Virginia Department of Motor Vehicles
Automated Routing Solution (ARS)

Instruction Guide

The Automated Routing Solution (ARS) allows DMV to more quickly and efficiently approve hauling permits for oversize and overweight vehicles traveling throughout the Commonwealth. This will provide you with the ability to submit hauling permit applications electronically, self-issue certain types of hauling permits, and receive some hauling permits in one hour or less without DMV’s direct assistance.

The ARS route analysis process will check the continuity of your route, all horizontal and vertical clearances along the route, and all temporary restrictions (construction or otherwise) in effect during the extent of the permit. For overweight vehicles, ARS will perform an actual live load analysis of every structure your permit vehicle will cross over.

At any point throughout the route analysis, you can select the option to “Request office review” if you encounter any problems or are unable to successfully route your vehicle. You may also contact the DMV Hauling Permit Office directly by emailing haulingpermit@dmv.virginia.gov or by calling (804) 497-7135.

For general information about hauling permits, visit vahps.dmv.virginia.gov.
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How do I navigate through the ARS Map?

Several commands are provided to change the information or area shown on the map, as well as to highlight and find specific elements. These commands are found on the border of the map and are provided to help use the map for routing purposes.
The following is a list of commands along with a basic description of how they work:

**Display Full Map**
By clicking this option, the entire map shows in the screen.

**Zoom In**
Use this feature to zoom in on selected locations.

**Zoom Out**
Use this feature to zoom out on selected locations.

**Move North, Move South, Move East, or Move West**
Clicking any one of these options will move the map in the specified direction. Arrows in the corners of the map border will also move the map northeast, southeast, northwest, or southwest.

**Map Options**
Use this feature to customize the map and change pre-defined colors.

**Clear Highlighted Items**
By clicking this option, the map is refreshed and returned to its original display.

**Find/Locate Item**
Use this search option to locate specific routes, counties, cities and intersections.

**Display Temporary Restrictions**
Using this command will display the location of any temporary restrictions on the map, if any temporary restriction information has been entered.

Temporary restrictions will show in three different colors:
- Red indicates the roadway is completely closed
- Orange indicates a reduction in one or more attributes
- Yellow indicates that information needs to be communicated but does not impede travel

To view the details of a temporary restriction, place the cursor over the restriction and click the right mouse button. A pop-up menu will appear; select “Temp. Restriction Info” and the restriction description will appear.
What types of methods can I use to route my vehicle?

Four methods for routing a vehicle are provided to give you various options to plan trips in the easiest way. The following sections describe how and when to use each option based on your routing needs.

Each routing option provides the ability to request a permit office review at any time. You may also be able to automatically receive a permit for a vehicle successfully routed through this page without requiring any interaction or specific approval from the DMV Hauling Permit Office.

At the conclusion of any analysis, the results of the analysis will be summarized in a small form and the trip will be color-coded showing passing and failing areas. There are two additional options related to routing that allow you to clear the current route and start over, and save the route for future use.

Additionally, there are two advanced options available when using the Picking Route Segments method. These advanced options allow you to remove the last trip segments from the end of the trip you are currently selecting, and add additional trips to the route request. Both of these advanced options are described below.

- **Picking Route Segments**
- **Text Description**
- **Auto Origin/Destination Routing**
- **Loading Saved Trips**
- **Other Commands**

**Picking Route Segments**
This command allows you to interact with the map to define a trip much like interacting with a paper map, that is, “tracing” the route.

To use the Picking Route Segments method:
- In the left-hand side menu, under “1. Select method of routing,” choose “Picking Route Segments” from the drop down menu.
- Click on “2. Select route on map.” If the general origin description from the application can be located, the map will automatically zoom in to that general location.
- Make a selection on the map where the trip starts. The system will automatically find the closest intersection or interchange to the chosen location; however, it will not include or analyze anything in that initial intersection or interchange.

- Make a second selection on the same route to indicate the direction of travel. This second selection can be on the same segment or anywhere along the route up to the location where travel on the route will end. From that point on, make one selection on each route to be traveled and a final selection at the destination. The map will automatically zoom to center on the end of the trip as it is currently defined. You can use any of the map navigation tools to change the view of the map at any time. Return back to the route selection by clicking on “2. Select route on map.”

- There are two advanced options available when using the Picking Route Segments method of route selection.
  - Add additional trip: Use this option when the route is discontinuous, as may occur when traveling on and off the state network to local roads. Selecting this option will start a “trip within a trip” that will continue until the trip selection is complete, or until the “add additional trip” option is selected again. Using this option, there can be any number of disconnected trips that will make up the selected route for the permit.
  - Remove last trip segment: Use this option to remove segments from the end of the current trip being defined. Each time the option is selected, a segment is removed from the end of the trip. This option will typically be used if a trip is defined beyond an intersection or interchange or beyond the intended ending location, and it is desired to “back-up” and then continue.

- Once the entire trip is selected, select “3. Analyze the route.” Here, you will see if a permit can be issued for the trip.

Text Description
This command allows you to define a trip by entering text descriptions of the route.

To use the Text Description method:

- In the left-hand side menu, under “1. Select method of routing,” choose “Text Description” from the drop down menu.
- Click on “2. Enter your trip description.” If the general origin description from the application can be located, the map will automatically zoom in to that general location and the Text-based Routing Wizard will open.
Use the fields to define the exact origin of the trip and then select the “Next” button.

Define all intermediate routes, selecting “Next” after each one.

To end the trip definition process, change the “Go to” field to “End at” and define the exact destination location.

You can use any of the map navigation tools to change the view of the map at any time.

When the trip has been fully defined, select the “Use Trip” button. Users may also start over or view the description of the trip selected to this point by selecting the “Start Over” and “Details” buttons respectively. Selecting the “Use Trip” function will close the form and highlight the defined trip.

Finally, choose “3. Analyze the route.” Here, you will see if a permit can be issued for the trip.

**Auto Origin/Destination Routing**

This command allows users to input a starting and ending point. The system will assign the best route based on the load information.

To use the Auto Origin/Destination Routing method:

- In the left-hand side menu, under “1. Select method of routing,” choose “Auto Orig/Dest Routing” from the drop down menu.
- Click on “2. Select route origin.” If the general origin description from the application can be located, the map will automatically zoom in to that general location and the Origin Location Selection form will open.

There are two main options on this form. The first option allows for a textual specification of the specific origin much like the text description command. The second option allows users to pick the location on the map. If the first option is selected, use the fields to define the exact origin of the trip and select the “OK” button. If you select the second option, select “OK” and select the origin location on the map. Regardless of the method used, a green dot will appear at the exact origin location.

Once the origin is defined, click on “3. Select route destination” and repeat the process used to select the origin. You can use any of the map navigation tools to change the view of the map at any time.

Once the origin and destination are defined, click on “4. Find the route and analyze.” The system will analyze to see if the vehicle can be permitted for the initially selected trip.
Loading Saved Trips
This command allows you to define a trip by loading a previously saved trip. If a trip is frequently used, saving that trip and loading it for future requests can decrease the amount of time it takes to route the permit vehicle.

To use the Load Saved Trip method:
- In the left-hand side menu, under “1. Select method of routing,” choose “Load Saved Trip” from the drop down menu.
- Click on “2. Load a saved trip.” A form will open with a list of all previously saved trips. Select the desired trip and select “OK.” The trip will load and display on the map.
- Click on “3. Analyze the route” to see if the vehicle can be permitted for the trip.

Other Commands
Clear the current route
This command clears any currently selected trip and allows you to start over in routing your permit vehicle.

Save route for future use
This command saves the currently defined trip for future use by the Load Saved Trip method.

What are the advantages and disadvantages of each routing method?
Having multiple methods is intended to provide you with flexibility and options for defining a trip the way that is the most convenient and effective given your preferences and. However, having multiple methods can also add confusion about why each method may be important and when each method is most beneficial.

On the next page is a list of advantages and disadvantages for each routing method.
<table>
<thead>
<tr>
<th><strong>Picking Route Segments</strong></th>
<th><strong>Advantages</strong></th>
<th><strong>Disadvantages</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Allows for a specific trip to be defined and analyzed</td>
<td>Can select a trip that will not necessarily be approved due to clearance, load, or restriction failures along the specified routes</td>
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<td></td>
<td>Fast and easy method to define simple trips</td>
<td>Requires map navigation/manipulation when defining long, complex moves</td>
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<td></td>
<td>Helps select complex, multi-turn trips when comfortable with map navigation (zooming and panning)</td>
<td>Can be more difficult to define specific start and end locations</td>
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<td>Can be used to define “multi-part” trips (trips that exit the state system and then re-enter and continue) all in one process</td>
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<td>Can select a trip that will not necessarily be approved due to clearance, load, or restriction failures along the specified routes</td>
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<td>Easily define specific start and end locations, as well as entry from and exit to other routes at the begin and end of trips</td>
<td>Requires more data entry</td>
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<td>Helps select complex, multi-turn trips without requiring map navigation (zooming and panning)</td>
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<td></td>
<td>Automatically finds a trip that can be permitted between a given origin and destination (unless a valid path cannot be found)</td>
<td>Does not allow a specific trip to be defined and analyzed. It automatically finds a specific path between the specified origin and destination. If a specific trip is desired, this process may not provide that</td>
</tr>
<tr>
<td></td>
<td>Only requires the entry/selection of an origin and destination point. These locations can be defined by either picking on the map or by data entry</td>
<td>Cannot currently be used to define “multi-part” trips (trips that exit the state system and then re-enter and continue) all in one process</td>
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<tr>
<td></td>
<td>Allows for a specific trip to be defined and analyzed – requires the trip to have been previously saved</td>
<td>Can select a trip that will not necessarily be approved due to clearance, load, or restriction failures along the specified routes</td>
</tr>
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<td></td>
<td>Does not require any map picking or data entry</td>
<td>Does not allow any new map picking or data entry</td>
</tr>
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Examples of each routing method.

- State Border to State Border – One Route
- State Border to State Border – Change Routes
- Intersection to Intersection Routing – Multiple Routes
- Multi-part Trip – Through the State, Out of the State, Back in the State and Through the State

State Border to State Border – One Route
Desired Route – I-77 from West Virginia to North Carolina

Picking Route Segments

- In the left-hand side menu, under “1. Select method of routing,” choose “Picking Route Segments” from the drop down menu.
- Click on “2. Select route on the map.”
- Select I-77 at or east of the West Virginia/Virginia line.
- Select I-77 at or west of the North Carolina/Virginia line. At this point, all of I-77 will be selected.
- Click on “3. Analyze the route.” The system will analyze I-77 from West Virginia to North Carolina for the specific permit vehicle.

Text Description

- In the left-hand side menu, under “1. Select method of routing,” choose “Text Description” from the drop down menu.
- Click on “2. Enter your trip description.”
- Enter “I-95” for the “Start on Route” and change the “at the” option from “Intersection of” to “State Border.” Enter “NC” in the next field (the State Border).
- Click on the “Next” button.
- Change the “Go to” option to “End at” and change the “Intersection of” to “State Border.” Enter “MD” in the next field (the State Border).
- Click on the “Next” button.
- Click on the “Use Trip” button. At this point, all of I-95 will be selected.
- Click on “3. Analyze the route.” The system will analyze I-95 from North Carolina to Maryland for the specific permit vehicle.
Auto Origin/Destination Routing

- In the left-hand side menu, under “1. Select method of routing,” choose “Auto Orig/Dest Routing” from the drop down menu.
- Click on “2. Select route origin.” The origin can be defined textually or by choosing routes on the map. To define the location textually, select the “Define the origin through the following description” option.
  - Enter “I-85” for the “Start on Route” and change the “at the” option from “Intersection of” to “State Border.” Enter “NC” in the next field (the State Border) and click the “OK” button.
  - To define the location by choosing the routes, select the “Define the origin by picking on the map” option.
  - Click the “OK” button and select I-85 at or north of the North Carolina/Virginia line.
- Click on “3. Select route destination.”
  - As with the origin, the destination can be defined textually or by picking on the map.
    - To define the location textually, select the “Define the destination through the following description” option.
    - Enter “I-64” for the “End on Route” and change the “at the” option from “Intersection of” to “State Border.” Enter “WV” in the next field (the State Border) and click the “OK” button.
    - To define the location by picking, select the “Define the destination by picking on the map” option and click the “OK” button. Select I-64 at or east of the West Virginia/Virginia line.
- Click on “4. Find the route and analyze it.” The system will find a route between I-85 at the North Carolina border and I-64 at the West Virginia border that will allow movement of the specific permit vehicle (as long as a valid trip can be found). This method will not ensure that only I-64 is used.
State Border to State Border – Change Routes
Desired Route – US- 29 from North Carolina to I-64 into West Virginia

**Picking Route Segments**
- In the left-hand side menu, under “1. Select method of routing,” choose “Picking Route Segments” from the drop down menu.
- Click on “2. Select route on the map.”
- Select US-29 at or west of the North Carolina/Virginia line.
- Select US-29 again somewhere north of the first pick to establish the direction of travel.
- Select I-64 at or east of the West Virginia/Virginia line. US-29 will be selected to I-64 and then I-64 into West Virginia.
- Click on “3. Analyze the route.” The system will analyze US-29 from North Carolina to I-64 and then I-64 into West Virginia for the specific permit vehicle.

**Text Description**
- In the left-hand side menu, under “1. Select method of routing,” choose “Text Description” from the drop down menu.
- Click on “2. Enter your trip description.”
- Enter “US-29” for the “Start on Route” and change the “at the” option from “Intersection of” to “State Border.” Enter “NC” in the next field (the State Border) and click the “Next” button.
- Enter “I-64” for the “Intersection of” route and click the “Next” button.
- Change the “Go to” option to “End at” and change the “Intersection of” to “State Border.”
- Enter “WV” in the next field (the State Border) and click the “Next” button.
- Click the “Use Trip” button. US-29 will be selected to I-64 and then I-64 into West Virginia.
- Click on “3. Analyze the route.” The system will analyze US-29 from NC to I-64 and then I-64 into West Virginia for the specific permit vehicle.

**Auto Origin/Destination Routing**
- In the left-hand side menu, under “1. Select method of routing,” choose “Auto Orig/Dest Routing” from the drop down menu.
- Click on “2. Select route origin.” The origin can be defined textually or by selecting on the map.
To define the location textually, select the “Define the origin through the following description” option.

Enter “US-29” for the “Start on Route” and change the “at the” option from “Intersection of” to “State Border.” Enter “North Carolina” in the next field (the State Border) and click the “OK” button.

To define the location by selecting, select the “Define the origin by picking on the map” option. Click the “OK” button and select US-29 at or west of the North Carolina/Virginia line.

Click on “3. Select route destination.”

As with the origin, the destination can be defined textually or by selecting on the map. To define the location textually, select the “Define the destination through the following description” option.

Enter “I-64” for the “End on Route” and change the “at the” option from “Intersection of” to “State Border.” Enter “WV” in the next field (the State Border) and click the “OK” button.

To define the location by selecting, select the “Define the destination by picking on the map” option. Click the “OK” button and select I-64 at or east of the West Virginia/Virginia line.

Click on “4. Find the route and analyze it.” The system will find a route between US-29 at the North Carolina border and I-64 at the West Virginia border that will allow movement of the specific permit vehicle (as long as a valid trip can be found). This method will not ensure that only US-29 and I-64 are used.

**Intersection to Intersection Routing – Multiple Routes**

Desired Route – US 360 at the intersection of VA-30 in King William County to US-60 at the intersection of VA-288 in Chesterfield County.

**Picking Route Segments**

- In the left-hand side menu, under “1. Select method of routing,” choose “Picking Route Segments” from the drop down menu.
- Click on “2. Select route on the map.”
- Select US-360 near the intersection of VA-30. Select a second time on US-360 somewhere southwest of the first selection to establish the direction of travel.
- Select I-295 somewhere north of where US-360 intersects, then select I-295 near the intersection of I-64.
Select VA-288 south of I-64 and select US-60 somewhere west of VA-288. US-360 to I-295 to I-64 to VA-288 to US-60 will be selected.

Click on “3. Analyze the route.” The system will analyze US-360 to I-295 to I-64 to VA-288 to US-60 for the specific permit vehicle.

Text Description

In the left-hand side menu, under “1. Select method of routing,” choose “Text Description” from the drop down menu.

Click on “2. Enter your trip description.”

Enter “VA-80” for the “Start on Route” and enter “83” in the field next to the “Intersection of” option. There are several places where 80 and 83 intersect. The system will present a list of those locations. Select the location in Dickenson county and click “OK.”

Enter “67” for the “Intersection of” route and click the “Next” button.

Enter “460” for the “Intersection of” route and click the “Next” button.

Change the “Go to” option to “End at” and enter “19” in the field next to the “Intersection of” option. Click the “Next” button.

Click the “Use Trip” button. VA-80 to VA-67 to US-460 will be selected.

Click on “3. Analyze the route.” The system will analyze VA-80 to VA-67 to US-460 for the specific permit vehicle.

Auto Origin/Destination Routing

In the left-hand side menu, under “1. Select method of routing,” choose “Auto Orig/Dest Routing” from the drop down menu.

Click on “2. Select route origin.”

The origin can be defined textually or by selecting on the map. To define the location textually, select the “Define the origin through the following description” option.

Enter “US-29” for the “Start on Route” and enter “40” in the field next to the “Intersection of” option. There are two places where US-29 and VA-40 intersect. The system will present a list of those two places. Select the north bound location in Pittsylvania County and click “OK.”

To define the location by selecting, select the “Define the origin by picking on the map” option and click the “OK” button. Select US-29 near the intersection of VA-40.

Click on “3. Select route destination.”
As with the origin, the destination can be defined textually or by selecting on the map.
To define the location textually, select the “Define the destination through the following
description” option.

Enter “US-220” for the “End on Route” and enter “43” for the “Intersection of” route. Click the
“OK” button.

To define the location by picking, select the “Define the destination by picking on the map”
option and click the “OK” button. Select US-220 near the intersection of 43.

Click on “4. Find the route and analyze it.” The system will find a route between US-29 at
the intersection of 40 in Pittsylvania County and US-220 at the intersection of 43 in Botetourt
County that will allow movement of the specific permit vehicle (as long as a valid trip can be
found). This method will not ensure that only US-29-460-Alt.220-220 are used.

Multi-Part Trip – Through the State, Out of the State, Back in the State, and Through the State
Desired Route – I-77 from North Carolina to I-77 at West Virginia, re-entering on I-64 at West
Virginia to I-81 at West Virginia

**Picking Route Segments**

- In the left-hand side menu, under “1. Select method of routing,” choose “Picking Route
  Segments” from the drop down menu.
- Click on “2. Select route on the map.”
- Select I-77 at or north of the North Carolina/Virginia line. Select a second time on I-77
  somewhere north of the first pick to establish the direction of travel. Next, select I-77 at or
  south of the West Virginia/ Virginia line.
- Click on “Add additional trip.”
- Select I-64 at or east of the West Virginia/Virginia line and select a second time on I-64
  somewhere east of the first pick to establish the direction of travel. Next, select I-81 at or
  south of the Virginia/West Virginia line. I-77 will be selected from North Carolina to West
  Virginia. In addition, I-64 and I-81 will be selected from West Virginia to West Virginia.
- Click on “3. Analyze the route.” The system will analyze multi-part trip for the specific permit
  vehicle.
Text Description

- In the left-hand side menu, under “1. Select method of routing,” choose “Text Description” from the drop down menu.
- Click on “2. Enter your trip description.”
- Enter “I-77” for the “Start on Route” and change the “at the” option from “Intersection of” to “State Border.” Enter “North Carolina” in the next field (the State Border) and click the “Next” button.
- Change the “Go to” option to “End at” and change the “Intersection of” to “State Border.” Enter “WV” in the next field (the State Border) and click the “Next” button.
- Click the “New Segment” button and enter “I-64” for the “Start on Route”. Change the “at the” option from “Intersection of” to “State Border” and enter “WV” in the next field (the State Border). Click the “Next” button.
- Enter “I-81” for the “Intersection of” route and click the “Next” button.
- Change the “Go to” option to “End at” and change the “Intersection of” to “State Border.”
- Enter “WV” in the next field (the State Border) and click the “Next” button.
- Click the “Use Trip” button. I-77 will be selected from North Carolina to West Virginia. In addition, I-64 and I-81 will be selected from West Virginia to West Virginia.
- Click on “3. Analyze the route.” The system will analyze multi-part trip for the specific permit vehicle.

Auto Origin/Destination Routing
Automated routing cannot be used at the current time to create a multi-part trip. This method will do everything possible to find a permitable, continuous trip from the defined origin to the defined destination.