

Back to Basics 1 - AutoDrive Driving Mode

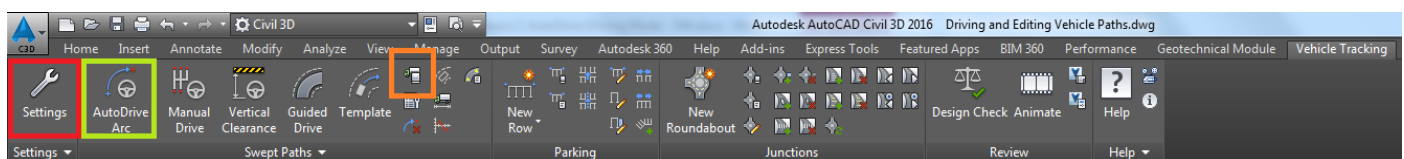
Autodesk Vehicle Tracking 2016

Introduction

Over the next few White Papers I will be focusing on Autodesk Vehicle Tracking. Vehicle Tracking is one of Autodesk’s more recent acquisitions. Some of you may have known it as AutoTrack by Savoy Computing, this was the product I was first introduced to a good 10 years ago now. It’s come a long way since the days of plugging a software lock dongle into the serial port on the back of the PC. Functionality of the most recent version includes: Swept Path Analysis, Parking Layout, Roundabout Design and the ability to track Civil 3D Surfaces. More about some of those in the near future, for now lets start with the basics.

The subject of this white paper will be the AutoDrive Driving Mode but before we can jump in to driving a vehicle we first need to configure the Vehicle and the Units to be used by Vehicle Tracks in our drawing. Fig. 1 below shows the Vehicle Tracking Ribbon found in any AutoCAD based product after installing the software. The Settings button is highlighted by the red box and will be our first port of call.

Fig. 1



Settings

Having selected the settings icon shown in the red box on fig. 1, we are presented with the dialog box shown in fig. 2 & 3 below.

Fig. 2

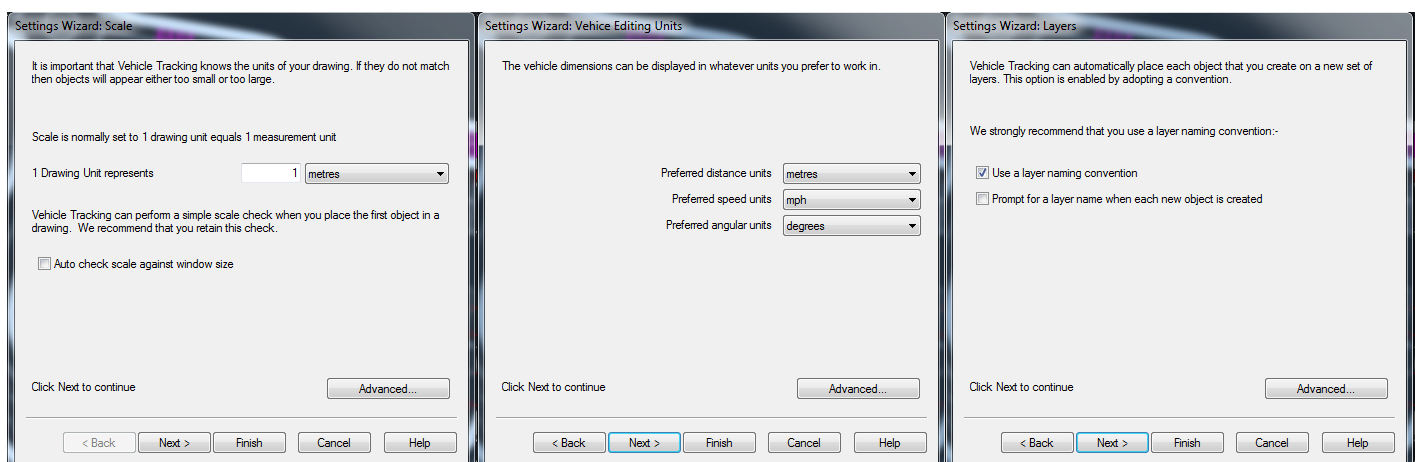
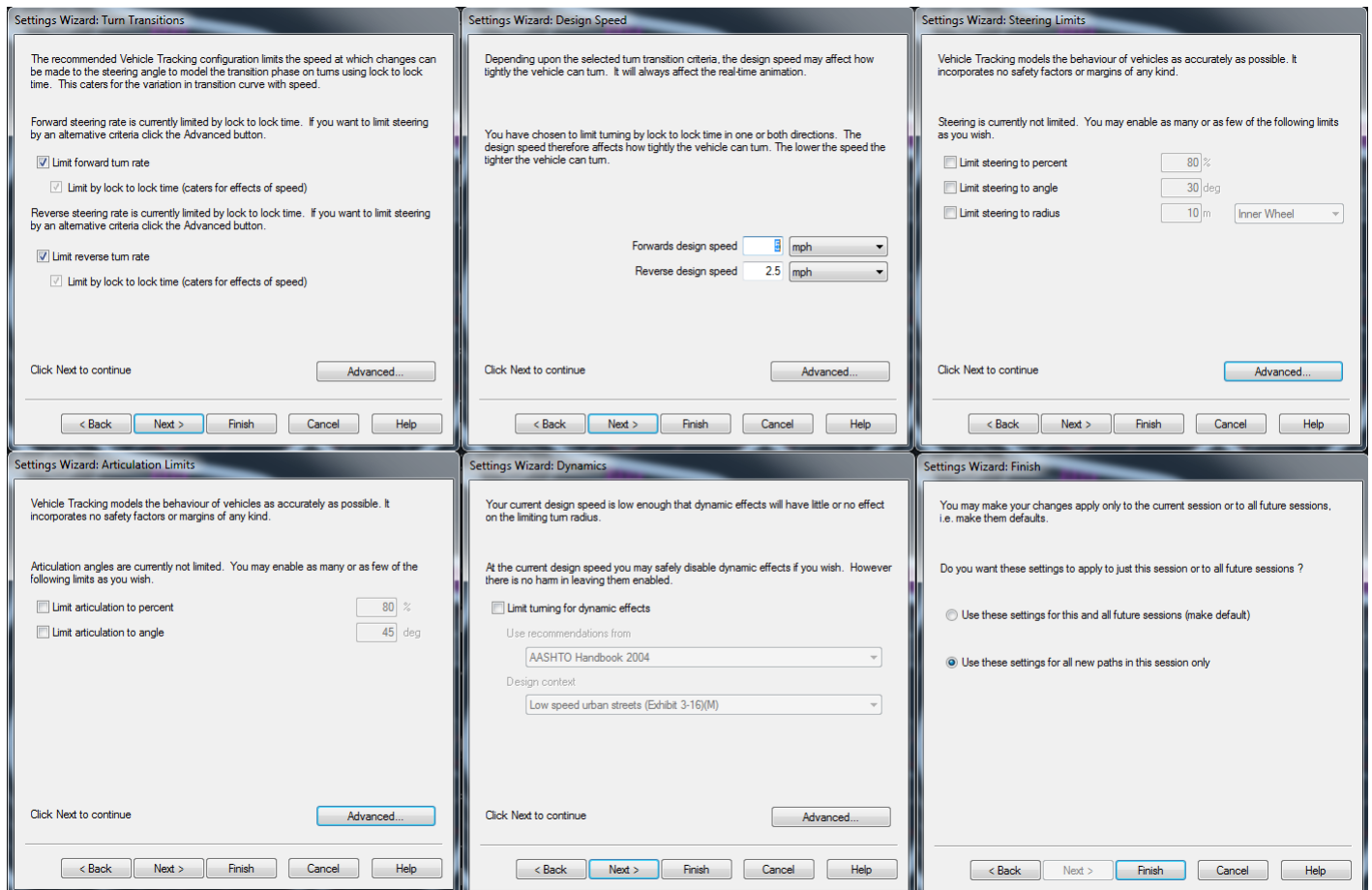


Fig. 3



I'm going to progress through the basic wizard, however an advanced menu is available that would allow you to jump straight to the item you were looking to change (provided you know where it is located). The first panel of the dialog asks you to confirm the units that have been used in the drawing while the second allows you to configure your preferred distance, speed and angular units. The third panel of the dialog asks how you would like to manage layers, I've opted for a layer naming convention. The fourth panel relates to how you would like to limit the speed at which turning can occur to make the turns more realistic. The fifth panel allows us to set the design speed at which our vehicle is travelling. The sixth and seventh panel allow you to limit the steering and articulation which allows an extra safety feature to be built into our designs as we are never requiring the operator of the real vehicle to turn at the limits of their vehicle. The eighth panel allows us to enable dynamic effects and the final panel asks how we would like to use these settings. I've opted to use them for all new paths in this session only.

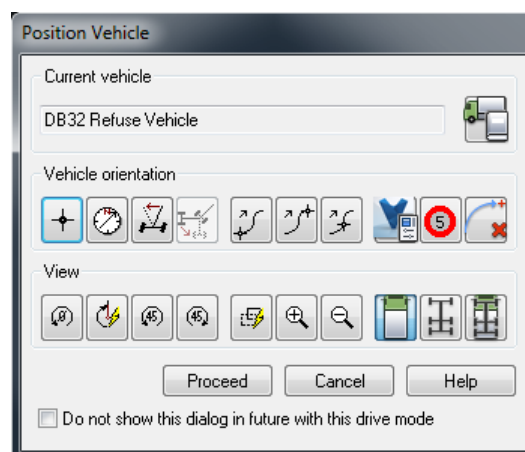
AutoDrive Driving Mode

With our preferences set we can almost get driving. The last thing we need to set before we can is the vehicle to be used, this can be done by selecting the Vehicle Library Explorer as shown in the orange box on fig. 1. There are a wealth of vehicles built into the Vehicle Library Explorer for your use. I've opted to go for the Design Bulletin 32 Refuse Vehicle from the British Design Vehicles Library. With your chosen vehicle selected either click the Make Default button at the bottom of the dialog box or Right Click on your vehicle and select Set as Default Vehicle and then choose OK.

Now that everything is set up we can begin to place and manouvere a vehicle around our design. One of the easiest methods of driving a vehicle is the AutoDrive Arc method. This can be accessed by clicking the AutoDrive Arc button on the ribbon as shown by the green box in fig. 1 above. You may notice that this is a drop down button that also gives us access to AutoDrive Bearing tools, the default action for the top half is AutoDrive Arc. Having selected AutoDrive Arc we will be presented with a settings box asking us to confirm the units, which side of the road vehicles drive and also gives us chance to track a Civil 3D Surface if we want. I'm selecting OK as all of my preferences are remembered from earlier and I do not have any Civil 3D Surfaces in the drawing.

I can now see the outline of my vehicle attached to my cursor and I am asked where I would like to place it. The most logical place is in the centre of the carriageway that I would like to test against the swept path of my vehicle. As soon as weve placed the vehicle in the right location we are given the chance to rotate it around so that it is facing the same direction as the carriageway. With the rotation set we will be presented with a small toolbar (as shown in fig. 4 below) allowing us to change the position or rotation of the vehicle, pan or rotate the screen to allow for easier driving or even set the angle of the wheels of the vehicle before we try to pull off.

Fig. 4



When you're ready you can click Proceed, the dialog box will now show a different set of options including the ability to override the minimum radius for turns or the clearance offset. We can even turn onto a bearing (turn at a specified angle) allowing us to make the tightest turn possible without any human error. There are also three smaller icons at the bottom. The first is a cats whiskers, turning it on will show you the tightest possible turn in front of your vehicle, the second is a cats tail and shows the tightest possible turn behind your vehicle. These can be useful if you are looking to park a vehicle in a bay or trying to ensure that you have sufficient turning space in a turning head. The last change is that now when you move your cursor around the

design space the vehicle will be moving with it and two green arcs attached either side. This is showing you the path the vehicle would have to take to get from the location you placed it to the location you are hovering. It is now just a case of placing clicks in the desired locations to get the vehicle to traverse your design. It doesn't matter if you make small mistakes as the path is editable after it is inserted and you will notice that small mistakes can have large knockon effects on the next manoeuvre we try to make. You will have two lines now shown, one of these is the chassis of the vehicle while the other is the body. My completed vehicle track is shown in fig. 5 below. With the swept path now inserted we can run various reports on it to change the colour of lines or add hatching between different elements. There is even the ability to animate the vehicle along the path in 2D or 3D. More about that in the next white paper.

Fig. 5

