonde de 2e afslag en rijd door op de Wagensesteenweg/de N726. Ga verder ...	1,0 km	1 min.	DRIVING
Ga rechtsaf naar de A12 (borden naar Brussel/Boom)	28,8 km	19 min.	DRIVING
Weg vervolgen naar de Weststraat	0,3 km	1 min.	DRIVING
Ga linksaf en voeg in op de E314 richting Brussel/Leuven/Antwerpen	15,9 km	9 min.	DRIVING
Neem op de rotonde de 1ste afslag naar de Dieplaan. Ga rechtdoor over één rotonde	0,6 km	1 min.	DRIVING
Houd rechts aan bij het knooppunt Lummen en volg de borden E313 richting Antwerpen	62,0 km	36 min.	DRIVING
Ga bij de rotonde rechtdoor naar de Jaarbeurslaan. Ga rechtdoor over één rotonde	0,7 km	1 min.	DRIVING
Ga rechtsaf naar de Hertogstraat	0,3 km	1 min.	DRIVING
Neem afslag Basilek richting Basilek/Basilek. Ga rechtdoor over één rotonde	0,5 km	1 min.	DRIVING
Ga linksaf naar de Lambertstraat	0,1 km	1 min.	DRIVING
Weg vervolgen naar de E34	4,2 km	3 min.	DRIVING
Ga bij de rotonde rechtdoor naar de Vennestraat	75 m	1 min.	DRIVING
Voeg in op de Koninklijk Parklaan/de N277. Ga verder op de N277	2,5 km	5 min.	DRIVING
Weg vervolgen naar de Bellardstraat	0,7 km	2 min.	DRIVING
Ga rechtsaf naar de Groendreef/de N201. Ga verder op de N201	1,8 km	4 min.	DRIVING
Houd rechts aan bij de splitsing. Rij door op de A12/de E19 en volg de borden Brussel/Mec...	0,6 km	1 min.	DRIVING
Ga linksaf naar de Tennistaan	1,2 km	1 min.	DRIVING
Neem op de rotonde de 3e afslag naar de Noordlaan	0,8 km	1 min.	DRIVING
Houd rechts aan, rij door op de A12 en volg de borden Boom/Wijk	5,4 km	5 min.	DRIVING
Weg vervolgen naar het Ijzerplein	77 m	1 min.	DRIVING
Houd links aan en rij door op de Bellardstraat/de Bellardtunnel. Ga verder op de Bellards...	0,1 km	1 min.	DRIVING
Weg vervolgen naar de Kortenbergtunnel/de N23/de N3	0,6 km	1 min.	DRIVING
Flauwe bocht naar rechts naar de Handelslaan	0,2 km	1 min.	DRIVING
Ga bij de rotonde rechtdoor naar de Zonhovenweg	0,6 km	1 min.	DRIVING
Neem afslag Konich en voeg in op de Boonsesteenweg/de N177 richting Konich/Aartsel...	1,1 km	2 min.	DRIVING
Ga linksaf naar de Zandstraat	54 m	1 min.	DRIVING
De Handelslaan draait naar rechts en wordt de Oeverpoort	58 m	1 min.	DRIVING
Ga rechtsaf naar de Ceydeelaan	1,7 km	2 min.	DRIVING
Ga rechtdoor op de Kortenbergtunnel/de N23. Ga verder op de N23	2,4 km	2 min.	DRIVING
Houd links aan bij de splitsing om door te rijden in de richting van de E40	93 m	1 min.	DRIVING
De Ceydeelaan draait iets naar rechts en wordt het Kerkende	0,1 km	1 min.	DRIVING
De Zandstraat draait iets naar rechts en wordt de Turfstraat	0,8 km	2 min.	DRIVING
Ga rechtdoor op de Timmerhoulaan	0,1 km	1 min.	DRIVING

CONTACT & INFO



FD Consultancy bvba
Reeweg 62
B - 3600 Genk



+32 (0) 484 977 955 (Jochen Goos)
+32 (0) 485 274 416 (Bart Lintjens)



info@fd-consultancy.be



www.fd-consultancy.be