What's new in ArcGIS 9.3.1?

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March 2009

Highlights

- **Very fast and scalable dynamic map services—**ArcGIS 9.3.1 can publish very fast, scalable maps on the Web using optimized map services. These support both dynamic as well as cached map services.

- **ArcGIS Online Sharing and Search—**In addition to providing ready-to-use map services like imagery and streets, this Spring, ArcGIS Online will enable you to easily publish your data to the Web to share it with other users. ArcGIS 9.3.1 introduces the ability to create layer packages from your layers in ArcMap and ArcGlobe and easily share data with other users. You can upload your layer packages into the new ArcGIS Online website and other users will be able to immediately add it into their own maps and globes.

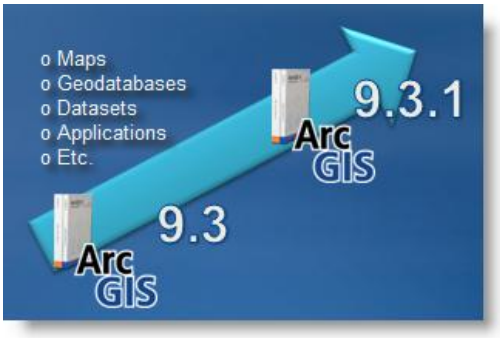
- **Support for Microsoft® Virtual Earth™—**ArcGIS 9.3.1 supports the *free use* of Microsoft Virtual Earth content in ArcGIS Desktop and for 90 days using ArcGIS Server. You can purchase additional time for using Virtual Earth in your Server implementations.

- **New capabilities in ArcGIS Data Interoperability—**The ArcGIS Data Interoperability extension at 9.3.1 uses the latest release of Safe Software's® FME®.

- **ArcGIS API for Microsoft® Silverlight™**—A new Web API for Silverlight will be released this Summer that supports building Web map applications for ArcGIS Server. Check on the release status at the ArcGIS Server Resource Center.

- **Extended support for Java™ developers**—New and extended Java capabilities have been added at 9.3.1 that focus on ArcGIS Server for Java.

- **Compatibility with ArcGIS 9.3—**Version 9.3.1 is easy to deploy because all of your ArcGIS 9.3 content "just works" (i.e., is supported directly) in this new release.



- **Improved WMS support—**Numerous additions and performance improvements have been made in ArcGIS Server for supporting WMS services.

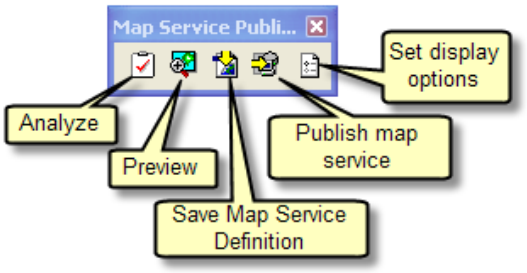
- **Improvements to the ArcGIS Resource Centers—**The ArcGIS Resource Centers continue to grow in popularity. These websites help you with your GIS implementations. New content and updates on how to apply ArcGIS is added daily.

ArcGIS Desktop

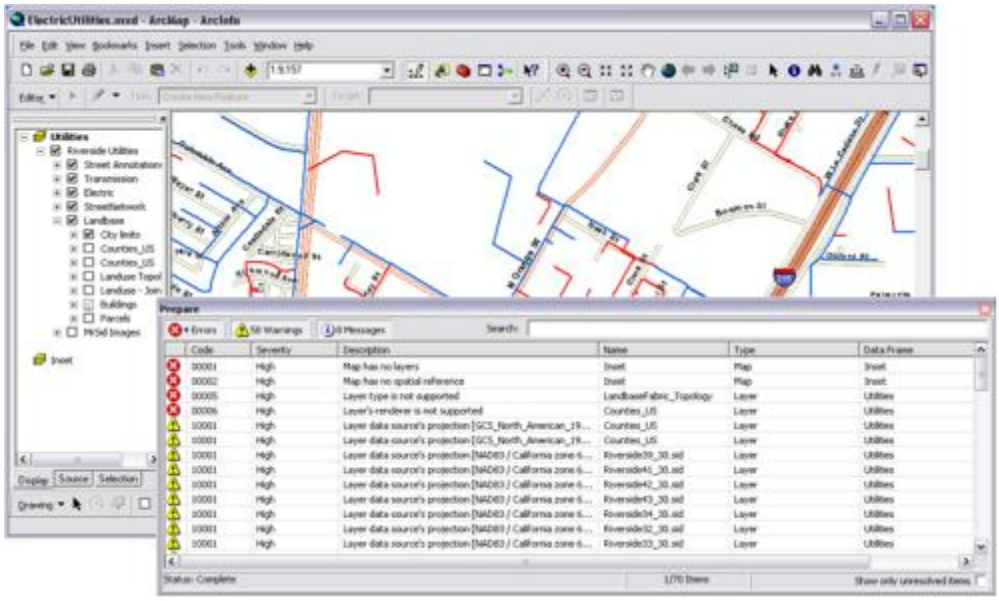
- **Publishing Optimized Map Services**

ArcMap includes a series of tools that enable you to optimize and tune your ArcMap documents for publishing high performance, scalable map services to ArcGIS Server. Optimized map services are significantly faster and much more scalable than map services published in previous versions of ArcGIS.

The Map Service Publishing toolbar is a new toolbar for ArcMap in ArcGIS 9.3.1. The Map Service Publishing toolbar helps you to analyze the drawing performance of your ArcMap documents, to preview your map service, and to save your ArcMap document as a map service definition file (map_name.msd). The map service definition file is used for creating optimized map services in ArcGIS Server.



The new Map Service Publishing toolbar in ArcMap at 9.3.1



The Analyze tool generates a report that helps you identify and diagnose potential map performance issues.

See Publishing optimized map services, for more information.

- **ArcGIS Online Sharing and Search**

In addition to providing ready-to-use map services like imagery and streets, this Spring, you will be able you to publish your data to the Web and share it with other users, through ArcGIS Online.

ArcGIS 9.3.1, introduces the ability to create layer packages from your layers in ArcMap and ArcGlobe. A layer package (LPK file) is a single, ready-to-use file containing a map layer and its data. Layer packages make it easy to share data with other users. You can upload your layer packages into the new ArcGIS Online website and other users will be able to immediately add it into their own maps and globes.

See Saving a layer to disk and Adding a layer package to your map, for information.

In ArcMap and ArcGlobe, the previous ArcGIS 9.3 File menu > Add Data from Resource Center command has been renamed to 'Add Data from ArcGIS Online' in ArcGIS 9.3.1. This command will automatically launch the new ArcGIS Online website. This will enable you to add data from ArcGIS Online directly into your current map or globe.

All of ESRI's web-based data has been unified, at 9.3.1, as part of ArcGIS Online.

- The commands for signing in to ArcWeb Services and using ArcWeb Services accounts have been removed.
- The ArcWeb Services node in ArcCatalog has also been removed.
- The Tools menu > Online Services pullright in ArcMap, ArcGlobe and ArcReader has been removed.
- The free online services built into the Find dialog and Find Route dialog in ArcGIS Desktop, ArcGIS Engine, and ArcReader continue to work.
- In ArcMap the Find Route command that was in the Tools menu > Online Services pullright has been moved into the StreetMap toolbar. The StreetMap toolbar, at 9.3.1, now contains both of the commands that enable you to perform point-to-point routing and generate driving directions in core ArcMap: one that uses disk-based StreetMap routing services and one that uses online services.
- In ArcReader, the Find Route command that was in the Tools menu > Online Services pullright has been put directly into the Tools pull-down menu (Tools menu > Find Route).

- **Free use of Microsoft Virtual Earth**

Microsoft Virtual Earth offers high quality, up-to-date content online for global streets and imagery. At ArcGIS 9.3, you can now add Virtual Earth content to any of your ArcGIS Desktop maps and globes.

See Using Microsoft Virtual Earth in ArcGIS for more information.

- **Eliminate tool in Geoprocessing**

Two new optional parameters have been added to the Eliminate tool at 9.3.1, including

- Exclusion expression that can be used to identify features that should not be modified.
- A line or polygon feature class whose geometries define areas in the feature class that should not be modified.

See the Eliminate command, for more information.

- **Ordinary Least Squares Tool (OLS) in Geoprocessing**

The Ordinary Least Squares tool, which is found in the Spatial Statistics toolbox, is now available at all license levels of ArcGIS Desktop (ArcView, ArcEditor, and ArcInfo).

- **ArcGIS Data Interoperability extension**

In ArcGIS 9.3.1, Data Interoperability is based on the latest release of Safe Software® FME® 2009. This means that the Data Interoperability extension takes advantage of new developments in FME, such as improved performance and a better FME Workbench experience. Data Interoperability also supports a number of new formats and transformers.

New Vector Formats:
▪ ADAC® XML Reader ▪ Adobe® PDF 2D Writer ▪ Autodesk® 3DS Writer™ ▪ CityGML Writer ▪ Informix® Reader & Writer ▪ Informix® Spatial Reader & Writer ▪ Microsoft® SQL Server® Spatial Reader & Writer ▪ OpenStreetMap® Reader ▪ Wavefront OBJ Reader & Writer

New Transformers:

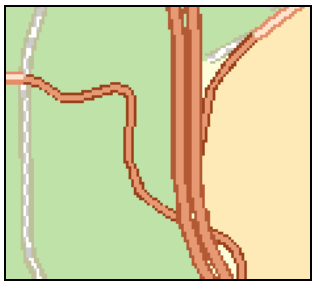
- AttributeDereferencer
- CenterLineReplacer
- CoordinateSystemRemover
- CSGBuilder
- CSGEvaluator
- DonutBridgeBuilder
- DuplicateCoordinateRemover
- Extruder
- ESRIReprojector
- FaceReplacer
- Generalizer
- GeometryTraitFetcher
- GeometryTraitRemover
- GeometryTraitSetter
- HTTPDeleter
- HTTPFetcher
- HTTPFileUploader
- HTTPUploader
- LatLongToMGRSConverter
- ListRenamer
- MeasureExtractor
- MeasureSetter
- MGRSGeometryExtractor
- MGRSGeometryReplacer
- MGRSToLatLongConverter
- PathBuilder
- SecondOrderConformer
- SpikeRemover
- Triangulator
- WebCharter

ArcGIS Server

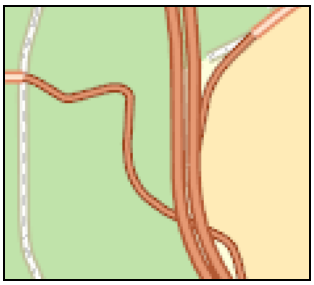
- **Map Services**

ArcGIS 9.3.1 introduces a faster map service for ArcGIS Server. These optimized map services use a new drawing engine for faster drawing performance for dynamic map services, and faster cache generation for cached services. The optimized map service performs better than equivalent ArcIMS and ArcGIS Server services on all supported platforms.

Because of native support for anti-aliasing, drawing quality also is improved compared to existing ArcIMS and ArcGIS Server services.



Example of a map document (.mxd) service without anti-aliasing.*



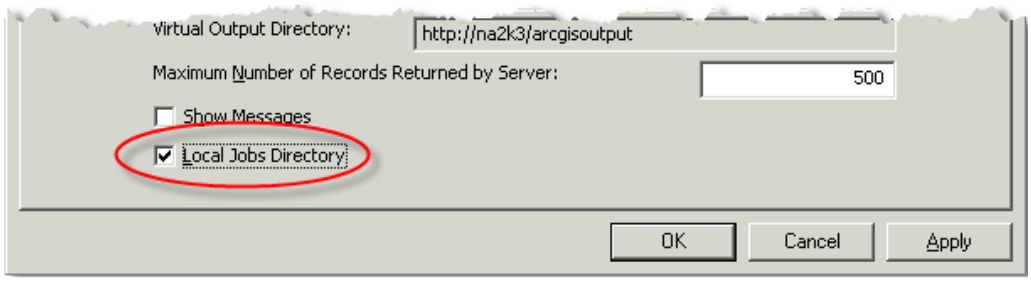
Example of a new 9.3.1 optimized map service with anti-aliasing

Optimized map services support common vector and raster data sources, and 2D symbology. Map documents can be prepared for publishing, as optimized map services, via the Map Service Publishing toolbar in ArcMap.

See Publishing a map service, for more information.

- **Geoprocessing Services**

In ArcGIS 9.3.1, you can set a geoprocessing service to use the Local Jobs Directory from the geoprocessing service property dialog. This setting can be important for the performance of geoprocessing services deployed on a distributed server.



See Managing the jobs directory, for more information.

- **Using Microsoft Virtual Earth layers and locator**

Microsoft Virtual Earth offers high quality, up-to-date content online for global streets and imagery. At ArcGIS 9.3, you can now add Virtual Earth content to ArcGIS Server Web applications. In addition, you can use the Find Address task to access the Microsoft Virtual Earth locator for finding addresses and place names. This locator can also perform reverse geocoding.

See Selecting layers to display, for more information.

- **Adding Image Services to Web Mapping Applications**

In ArcGIS Server Manager and the Visual Studio IDE, you can now add image services to your Web Mapping Applications. The process for adding image services to your maps is similar to that of adding map services.

See Selecting layers to display, for more information.

- **Configuring properties for a custom Server Object Extension**

For developers who have created a server object extension, the properties to configure that server object extension can now be shown in ArcGIS Server Manager.

- **Improved support for WMS in ArcGIS Server**
  - **WMS performance improvements using optimized map services**—A result of using the new optimized map services at ArcGIS 9.3.1 is ArcGIS Server can publish very high performance WMS map services. Our tests have shown that these WMS services are faster than any other method, currently available, for publishing WMS.
  - **Support for authenticated WMS services**—In ArcGIS Server Manager and the Microsoft® Visual Studio® IDE at Version 9.3.1, you can specify a username and password when adding an authenticated WMS service to your Web Mapping Application. Click the Access secured services option to enter the username and password.
  - **Choose which layers from a WMS service to add to your map**—When adding a WMS service to your Web Mapping Application, you can now select which layers from the WMS service will be added to your Web map and TOC. Previously, the entire service had to be displayed. To choose which layers are added, edit the markup of the mapResourceItem definition in the Default.aspx. There is a new LayerSubset option. For example:

```
ResourceDefinition=&amp;quot;layerSubset=14,7,4&amp;quot;
```

The ArcGIS Server REST API

- **Network Analyst Solve Route Operation**

The ArcGIS Server REST API supports Solve route operations using Network Analyst route layers. This functionality is available for map services that contain a route layer and had network analyst capabilities enabled when the map service was published.

- **ArcGIS Server Version Information**

The current version number of ArcGIS server is returned as the currentVersion property in the catalog response for services and folders. In ArcGIS 9.3.1, the version number will be returned as 9.3.1.

Using the Web Mapping Application in ArcGIS Server for Microsoft .Net

- **Performance improvements**

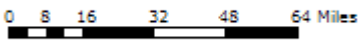
Performance of the Web Mapping Application was evaluated and improved for the 9.3.1 release. Performance improvements have been made to some of the Web controls, such as the new scale bar, as well as startup time, and overall performance of the Web Mapping Application.

- **New scale bar**

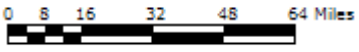
Web Mapping Applications, in ArcGIS 9.3.1, have a new scale bar, built on Microsoft .NET technology. This new scale bar is based on the DHTML scale bar in the ArcGIS Server Resource Center .NET code gallery. This new scale bar offers better performance and different styles (Alternating, Double Alternating, Single Division and Scale Line). The units will automatically convert from Miles to Feet, and Kilometers to Meters, when the scale changes. There will also be an option to set the spelling of the units. For example, you can spell Meters as "Meters" or "Metres".

The new scale bar style options:

- **Alternating**



- **Double Alternating**



- **Single Division**

- **Scale Line**

See Choosing the look and feel of the application, for more information.

- **Updated look and feel for MapTips**

The default appearances of MapTip callouts and the Identify Results dialog, in the Web Mapping Application, have been improved.

The Web ADF for Microsoft .NET

- **Customizing look and feel of MapTips**

The Web ADF JavaScript™ Library has been enhanced to provide greater control over customizing the look and feel of MapTips. New examples have been added to the MapTips sample that demonstrates how to leverage this new capability. In addition, a new MapTips custom control template is also available from the ArcGIS Server Resource Center .NET code gallery that enables drag-and-drop configuration of the new customization endpoints.

- **User Control task**

A new User Control task has been added to the available Web controls in the Web ADF. This new task is based on the User Control task sample available in the SDK. In addition, Developers can configure custom User Control tasks in ArcGIS Server Manager, and include them in Web Mapping Applications.

- **Print Task templates**

In ArcGIS 9.3.1, a new property called LayoutTemplateFile is available and allows you to define the contents of your printed maps. This file, located at: `Default=/aspnet_client/ESRI/WebADF/PrintTaskLayoutTemplates/default.htm`, is customizable.

The Print Task will generate a map layout based on your template. By default, at 9.3.1, this new map template includes the map title, map, and legend information. Task results and copyright text can also be included in the printed map.

ArcGIS Server for Java

- **Support for Image Services**

In ArcGIS Server Manager, using the Eclipse™ & NetBeans™ IDE plug-ins, you can now add image services to your Web Mapping Applications.

- **Access to authenticated WMS services**

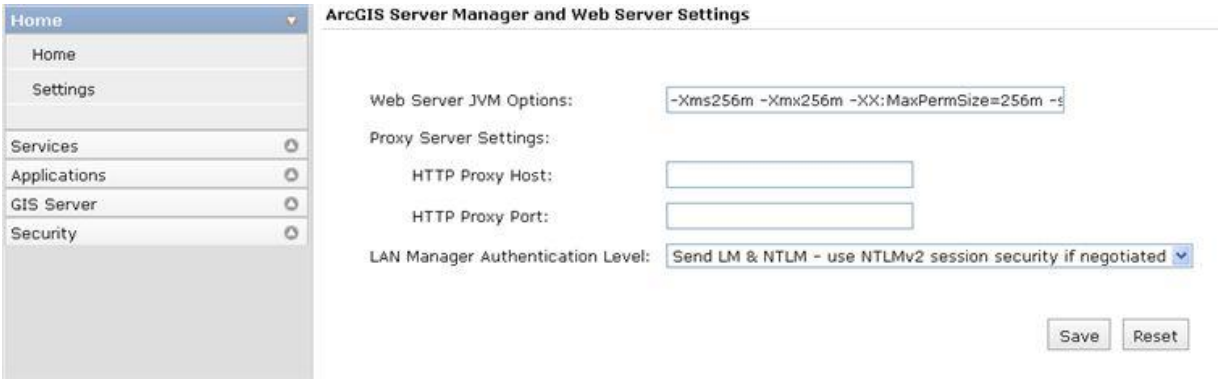
In ArcGIS Server Manager, using the Eclipse & Netbeans IDE plug-ins, you can specify a username and password when adding an authenticated WMS service to your Web Mapping Application.

- **Configure properties for a Server Object Extension**

For developers who have created a server object extension, the properties to configure that server object extension can now be shown in ArcGIS Server Manager.

- **Configure settings for ArcGIS Manager and Web Server**

You can now use the Settings panel to configure settings for the internal Web servers which host the Manager and Web applications. For example, you can specify the Proxy server to use for internet connections, or the Authentication protocol for local connections. You can also specify JVM parameters, like minimum and maximum heap size, for the internal Web server which hosts the deployed Web applications.



- **New ArcGIS Java Web Services Toolkit**

The Web ADF provides a new ArcGIS Java Web Services Toolkit that has better performance and uses memory more efficiently.

See Migration document, for more information.

- **Editing Task enhancements**

The Editing task now supports multiple configurations. Each configuration specifies which layers and versions to edit from a map service's workspace, and which settings to apply during editing. This removes the need for adding more than one Editing Task to a Web application and also allows end users to pick which configuration to use while editing. The Editing task has also been improved to allow users to pan, zoom, and navigate the map while they are editing features.

- **WMS enhancements**

The TOC control now reflects scale-dependency of WMS layers and provides a convenient "Zoom to Layer" context-menu. You can also define which layers from the WMS service get added to the map and TOC when adding a WMS service to your Web Mapping Application. Previously, the entire service had

to be displayed. To choose which layers are added, specify the layerSubset property in the WMSMapFunctionality managed-bean declaration

```
<managed-bean>
 <managed-bean-name>wmsMap</managed-bean-name>
 <managed-bean-class> com.esri.adf.web.wms.data.WMSMapFunctionality</managed-bean-class>
 <managed-bean-scope>none</managed-bean-scope>
 <managed-property>
   <property-name> layerSubset</property-name>
   <list-entries>
     <value>cities</value>
     <value>countries</value>
   </list-entries>
 </managed-property>
</managed-bean>
```

Building ArcGIS Extensions in Java

Java developers, in ArcGIS 9.3.1, can build the following ArcGIS extensions in their native Java environments. These extensions can be deployed and plugged seamlessly into the ArcGIS environment.

- **Server Object Extensions (SOEs)**—Java developers can extend the MapServer Object type to build customized ArcGIS behavior into the core server itself, without having to build this logic into their Java applications at the Web tier.

- **Utility Objects**—Java developers can create custom utility objects to consolidate the recurring fine-grained ArcObjects method calls in an application. Creating custom utility objects heavily reduces the interoperability overhead of fine-grained calls between Java and COM objects improving performance of your application

- **Feature Renderers**—Java developers can create custom feature renderers to control the way each feature in a map layer is drawn. Also, the custom feature renderers that you create can implement persistence behavior and hence state can be saved within a layer (.lyr) file or a map document (.mxd) file.

- **Class Extensions**—Java developers can create custom class extensions to customize data behavior in a geodatabase.

- **Plug-in data sources**—Java developers can create custom plug-in data sources to integrate and access external data formats with ArcGIS geodatabase (read-only).

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