



Working with a Mixed ArcGIS® Version Environment (ArcGIS 8.3, 9, and 9.1)

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Working with a Mixed ArcGIS Version Environment (ArcGIS 8.3, 9, and 9.1)

An enterprise geographic information system (GIS) is generally defined as a mixture of client (ArcGIS® Desktop, ArcGIS Engine applications) and server (ArcSDE®, ArcGIS Server, ArcIMS®) software distributed throughout an organization. Upgrading such an enterprise requires careful planning to minimize downtime by the users of the system. Ideally, all clients and servers could be upgraded simultaneously. Software distribution systems such as Microsoft® System Management Server (SMS) are making this more feasible. (For more information on deploying ArcGIS applications using SMS, see the technical paper [Deploying Managed ArcGIS 9 Setups](http://support.esri.com) at <http://support.esri.com>.) However, there may be circumstances that require a staged approach to software upgrades, for example, when one department is using a third-party ArcGIS extension that is not supported on the latest ArcGIS version while another department needs the functionality provided with the latest ArcGIS version. Or perhaps it is just a matter of resources to deploy and support upgraded applications throughout an organization.

Whatever the reason, a staged upgrade approach can result in a mixed client/server version environment where clients are of a different software version than the servers. Even though working in a mixed client/server version environment is unavoidable in some cases, attempts should be made to get the enterprise to a single version across clients and servers as soon as possible. When implementing a staged upgrade, ESRI generally recommends upgrading ArcGIS Desktop software before ArcGIS servers (ArcSDE, ArcGIS Server, or ArcIMS). The following are general guidelines for upgrading an enterprise ArcGIS system.

- Upgrade the software on all client machines.
 - Upgrade personal geodatabases—in ArcCatalog™, open the properties of the geodatabase and click Upgrade Personal Geodatabase.
- Upgrade the software on all server machines.
- Upgrade the multiuser geodatabase.
 - Use the ArcSDE postinstallation tools or the SDESETUP<RDBMS> command.
- Run additional processes for upgrading geodatabase objects that were reengineered for the new geodatabase version (e.g., rasters and annotation at ArcGIS 9).
- Recompile and review all custom ArcObjects™ applications to take advantage of new functionality. Since these applications likely interact with the server software,

the only way to ensure that these applications will work in the upgraded environment is to test them against upgraded servers.

- Reevaluate workflows and data models to take advantage of new ArcGIS functionality.

This staged approach works because ArcGIS client applications are generally compatible with previous versions of the server software. However, because new releases of ArcGIS frequently enhance the capabilities of the geodatabase, these capabilities cannot be fully realized until the entire system has been upgraded. During the time ArcGIS clients have been upgraded but the geodatabase has not, expect that the new geodatabase capabilities of the new version will not function properly. The remainder of this document discusses the specific compatibility issues that can be encountered between ArcGIS applications and the geodatabase of a different version. Specifically, this document focuses on the following two configurations:

- ArcGIS 8.3 geodatabase with ArcGIS 8.3 and 9 clients
- ArcGIS 9 geodatabase with ArcGIS 9 and 9.1 clients

ArcGIS geodatabases include multiuser and personal geodatabase unless specifically noted. ArcGIS client applications include ArcGIS Desktop, ArcGIS Engine, ArcIMS, and ArcGIS Server. Even though ArcGIS Server and ArcIMS are server products, in this context, they are considered client applications to the geodatabase. All the references to ArcGIS clients editing or managing data in a geodatabase do not pertain to ArcIMS as it is a read-only client of the geodatabase.

This document does not discuss all the functionality that works in these configurations. All items that are not listed below have been found to work successfully.

Direct Connect (multiuser geodatabases only)

When using ArcSDE direct connect, the version of the ArcGIS client must be the same as the geodatabase version. Therefore, when using an ArcGIS 9 client and direct connect, users will not be able to connect to the geodatabase until it is upgraded to ArcGIS 9. This makes upgrading more difficult than if using the ArcSDE application server (which does allow ArcGIS 9 clients to connect to ArcGIS 8.3 geodatabases). This applies to all versions of ArcGIS. ArcGIS 9.1 clients cannot direct connect to ArcGIS 9 geodatabases, and future ArcGIS client versions will not be able to direct connect to ArcGIS 9.1 geodatabases.

Compatibility between ArcGIS 8.3 and 9 Geodatabases

ArcGIS 8.3 clients cannot connect to ArcGIS 9 geodatabases. ArcGIS clients are compatible with previous versions of the geodatabase, but they are generally not compatible* with future versions of the geodatabase. Therefore, ArcGIS 9 clients can connect to and edit 8.3 geodatabases (using the application server connection with ArcSDE). However, all new geodatabase capabilities of ArcGIS 9 are not supported in ArcGIS 8.3 geodatabases. The following two sections discuss the limitations of working with ArcGIS 9 clients and ArcGIS 8.3 geodatabases. For complete information on the ESRI® products that work with each ArcSDE version, see the Product Compatibility Matrix for ArcSDE Clients and Servers and ArcGIS Server topic on the ESRI Support Center at <http://support.esri.com/index.cfm?fa=knowledgebase.systemrequirements.compatibility>.

* ArcGIS 9 and 9.1 are the exception to this forward compatibility rule. See the section titled Compatibility between ArcGIS 9 and 9.1 Geodatabases for more details.

ArcGIS 9 Objects That Are Not Supported with ArcGIS 8.3 Geodatabases

The following geodatabase objects were added with ArcGIS 9 and, therefore, cannot be stored in an ArcGIS 8.3 geodatabase. Attempting to create these geodatabase objects with ArcGIS 9 clients in an ArcGIS 8.3 geodatabase will result in an error stating that the geodatabase must be upgraded to support this feature.

- Geoprocessing toolbox
- Multiple annotation classes in an annotation feature class
- ArcGIS 9 raster catalogs
- Raster fields

Annotation and raster datasets cannot be created from ArcGIS 9 in an ArcGIS 8.3 geodatabase. Annotation and raster datasets created with ArcGIS 8.3 in an ArcGIS 8.3 geodatabase can be displayed with ArcGIS 9.

ArcGIS 9 Functionality Limitations with ArcGIS 8.3 Geodatabases

Improvements to existing geodatabase objects or the client tools that work with those objects can create limitations when working in a mixed environment (ArcGIS 8.3 and 9 clients working with an ArcGIS 8.3 geodatabase). The following is a list of ArcGIS 9 functionality limitations of working with ArcGIS 8.3 geodatabases:

- With ArcGIS 9 Desktop, the annotation editing tools were completely reengineered and optimized to work with the new ArcGIS 9 geodatabase annotation. Therefore, these tools cannot be used to edit annotation in an ArcGIS 8.3 geodatabase.
- If ArcGIS 9 is used to load feature classes into an ArcGIS 8.3 geodatabase, ArcGIS 8.3 Desktop can create nonfeature-linked annotation but cannot create feature-linked annotation from these feature classes.
- Dimensions created in an ArcGIS 8.3 geodatabase with ArcGIS 9 cannot be viewed or edited with ArcGIS 8.3. In addition, ArcGIS 8.3 cannot edit any of the data in a feature dataset that contains a dimension feature class created with ArcGIS 9. However, dimensions created with ArcGIS 8.3 in an ArcGIS 8.3 geodatabase can be viewed and edited with ArcGIS 9.
- Topologies were enhanced with ArcGIS 9 to include a z cluster tolerance. When creating a topology in an ArcGIS 8.3 geodatabase with ArcGIS 9, the input box for z cluster tolerance is disabled and a z cluster tolerance of -1 is used.

Compatibility between ArcGIS 9 and 9.1 Geodatabases

Users can access and edit ArcGIS 9 geodatabases using ArcGIS 9.1 without upgrading them, and geodatabases that users create or upgrade to ArcGIS 9.1 can be accessed and edited with ArcGIS 9. However, connecting to an ArcSDE geodatabase of a different version still requires use of an application server (three-tier) connection. ArcGIS 9.1 clients can only use direct connect with multiuser geodatabases that have been upgraded to ArcGIS 9.1. See the Direct Connect discussion earlier in this paper. This compatibility is possible due to special engineering circumstances of ArcGIS 9.1. It is not a general change to how geodatabase upgrades work, and for technical reasons, ESRI does not plan to provide this feature for future releases. For complete information on the ESRI products that work with each ArcSDE version, see the Product Compatibility Matrix for ArcSDE Clients and Servers and ArcGIS Server topic on the ESRI Support Center Web site at <http://support.esri.com/index.cfm?fa=knowledgebase.systemrequirements.compatibility>.

ArcGIS 9.1 Objects That Are Not Supported with ArcGIS 9 Geodatabases

Network Datasets

The new ArcGIS 9.1 Network Analyst extension gives users the ability to create network datasets in ArcGIS 9.1 geodatabases. If users want to create network datasets in an existing geodatabase, they must upgrade the geodatabase to ArcGIS 9.1.

Even though ArcGIS 9 can be used to edit ArcGIS 9.1 geodatabases, users should exercise caution when working with network datasets using ArcGIS 9. Because ArcGIS 9 was not engineered to work with network datasets, it will not prevent making changes to the network dataset that will render it unusable. For this reason, avoid using ArcGIS 9 to make the following modifications to network dataset data:

- Deleting, moving, or renaming feature classes participating in the network dataset including the system junction feature class
- Editing features within the system junction feature class

ArcGIS 9.1 prevents these types of modifications and ensures the network dataset and its feature classes are edited in a consistent manner.

ArcIMS Metadata Services

ArcIMS 9.1 is backward compatible with earlier versions of ArcSDE. However, when using metadata services, upgrade both ArcIMS and ArcSDE to 9.1. This is because XML storage was significantly changed with ArcSDE 9.1.

Sharing Data with Previous Versions of ArcGIS

There may be circumstances that require copying geodatabase data to a previous version. Usually this occurs when you need to share data with someone using an older version of ArcGIS. Because ArcGIS applications are generally not forward compatible with the geodatabase, share geodatabase data with previous ArcGIS versions by moving data to a matching version of the geodatabase. To accomplish this, simply use the current version of ArcGIS to copy data from the upgraded geodatabase to a geodatabase that was created with the older version of ArcGIS. For more information on this process, see knowledge base article [26998](http://support.esri.com) available at <http://support.esri.com>.