



ESRI  
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# Migrating Esri Roads and Highways data from ArcMap to ArcGIS Pro 2.8

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## Differences between Roads and Highways in ArcMap vs Roads and Highways in ArcGIS Pro

*The migration of Roads and Highways from ArcMap to ArcGIS Pro provides new capabilities and tools for transportation industry users. These include things like: complex shapes like loops, cul de sacs, ramps, and branch route shapes, moving certain tools to geoprocessing allowing for scripting, selection sets, and a greater level of control as well as other new capabilities in Event Editor such as Undo/Redo support.*

*Roads and Highways in ArcMap differs from Roads and Highways in ArcGIS Pro in a few key areas, including the underlying architecture used by the software and the type of versioning that supports this new architecture.*

### **Service Oriented Architecture**

While Roads and Highways in ArcMap supports route editing using file geodatabase and direct connections to multiuser geodatabases (SDE files), in ArcGIS Pro, Roads and Highways has moved to a service-oriented architecture. This new architecture supports a modern Web GIS model. Instead of using a direct database connection to access data, users will now consume feature services that have been published with LRS data and the linear referencing capability enabled to do their route editing. This service-oriented editing approach was already utilized with Event Editor and now carries over to route editing and geoprocessing tool usage in ArcGIS Pro.

### **Branch Versioning**

Roads and Highways data in a multiuser geodatabase that is used in ArcGIS Pro must be branch versioned. Branch versioning is a new type of versioning designed for multiuser editing in a service-oriented environment. Instead of utilizing a direct connection to the geodatabase, branch versioned data is designed to be edited and managed using the version management capability on web services, while still processing operations at similar speeds to a client-server editing experience. For more information about the benefits of branch versioning, see the Branch Versioning section of [Enterprise data management strategies](#).

### **Version Management Service**

When publishing a service with branch versioned data using ArcGIS Pro, users will see the Version Management capability. When Version Management is enabled on a service, familiar operations such as creating and deleting versions, edit sessions, and Undo/Redo support will be available using a service in ArcGIS Pro, Event Editor, as well as in other web apps, 3<sup>rd</sup> party applications, and software.

## Steps to migrate Roads and Highways data from ArcMap to ArcGIS Pro

Before publishing a service with Roads and Highways data that has linear referencing and version management capabilities enabled in ArcGIS Pro, branch versioning must be enabled and the LRS needs to be upgraded for use in ArcGIS Pro. *Note: The geodatabase version must be 10.6 or newer to utilize branch versioning.*

The following steps prepare a Roads and Highways geodatabase in use in ArcMap for use in ArcGIS Pro. It is important to follow the steps in the order provided to ensure the process is completed correctly.

For more information on branch versioning requirements, see [Register a dataset as branch versioned](#).

1. Stop any services and other connections to the geodatabase.
2. Post all outstanding edits in versions other than DEFAULT up to the DEFAULT version of the geodatabase.
3. Delete all child, grand-child, and other versions other than DEFAULT.
4. If you have any external systems that receive updates from the LRS (via the Relocate Events or Export Network tools), sync those systems with the LRS to the current date before moving to the new step.
5. Add Global IDs to all feature classes and tables in the geodatabase (including the LRS\_EditLog table). The LRS\_EventBehavior, LRS\_Locks, and LRS\_Metadata tables do not need Global IDs. To add Global IDs, use the [Add Global IDs](#) geoprocessing tool.
6. Enable editor tracking on all feature classes and tables in the geodatabase using UTC as the time zone (including the LRS\_EditLog table). The LRS\_EventBehavior, LRS\_Locks, and LRS\_Metadata tables do not need Global IDs. To enable editor tracking, see [Enable or disable editor tracking](#).
7. Create a feature dataset with the same spatial reference and XYZM tolerance/resolution as your LRS Network feature class in the geodatabase. Move the centerline, calibration point, redline, all LRS Network, LRS Event, and LRS Intersection feature classes into the feature dataset. To create a feature dataset, see [Create Feature Dataset](#).

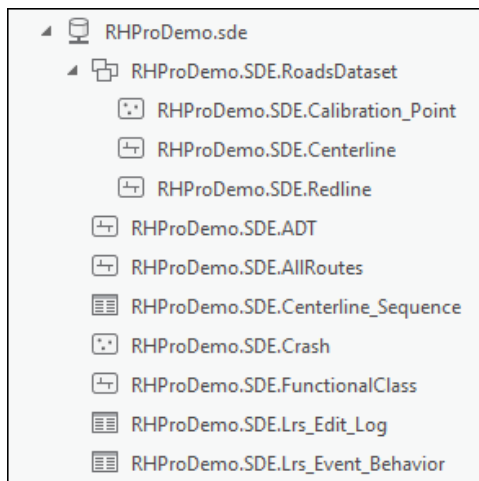


Figure 1: Minimum schema items within Feature Dataset

8. In ArcGIS Pro, right click the connection file and choose Geodatabase Connection Properties. Change the versioning type for your connection file from traditional to branch. *Note: Once this step is complete, you will not be able to access the connection file from ArcMap any longer.*

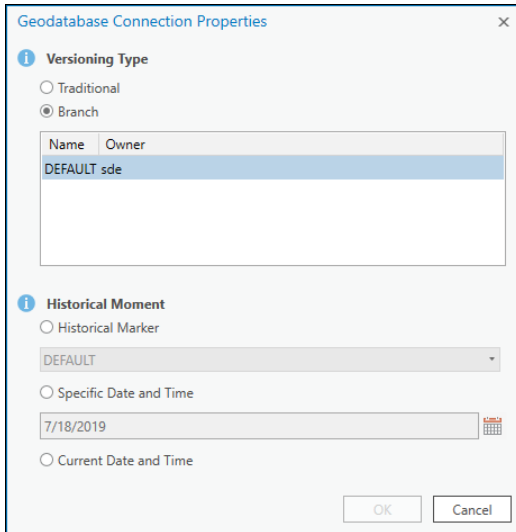


Figure 2: Geodatabase connection properties in ArcGIS Pro

9. Version the feature dataset, all feature classes, and tables that participate in the LRS except for the LRS\_EventBehavior, LRS\_Locks, LRS\_Metadata tables. To register as versioned with branch versioned data, see [Register a dataset as branch versioned](#).
10. In ArcGIS Pro, run the Modify LRS geoprocessing tool in the Location Referencing toolbox to upgrade the LRS. Select the connection file as the Input Workspace, then select the LRS in the current LRS drop down. All other fields for minimum schema items (centerline, calibration point, centerline sequence, and redline) should populate automatically. You do not need to change any of the parameters to run the tool and successfully upgrade the LRS.

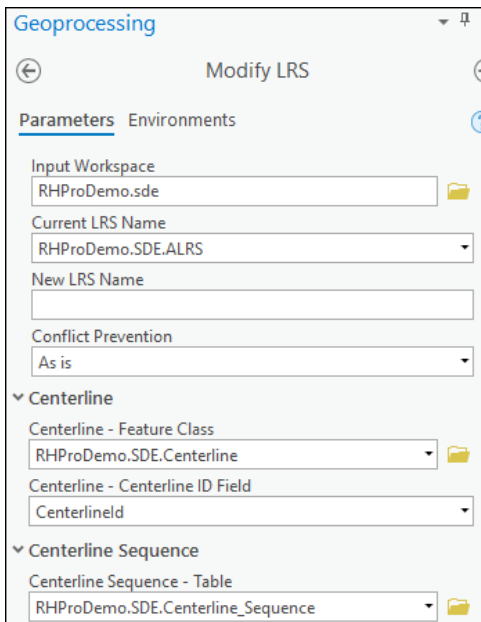


Figure 3: Modify LRS geoprocessing tool in ArcGIS Pro

11. You can now add layers to the map and publish your service. For more information on publishing a linear referencing enabled service, see [Share as web layers with linear referencing and version management](#).

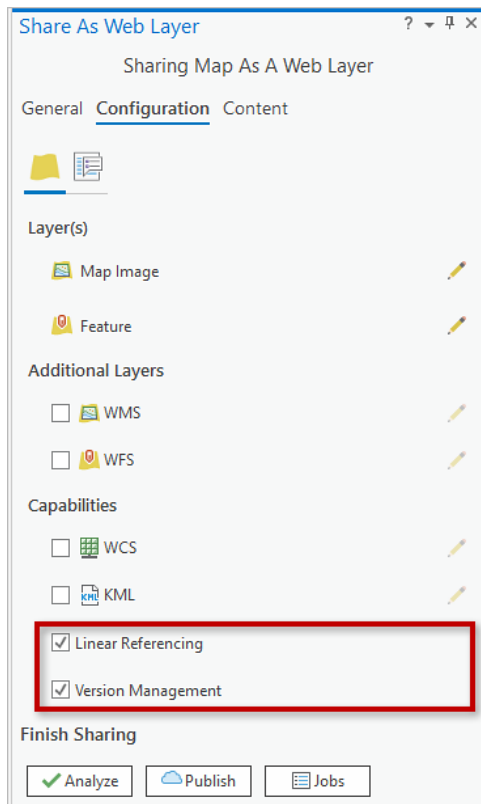


Figure 4: Configuration options when publishing a service in ArcGIS Pro

12. If there are any complex shaped routes (ramps, branches, etc.) that had physical gaps inserted in order to be calibrated in ArcMap, those gaps can now be closed/removed via a [cartographic realignment](#). Add the feature service published in step 11 to ArcGIS Pro and use the [edit feature vertices](#) tool to cartographically realign the route(s).

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