

- Upper left corner you can pick "Settings". Here you can set the maximum amount of trips for a path. This is used in calculations to determine how many dead ends in the over all plan. For example, if you desire to make 7 deliveries and only can go 5 that is one dead end, but 2 lost opportunities. If you go beyond 7 it just alerts you. I put a place to set the default path start time, but currently that is not used anywhere.
- Paths. Create and view paths below.

Path ID	Trips	Distance	Delivered	PiggyBacks	Path Names	Drivers Assigned
85	7	59	7	0	SL1 5QA->SL2 5DR->SL1 5QA->SL2 5DR->SL1 5QA->SL2 5DR->WD3 8XD->TW2 5NT	Driver A
95	7	140	7	0	SL1 5QA->SL2 5DR->WD3 8XD->TW2 5NT->RG4 8UA->SL1 5QA->TW8 0EX->WD25 8HL	Driver B
96	7	139	7	0	SL2 5DR->TW8 0EX->SL1 5QA->SL2 5DR->WD3 8XD->TW2 5NT->RG4 8UA->SL2 5DR	Driver C
97	7	132	7	0	SL1 5QA->SL2 5DR->WD3 8XD->SL2 5DR->WD3 8XD->TW2 5NT->RG4 8UA->SL1 5QA	Driver D
98	7	130	7	0	SL2 5DR->TW8 0EX->SL2 5DR->WD3 8XD->TW2 5NT->SL2 5DR->TW8 0EX->SL1 5QA	Driver E
99	7	85	7	0	SL1 5QA->SL2 5DR->TW8 0EX->SL2 5DR->TW8 0EX->SL1 5QA->SL2 5DR->WD3 8XD	Driver F
100	7	149	7	0	SL2 5DR->TW2 5NT->SL1 5QA->SL2 5DR->WD19 4BY->WD3 8XD->TW2 5NT->RG4 8UA	Driver G
101	7	111	7	0	HP11 1DD->HA4 0LN->HP7 9PN->HA4 0LN->SL2 5DR->TW8 0EX->HA4 0LN->HP11 1DD	Driver H
102	7	102	7	0	RG4 8UA->SL2 5DR->RG4 8UA->SL2 5DR->SL1 5QA->SL2 5DR->WD3 8XD->HP11 1DD	Driver I
103	7	146	6	1	SL2 5DR->WD19 4BY->SL2 5DR->HA4 0LN->SL2 5DR->HP11 1BH->AL1 1XB->HP11 1DD	Driver J
106	7	142	6	1	SL2 5DR->RG4 8UA->SL1 5QA->RG4 8UA->TW2 5NT->SL2 5DR->HP7 9PN->WD25 8HL	Driver K
107	3	52	2	1	AL1 1XB->HP7 9PN->HA4 0LN->HP7 9PN	Driver L
108	2	41	2	0	AL1 1XB->HP11 1DD->HP7 9PN	Driver M

Trips	Trip	Start	End	Trip Distance	Cumulative Distance	Trip Time	Cumulative Time	Car Shipped	Piggyback	Remain to Sh
1	1	AL1 1XB	HP11 1DD	30	30	38	38	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
2	2	HP11 1DD	HP7 9PN	11	41	21	59	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1

Add Trip on Path		Remaining to Ship	Distance	Next Locations	Next Deliveries
From	To				
HP7 9PN	WD25 8HL	1	12	0	0
HP7 9PN	HA4 0LN	0	18	0	0

You create a path by selecting the button at 1. You can see the selected path in gold at 2. Delete or edit a path by selecting the buttons at 3. A new path requires you to simply assign a driver at screen 4. From there you start picking trips. I assume you start with notional drivers (DriverA to DriverZ) then later assign real names. You can assign drivers to more than one path, but it shows drivers already assigned to a path. My assumption is that a driver can complete some max number of trips/jobs a day, but it could be along two different paths. You can provide a Path Name and Notes about the path, but currently not shown anywhere. For each path there is visibility of number of trips, total path distance (could add time), total cars delivered, total number of piggybacks, the path, the driver.

- Below the path the details for the trips for the selected path show.

106	6	130	5	1	SL2 5DR->RG4 8UA->SL1 5QA->RG4 8UA->TW2 5NT->SL2 5DR->HP7 9PN	Driver K
107	3	81	2	1	AL1 1XB->WD3 8XD->TW2 5NT->RG4 8UA	Driver L
109	1	30	1	0	AL1 1XB->HP11 1BH	Driver M

Trip	Start	End	Trip Distance	Cumulative Distance	Trip Time	Cumulative Time	Car Shipped	Piggyback	Remaining to Ship	Get Piggyback with driver	Wait for Driver	Provide Piggyback For passengers	Wait for Passengers	Remove Last Trip
1	SL2 5DR	RG4 8UA	21	21	39	39	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0					
2	RG4 8UA	SL1 5QA	18	39	30	69	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0					
3	SL1 5QA	RG4 8UA	18	57	31	100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0					
4	RG4 8UA	TW2 5NT	37	94	57	157	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0					
5	TW2 5NT	SL2 5DR	22	116	34	191	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	Path-98 (Driver E)	0			
6	SL2 5DR	HP7 9PN	14	130	28	219	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0					

Each trip is show with the trip distance, cumulative distance, trip time, cumulative time (to include waiting for piggyback driver/passenger), if car was shipped or piggyback, remaining to ship. If a driver takes a piggyback the details show who they drive with and if they have to wait for the driver. In Driver E record it will show who they give a ride to and how long they have to wait. If you want to roll back the bath to explore another direction you remove last trip in upper right corner

4. Select trips. Below the trip details is where you add trips.

Trip	Start	End	Trip Distance	Cumulative Distance	Trip Time	Cumulative Time	Car Shipped	Piggyback	Remaining to Ship	Get Piggyback with driver	Wait for Driver	Provide Piggyback For passengers	Wait for Passengers	Remove Last Trip
1	SL2 5DR	RG4 8UA	21	21	39	39	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0					
2	RG4 8UA	SL1 5QA	18	39	30	69	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0					
3	SL1 5QA	RG4 8UA	18	57	31	100	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0					
4	RG4 8UA	TW2 5NT	37	94	57	157	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0					
5	TW2 5NT	SL2 5DR	22	116	34	191	<input type="checkbox"/>	<input checked="" type="checkbox"/>	0	Path-98 (Driver E)	0			
6	SL2 5DR	HP7 9PN	14	130	28	219	<input checked="" type="checkbox"/>	<input type="checkbox"/>	0					

Add Trip on Path		(Click tables to Sort)				
From	To	Remaining to Ship	Distance	Next Locations	Next Deliveries	
HP7 9PN	WD25 8HL	2	12	0	0	Assign to Path
HP7 9PN	HA4 OLN	0	18	1	1	Assign to Path

Select next trip using button 1 above. The magic is that you can only select from trips starting from the location you last visited. See 2a and 2b. To make a smart decision you can see the next locations properties. These are the properties on the location on the To side. It provides forward looking so you do not travel to a location where you dead end. The helping fields are Next Locations and the Next Deliveries. You can see if you select HP7 9PN to WD25 8HL there are two cars available to deliver. However, when you arrive at WD25 8HL there are no deliveries. So, you may not want to pick that one. If you select HP7 9PN to HA4 OLN when you arrive at HA4 OLN there will be 1 car to deliver. Unfortunately, there are no cars to deliver on that trip and you would have to piggyback.

5. Piggyback

If a trip has 0 cars to deliver and someone already drove that route you can plan a piggyback

The screenshot displays a software interface for trip planning. It features three main components:

- Trips Table:** A table with columns: Trip, Start, End, Trip Distance, Cumulative Distance, Trip Time, Cumulative Time, and Ship. It shows two trips:

Trip	Start	End	Trip Distance	Cumulative Distance	Trip Time	Cumulative Time	Ship
1	ALL 1XB	WD3 BXD	15	15	20	20	
2	WD3 BXD	TW2 5NT	29	44	38	58	
- Add Trip on Path Table:** A table with columns: From, To, Remaining to Ship, Distance, Next Locations, Next Deliveries, and Assign to Path. It shows three potential piggyback options:

From	To	Remaining to Ship	Distance	Next Locations	Next Deliveries	Assign to Path
TW2 5NT	SL2 SDR	0	22	3	4	Assign to Path
TW2 5NT	SL1 SQA	0	26	1	1	Assign to Path
TW2 5NT	RG4 8UA	0	37	0	0	Assign to Path
- Select Piggybacks Dialog:** A dialog box with columns: From, To, DriverName, Piggy Back Driver Arrival, Current Driver Arrival, Current Driver Wait, and Piggyback Driver Wait. It lists four piggyback options from TW2 5NT to RG4 8UA:

From	To	DriverName	Piggy Back Driver Arrival	Current Driver Arrival	Current Driver Wait	Piggyback Driver Wait
TW2 5NT	RG4 8UA	Driver B	78	58	20	
TW2 5NT	RG4 8UA	Driver C	127	58	69	
TW2 5NT	RG4 8UA	Driver D	130	58	72	
TW2 5NT	RG4 8UA	Driver G	204	58	146	

From TW2 5NT there are no remaining trips with vehicles to deliver. However you can piggyback from this location to RG4 8UA. However this is only for demo because you would not select that choice. You can see that RG4 8UA has no vehicles either. Available piggybacks are shown. If you pick a trip with no cars to deliver then the piggyback selector form pops up. It calculates how much time the driver or passenger must wait for the ride/passenger to arrive. The current driver can get a ride with Driver B and only wait 20 minutes for B to arrive. 2a shows the current driver at TW2 5NT at 58 minutes and Driver B at 78 minutes. Thus the current driver waits 20 minutes shown at 2c. There are time when the piggyback driver arrives at that location earlier than the current driver.

6. Pick Starting Location

The first location should be something that has 0 or few vehicles coming in many going out. To help is the location summary.

Amount of Cars Arriving and Departing locations

(Click labels to Sort) Dead End no Piggybacks Dead End with Piggybacks Available

Locations Arriving	Cars Arriving	Location	Cars Leaving	Locations Leaving	Excess
0	0	WD3 8XD	8	2	8: Excess Leaving -->
0	0	AL1 1XB	7	4	7: Excess Leaving -->
0	0	SL2 5DR	4	3	4: Excess Leaving -->
0	0	RG4 8UA	0	0	
1	1	WD19 4BY	1	1	
1	1	SL1 5QA	1	1	
1	1	HP11 1BH	0	0	1: --> Excess Arriving
2	2	TW8 0EX	1	1	1: --> Excess Arriving
1	2	HA4 0LN	1	1	1: --> Excess Arriving
1	2	NW9 0EW	0	0	2: --> Excess Arriving
2	3	HP11 1DD	4	2	1: Excess Leaving -->
2	3	TW2 5NT	0	0	3: --> Excess Arriving
3	6	HP7 9PN	1	1	5: --> Excess Arriving
2	7	WD25 8HL	0	0	7: --> Excess Arriving

As you can see in red these locations have no vehicles coming so no easy way to get there, but a good choice to start. So you may want to start a path with any of the top 3.

Once you pick the first point then after that you try to pick locations with lots of vehicles to deliver where the delivery location also has vehicles to deliver

7. Ending Location

As you get close to the end you want to end at true dead ends if possible. These are those locations not having any vehicles leaving.

Delivery Details		Location Details		Plan Summary	
<h3>Amount of Cars Arriving and Departing locations</h3> <p>(Click labels to Sort) Dead End no Piggybacks Dead End with Piggybacks Available</p>					
Locations Arriving	Cars Arriving	Location	Cars Leaving ¹	Locations Leaving	Excess
2	7	WD25 8HL	0	0	7: --> Excess Arriving
2	3	TW2 5NT	0	0	3: --> Excess Arriving
0	0	RG4 8UA	0	0	
1	2	NW9 0EW	0	0	2: --> Excess Arriving
1	1	HP11 1BH	0	0	1: --> Excess Arriving
1	1	WD19 4BY	1	1	
2	2	TW8 0EX	1	1	1: --> Excess Arriving
1	1	SL1 5QA	1	1	
3	6	HP7 9PN	1	1	5: --> Excess Arriving
1	2	HA4 0LN	1	1	1: --> Excess Arriving
0	0	SL2 5DR	4	3	4: Excess Leaving -->
2	3	HP11 1DD	4	2	1: Excess Leaving -->
0	0	AL1 1XB	7	4	7: Excess Leaving -->
0	0	WD3 8XD	8	2	8: Excess Leaving -->

Resort the list as you get close to the last trip and try to end at any of these locations for the final trip. WD25 8HL is the primary end point since 7 cars need to arrive and no cars are leaving. The true dead ends never had any cars leaving. The puke green ones had cars and if you get to that location along a route you can piggyback out.

Once you get to about the last two trips you can look for ways to end at one of these points Assume you want to end your last trip at wd25 8HL. On the delivery detail tab

Delivery Details		Location Details		Plan Summary	
Start	End	Distance	To Deliver	Shipped	Remaining
AL1 1XB	WD3 8XD	15	1	1	0
SL2 5DR	WD3 8XD	15	8	8	0
WD19 4BY	WD3 8XD	8	1	1	0
HP7 9PN	WD25 8HL	12	2	1	1
TW8 0EX	WD25 8HL	19	1	1	0
WD3 8XD	WD25 8HL	11	6		6
SL2 5DR	WD19 4BY	24	3	2	1
AL1 1XB	TW8 0EX	33	1		1

You can start walking backwards by looking at the routes coming into WD25 8HL. Only non green routes have vehicles (Red more than 1, yellow 1, green 0 complete). You can apply that again by looking at either HP7 9PN or WD3 8XD.

Start	End	Distance	To Deliver	Shipped	Remaining
SL2 5DR	HA4 0LN	12	1	1	0
TW8 0EX	HA4 0LN	12	1	1	0
AL1 1XB	HP11 1BH	30	1		1
SL2 5DR	HP11 1BH	14	1	1	0
AL1 1XB	HP11 1DD	30	3	1	2
HA4 0LN	HP11 1DD	18	1	1	0
TW8 0EX	HP11 1DD	26	1		1
WD3 8XD	HP11 1DD	18	1	1	0
AL1 1XB	HP7 9PN	16	3		3
HA4 0LN	HP7 9PN	18	2	1	1
HP11 1DD	HP7 9PN	11	2		2
SL2 5DR	HP7 9PN	14	1	1	0
WD3 8XD	NW9 0EW	22	2		2
SL1 5QA	RG4 8UA	18	1	1	0

If you looked at HP7 9PN you see how to get there.