
What's New in ArcGIS 9.2 Service Packs

18 July 2007 Updated for Service Pack 3

This document describes the main enhancements to 9.2 added by the service packs. It does not cover the bug fixes and quality improvements which are the main purpose of our service packs. A full list of the quality issues that have been addressed is available on the download page for the latest service pack.

Our service packs are cumulative, so 9.2 Service Pack 3 contains all the enhancements from the previous 9.2 service packs. In other words, if you've not installed a 9.2 service pack yet, you only need to install the most recent one.

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General

Support for 64-bit processors

■ Starting at Service Pack 3, ArcGIS is now certified to run on the Intel and AMD 64-bit processor families, such as the Xeon64 and AMD64. Note that the Intel Itanium processor is not supported. At Service Pack 3, the supported 64-bit Windows operating systems are Windows XP 64-bit and Windows 2003 Server 64-bit. ArcGIS 9.2 Service Pack 3 runs as a 32-bit application on these 64-bit Windows platforms, and so can take advantage of some of the performance benefits of the 64-bit environment.

ArcGIS Desktop, ArcInfo, ArcEditor, ArcView, and ArcReader on 64-bit

ArcGIS Desktop is a native 32-bit application and runs as a 32-bit application on 64-bit (x64) Microsoft Windows. In addition to Windows, ArcReader is also supported on Linux and Solaris. ArcReader on Solaris is supported in a 64-bit environment. ArcReader on 64-bit Linux has not been fully certified yet, but testing so far has been successful.

ArcGIS Server and ArcIMS on 64-bit

ArcGIS Server and ArcIMS are native 32-bit applications. They have both been certified running as a 32-bit application on 64-bit (x64) Microsoft Windows. Web server support is based on the web server vendor's support of 64-bit Microsoft Windows. Check with your web server vendor if the web server is supported on 64-bit Microsoft Windows. In addition to Windows, ArcGIS Server and ArcIMS are supported on Solaris and Linux. ArcGIS Server and ArcIMS are both supported in a Solaris 64-bit environment. ArcGIS Server and ArcIMS on 64-bit Linux are not completely tested, however test results so far has been successful. ArcIMS is also supported on IBM AIX and HP HPUX. ArcIMS has not been certified with either operating system in a 64-bit environment.

ArcGIS Engine on 64-bit

ArcGIS Engine is a native 32-bit application and is has been certified running as a 32-bit application on 64-bit (x64) Microsoft Windows. In addition to Windows, ArcGIS Engine is supported on Solaris and Linux. ArcGIS Engine is supported in a Solaris 64-bit environment but has not yet been fully certified in a Linux 64-bit environment.

ArcSDE on 64-bit

ArcSDE is available as a native 64-bit application for Sun Solaris (Oracle and DB2), HP HPUX (Oracle and DB2), HP Tru64 (Oracle), and IBM AIX (Oracle and DB2). On Windows, ArcSDE is a native 32-bit application and has now been certified running as a 32-bit application on 64-bit Microsoft Windows. DBMS support is based on the DBMS vendor's support of 64-bit Microsoft Windows. Check with your DBMS vendor if the DBMS is supported on 64-bit Microsoft Windows. ArcSDE is a 32-bit application on Linux for both Oracle and DB2. ArcSDE for Oracle on Red Hat Linux is only supported on a 64-bit chip set if the Linux OS and Oracle DBMS are both 32-bit. ArcSDE for DB2 has not been tested on a 64-bit Linux environment.

■ The existing License Manager and associated hardware key used for concurrent use licenses of ArcView, ArcEditor and ArcInfo does not work on 64-bit machines running Windows XP Professional 64-bit. You can obtain new Sentinel drivers and a License Manager patch that adds support for that 64-bit environment. For more information, and to get the patch, please see Knowledge Base article 30385:

<http://support.esri.com/index.cfm?fa=knowledgebase.techArticles.articleShow&d=30385>

Note on support for Windows Vista

■ Service Pack 3 does not add support for Microsoft Windows Vista. We are currently in the process of certifying ArcGIS Desktop, Engine and Server on 32-bit Vista and 64-bit Vista. For the latest information about when Vista support will be available, please see Knowledge Base article 31074:

<http://support.esri.com/index.cfm?fa=knowledgebase.techarticles.articleShow&d=31074>

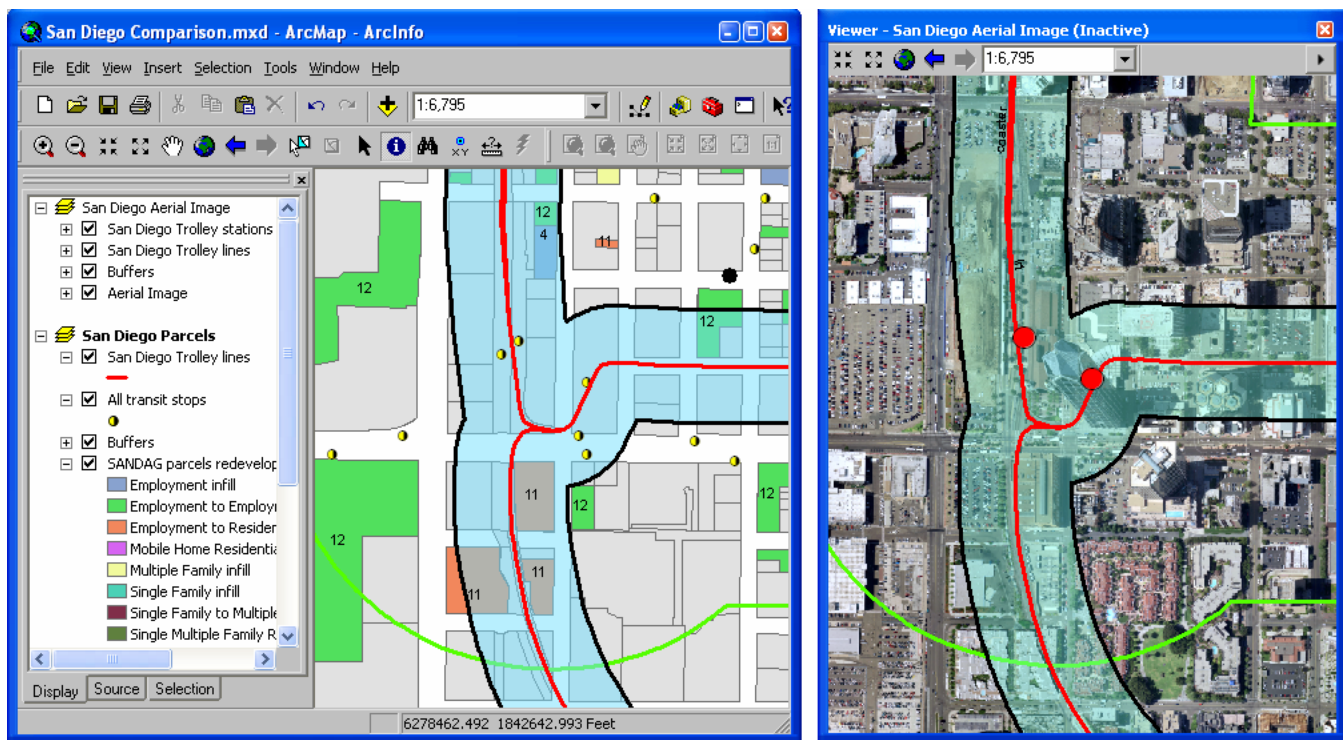
ArcGIS Desktop

Use the ArcMap viewer window to work with multiple data frames

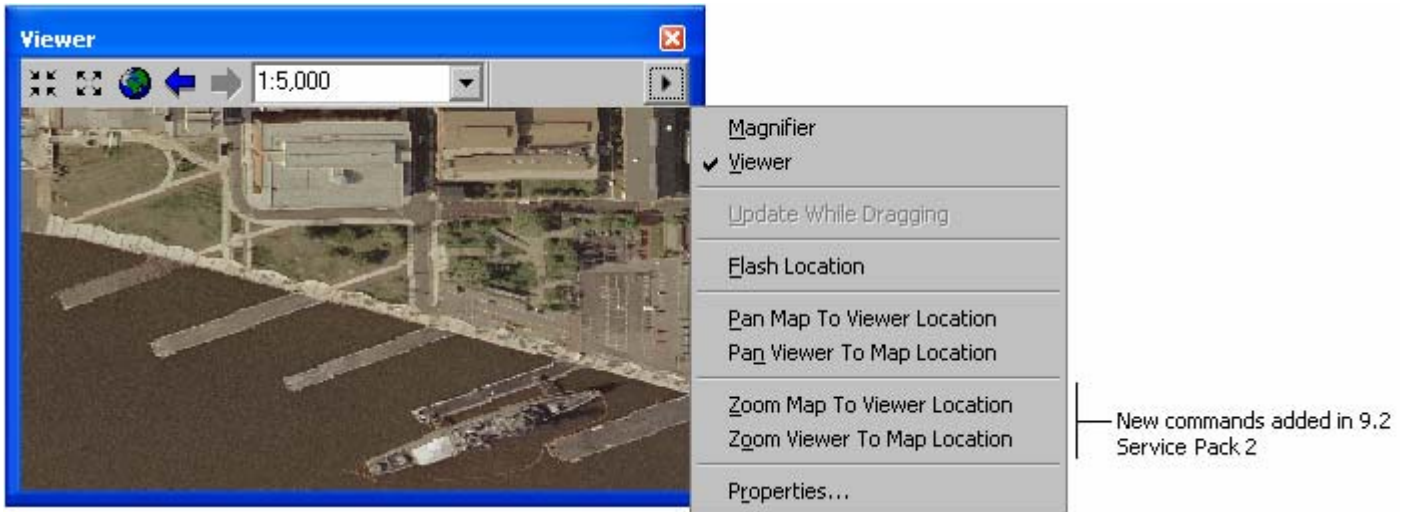
■ Service Pack 2 introduces the ability to work with multiple data frames side-by-side on-screen in the same map document. Previously, if your map document contained more than one data frame, the only way to work with the contents of multiple data frames simultaneously was to switch to Layout view and arrange the data frames on the layout page, or to open two or more map documents on screen.

The viewer window is a new window that was introduced at 9.2 to enable you to work with one data frame at multiple scales. In the 9.2 release if you opened a viewer window and then activated a different data frame in your map document, the viewer window was automatically closed. In Service Pack 2, we have enhanced viewer windows so that you can use them to view inactive data frames. Now if you activate a different data frame while a viewer window is open, that viewer window remains on-screen, enabling you to work with multiple data frames side by side.

In this example, a viewer window is being used to compare two data frames showing different data for the same area:

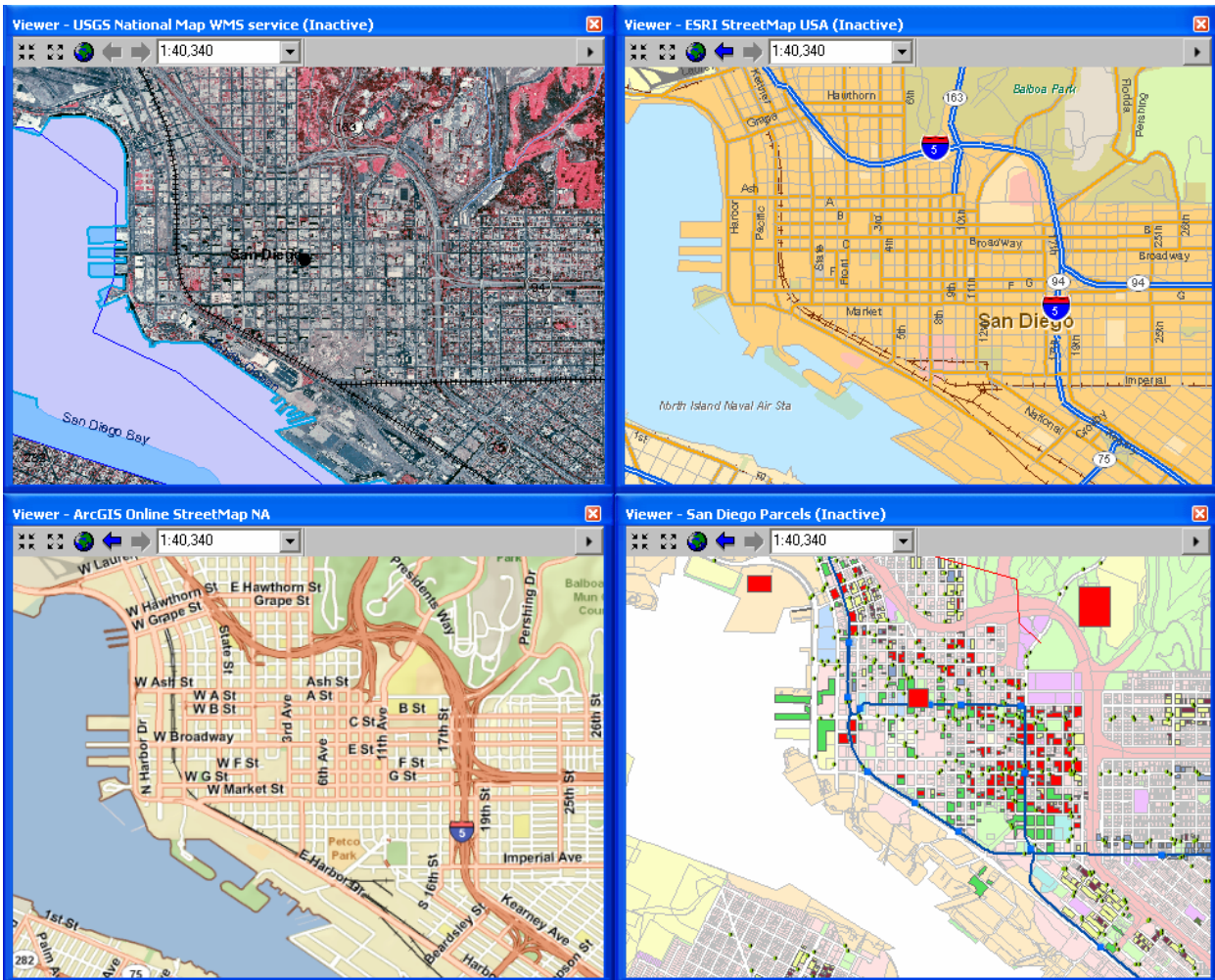


When you work with an inactive data frame in a viewer window, you can easily make the viewer show the same location that is currently displayed in the active data frame in the main ArcMap window. Similarly, you can update the location shown in the active data frame in the main ArcMap window to match the location shown in any of your viewer windows. Commands in the viewer window's menu let you pan or zoom the viewer or the main ArcMap window so that both displays show the same location:



There are some restrictions on which operations you can perform inside a viewer window that is displaying an inactive data frame. You can generally perform map navigation, query, and selection, but you can't edit graphics or features. If a tool can't be used on an inactive data frame displayed in a viewer window, the cursor will change when you hover over the viewer to show you that the tool is not available. There are no restrictions on the operations that can be performed inside a viewer window displaying the active data frame.

In this example, four viewer windows have been arranged on-screen so that four different sources of street data for the same area can be compared. Each viewer window is showing the contents of one data frame in the map document:



The ability to work with multiple data frames side-by-side in ArcMap can be useful for analysis, historical change assessment, data evaluation, and other applications where you want to be able to see different datasets for the same area side by side, as opposed to working with all the data in one data frame, or working with multiple map documents.

In the photo below, two different ArcGIS Online map services in separate data frames in a map document are being compared for the same location. A viewer window showing the inactive data frame has been maximized on the second monitor:




Tip: There are two shortcuts that make it easy to work with multiple data frames:

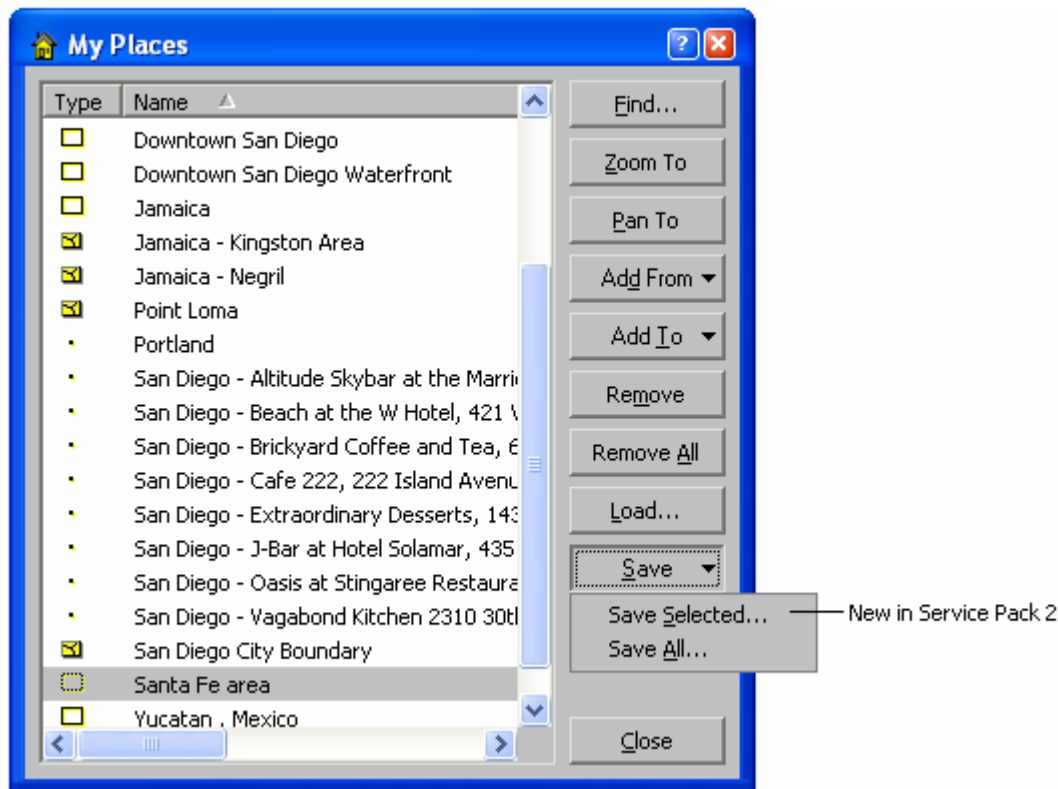
CTRL + TAB switches between the data frames making each one active in turn. (If you want to be able to do the same thing by pressing a button on-screen, add the Activate Next Data Frame command into any toolbar from the View category in the Tools > Customize dialog).

ALT + click on the name of a data frame in the Table Of Contents activates that data frame.

If you use the Schematics extension, you can use a viewer window to work with a schematic side-by-side with the geography it represents without having to work in Layout view. (► *See the 'Schematics' section of this document*).

Share places defined in the My Places dialog in ArcMap, ArcGlobe & ArcReader

■ In the dialog launched by the My Places command  in the Tools pulldown menu, you now have the option to save a subset of your places into a separate file. In Service Pack 2, the Save button has been changed to be a menu button containing two commands, one for saving the currently selected places, and the other for saving all the places:



By using the option to save just the selected places, you can save a subset of places as a file you can share with others or move between different machines.

Option for rolling mouse wheel in ArcMap to scroll instead of zoom

■ By default, rolling the mouse wheel in ArcMap 9.2 zooms in and out. However, some users prefer the pre-9.2 behaviour where rolling the mouse wheel scrolls the map up and down. For example, some people were using ArcMap 9.1 with a mouse with a 'tilt' wheel that can be tilted from side to side in addition to being rolled forward and back, enabling them to pan in four directions. Using a tilt wheel mouse to pan to doesn't work as expected in ArcMap at 9.2 because rolling the mouse wheel zooms instead of scrolling up and down. In 9.2 Service Pack 3, we have therefore introduced a new registry setting that you can specify to override the default mouse wheel behaviour introduced at 9.2:

```
HKEY_CURRENT_USER\Software\ESRI\ArcMap\Settings\MouseWheelScroll
```

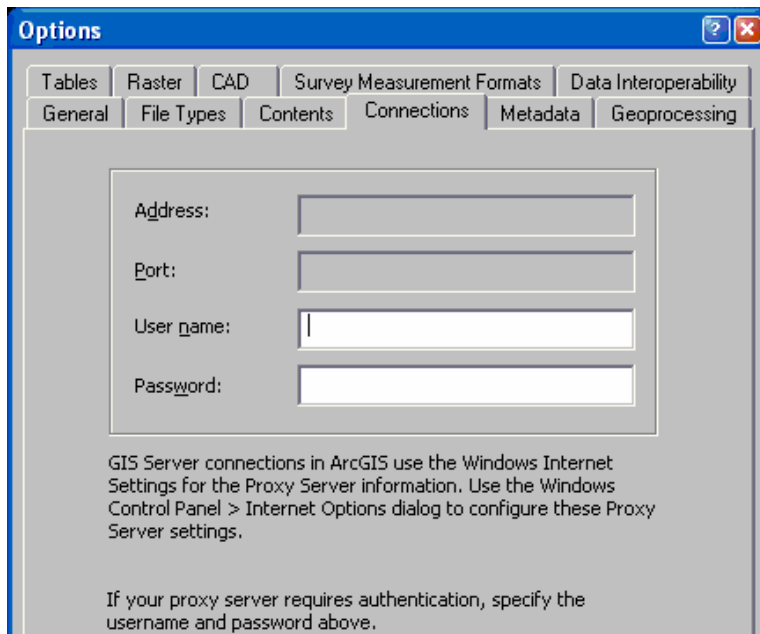
Giving this DWORD registry key a value of 1 tells ArcMap to scroll the map when you roll the mouse wheel. When this registry setting has not been specified, or when it has a value of 0, rolling the mouse wheel will zoom in/out, the default behaviour at 9.2. Behaviour involving single-clicking or holding down the mouse wheel is unaffected by this registry setting. So irrespective of the value of this registry setting, you can still drag with the mouse wheel held down to pan, drag and hold down CTRL to zoom to a box, single-click the mouse wheel to re-center, and CTRL+single-click to zoom in. This registry setting is not recognized by ArcMap 9.2 prior to Service Pack 3. This registry settings is documented in the final section of the ArcGIS Desktop Advanced Settings Registry Keys.doc document in your arcgis/utilities folder. That document has been updated at Service Pack 3 and its final section contains information about registry settings that are not set inside the application's user interface or in the AdvancedArcMapSettings.exe program.

Transformations tab added back into CAD layer properties


■ In Service Pack 3, the Transformations tab has been fully restored to the Layer Properties dialog for CAD feature class layers and CAD drawing layers. The tab was removed in 9.2 with the introduction of CAD support in the Georeferencing toolbar, but this made it hard to specify certain transformations like scaling by entering the parameters.

Easier to specify proxy server information in ArcCatalog

■ The Tools > Options dialog Proxy Server tab has been renamed to be the Connections tab. Starting with 9.2 Service Pack 2, you use the Internet Options in the Windows Control Panel to specify proxy server and https/SSL connection information, and ArcCatalog automatically uses these settings for all your GIS Server connections. You only need to enter information into the Tools > Options dialog Connections tab if your proxy server requires authentication, in which case you simply specify the user name and password in those two fields in the tab.



Measure tool units persisted between your sessions

■ In Service Pack 3, when you use the Measure tool  in the Tools toolbar, it now remembers the units you choose for measuring distances and areas between your ArcMap sessions. So for example, if you choose to measure distances in miles, this setting will be the default the next time you use the Measure tool, and you won't have to set it again. This applies to ArcMap, ArcReader, and ArcGIS Engine applications that use the Measure tool.

ArcGIS Server

Improved documentation for ArcGIS Server

■ ArcGIS Server 9.2 was released with comparatively basic documentation, particularly for developers. Since the release of ArcGIS Server 9.2, our goal has been to incrementally release more help content. We have been making a large number of improvements and additions to the ArcGIS Server help, and continue to add new topics every week. When you install a service pack, it updates your local ArcGIS Server documentation with the new content. But be sure to check the documentation resources online to get the very latest material.

- For a sampling of the key topics that have been added to the ArcGIS Server documentation since 9.2, see this ESRI KnowledgeBase article:

<http://support.esri.com/index.cfm?fa=knowledgebase.documentation.viewDoc&PID=66&MetalD=1294>

- ArcGIS Server Help Online at: <http://support.esri.com/index.cfm?fa=knowledgebase.webHelp.agServer>

- The developer documentation and examples for customizing ArcGIS Server with both .NET and Java on the ESRI Developer Network (EDN) website:

Start page for .NET developers:

http://edndoc.esri.com/arcobjects/9.2/NET_Server_Doc/developer/getting_started.htm

Start page for Java developers:

http://edndoc.esri.com/arcobjects/9.2/Java/java/server/getting_started_oview.htm

- Check out the new ArcGIS Server Development blog. It includes tips and best practices that will help you become more effective using and customizing ArcGIS Server: <http://blogs.esri.com/Dev/blogs/arcgisserver>

- We have also enhanced the topics on how to publish ArcGIS services using ArcCatalog and ArcMap in the ArcGIS Desktop Help Online: <http://webhelp.esri.com/arcgisdesktop/9.2/index.cfm?TopicName=welcome> under the 'GIS Servers and services' section.

Support for caching maps in PNG8, PNG32 and JPG formats

■ Service Pack 1 introduced the option to create your map cache in PNG8, PNG32, and JPG formats in addition to the default format of PNG24. You can select the image format for your cache when you generate it in ArcCatalog. Use the Cache Tile Format dropdown when you fill out the caching tool's parameters.

Since Internet Explorer 6 had known limitations displaying PNG24 transparency, PNG8 may now be a better option for caching overlay features such as boundaries and roads. The JPG format is a good way to greatly reduce the size of your base map caches, especially if they contain raster imagery. The smaller cache tile size has more than a storage benefit; the tiles load faster inside Web applications, providing for a more seamless navigation experience.

.NET Web ADF: Improved support for blending cached services

■ Prior to Service Pack 2, overlaying two cached map services in the .NET Web ADF required that both caches be created with the exact same tiling scheme. At Service Pack 2, the criteria is less rigid: caches can be overlaid if they have the same coordinate system, tile size, and tile origin. All scale levels do not need to match, although it's a good idea to match as many as possible. For details about what's required to overlay two caches, see the topic 'Overlaying map caches in the .NET Web ADF' in the ArcGIS Server Online Help.

.NET Web ADF: The Editor task can now edit pooled resources

■ Service Pack 2 contains the option to edit pooled resources inside the Editor task. When you use pooled services, your server can support a larger number of concurrent users because the server does not have to create a dedicated service instance for each user during his or her application session. Instead, users can share service instances from a pool. When you configure the Editor Task, the Web ADF will determine if you are using a pooled or non-pooled service and will provide the appropriate options for configuring the task. Pooled editing is for non-versioned geodatabases. Your edits are committed directly to the geodatabase.

.NET Web ADF: The Editor task can now be customized

■ When the Editor task was released at version 9.2 of the Web ADF for the .NET Framework, a common question was "How can I customize the Editor task?". Service Pack 2 provides an answer to this question. You can now customize the Editor task with custom tools and Editor Panels and more events have been added that allow you to hook into the Editor task. The ArcGIS Server Developer Help contains instructions to get you started with customizing the task: http://edndoc.esri.com/arcobjects/9.2/NET_Server_Doc/developer/ADF/control_editortask.htm

Other ArcGIS Server enhancements

■ Service Pack 1 also added:

- Full support for Internet Explorer 7.
- Improved performance for ArcWeb Services, ArcGIS Services, and the display of task results.

■ Service Pack 2 also added:

- Client side JavaScript is now supported by the Java Web ADF.
- Improved support for Microsoft Visual Web Express.
- Support for Web ADF application deployment inside WebSphere 6.1 on UNIX platforms

■ Service Pack 3 also added:

- Improved performance for blending dynamic and cached map services.

Enterprise ArcSDE geodatabases: ST_Transform SQL function for Oracle

■ In 9.2 SP1, the ST_Transform function has been implemented for the spatial type for Oracle. ST_Transform lets you change the ST_Geometry of a layer into a different spatial reference using SQL by specifying a Spatial Reference ID.

ArcGIS Engine

Improved dynamic display capabilities

The dynamic display capabilities added in 9.2 have been considerably enhanced with Service Pack 3. With these enhancements, pan, zoom, roaming, and tracking moving objects are much smoother in Engine applications. Dynamic display is only available via ArcGIS Engine, which is part of the ESRI Developer Network (EDN). It can be used and configured using ArcObjects by developers on all supported ArcGIS Engine development environments.

► For updated information on implementing dynamic display, along with sample code, see the *ESRI Developer Network (EDN) SDK documentation* and look under *Building solutions with ArcGIS Engine using .NET > Working with ArcGIS Components > Mapping and Visualization > Working with the map display > Dynamic Display*.

Extensions

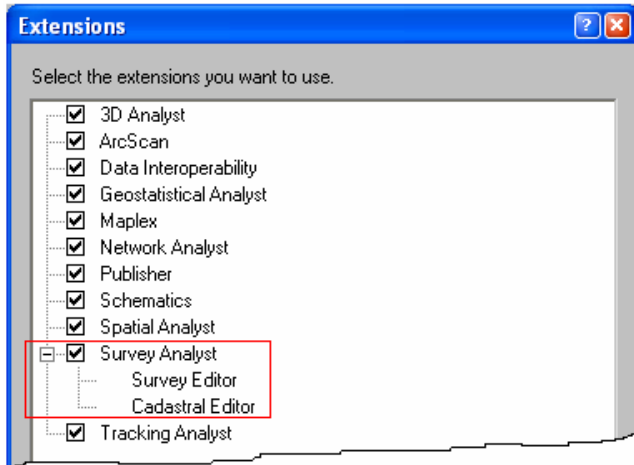
Survey Analyst extension: New Cadastral Editor and cadastral fabric data model

■ The goal of the Survey Analyst extension is to improve the spatial accuracy of GIS data and to provide information about the accuracy of this data. At 9.2 Service Pack 3 we introduce a major enhancement to this extension. With Service Pack 3, the Survey Analyst includes the existing Survey Editor, but now also includes a new Cadastral Editor and new cadastral fabric data model.

- The Survey Editor is the same technology as was available at 9.1. The Survey Editor includes a set of focused tools for defining and maintaining accurately measured coordinates based on field observations from total station equipment.
- The Cadastral Editor includes the functionality, standard data model, and common workflows you need for building and maintaining a cadastral land records system (a cadastral fabric).

Many geographic information systems use cadastral records to build the base map for the other layers within the GIS. Parcel and cadastral databases are built through coordinate geometry and plan data entry. The accurate coordinate data available from new technologies and techniques can be combined with recorded land descriptions to improve spatial accuracy in the geodatabase. The new Cadastral Editor provides a framework and data model for efficiently performing these workflows.

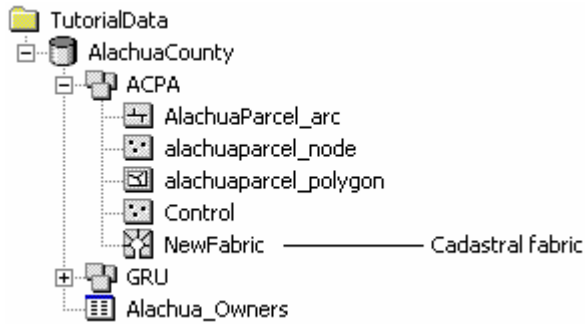
■ The Survey Analyst product license covers both the existing Survey Editor and the new Cadastral Editor. They can be installed separately or together, and can also be used separately or together as complementary survey technologies. You will see the name of the editor(s) you install listed under the Survey Analyst entry in the Tools > Extensions dialog. Checking the box next to the Survey Analyst extension in that dialog enables whichever editors have been installed. In the example below, both editors have been installed:



■ The Cadastral Editor works with a new type of parcel dataset, called a **cadastral fabric**. A cadastral fabric is a continuous integrated surface of connected parcels, representing the complete survey record for an area of land.

Dimensions in the cadastral fabric are edited in response to a change in the survey record, for example, a parcel split or resurvey. Parcel boundary line dimensions in the cadastral fabric match the dimensions on the survey record. Parcels that are edited or replaced by new survey records are retained as historic, thus always preserving the original survey record. Parcel polygons are also linked to each other by connection lines, for example, connection lines across roads. Because each and every parcel is either linked or connected, a seamless network of connected parcel boundaries, or cadastral fabric, is formed. Parcel lines have endpoints, which are the parcel corners. Parcel corner points are common between adjacent parcel boundaries, establishing connectivity and maintaining topological integrity in the network. In the geodatabase, topology is the arrangement that defines how point, line, and polygon features share coincident geometry.

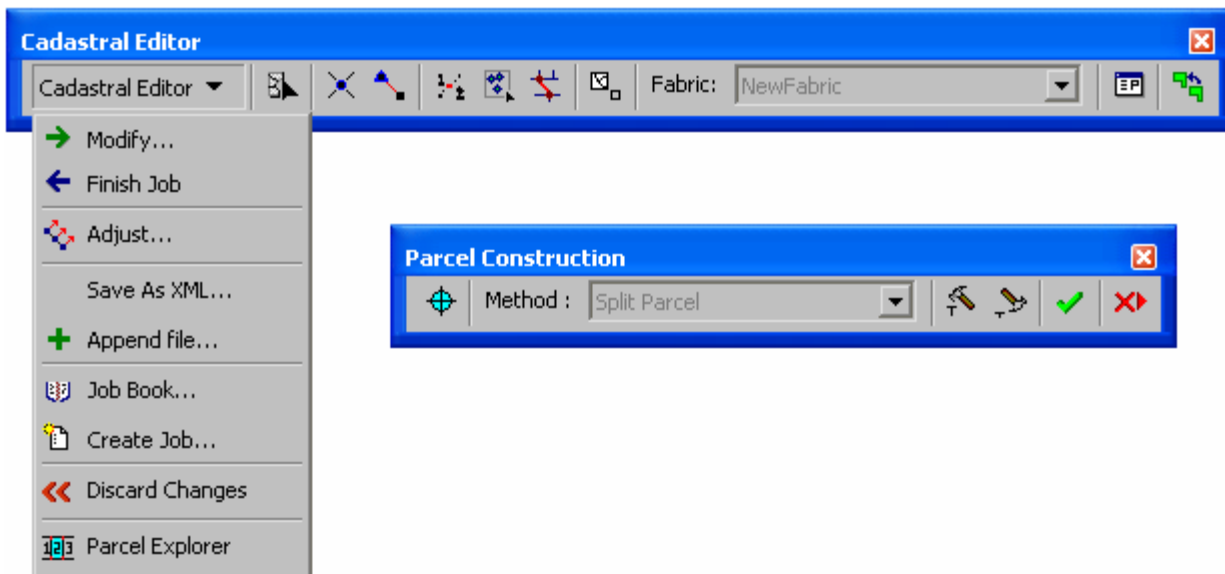
Cadastral fabrics are stored in feature datasets:

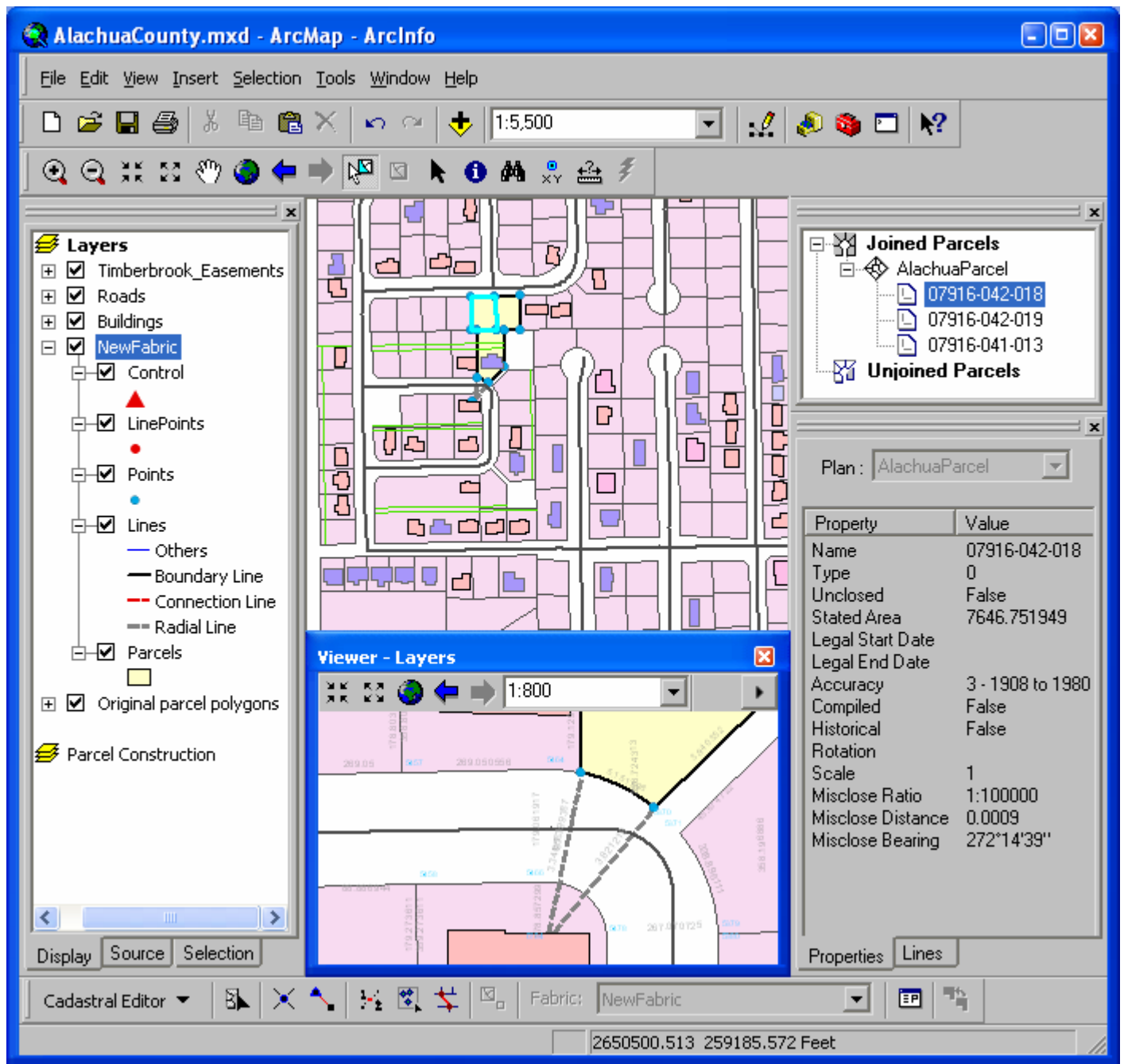


The cadastral fabric acts as a basemap for overlying GIS feature classes. Feature classes such as building polygons and utility lines are constructed in relation to parcel boundaries. The result is that GIS features are correctly aligned with the cadastral fabric.

■ Here are the key elements of the new cadastral technology:

- Provides a base-map for parcels as recorded by cadastral surveyors through deeds and subdivisions.
- Improves the spatial accuracy of the fabric by processing the legal record information from parcels using a least squares algorithm designed by surveyors.
- Spatially update GIS feature layers that coincide with the fabric on demand.
- Extensible data model familiar to ArcGIS users.
- Provides a COGO coverage equivalent in the geodatabase
- Tracks the lineage of parcels based on their legal record end & start dates.
- Manage subsets of the data as cadastral jobs.
- New set of interactive tools, including parcel construction tools:



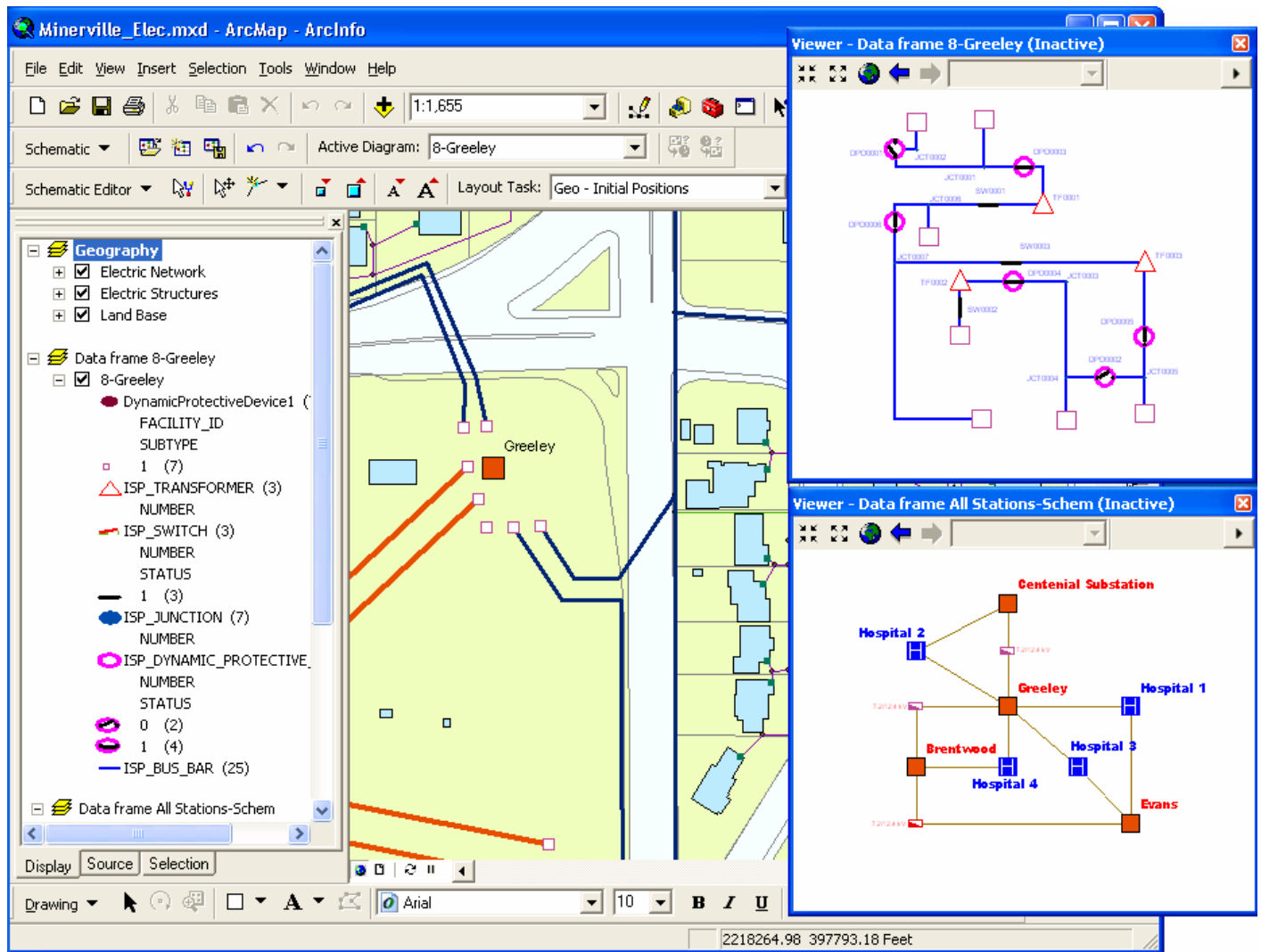


In the Desktop Help, see: *Extensions > Survey Analyst > Cadastral Editor*

Schematics extension: Work with geography and schematics side by side in ArcMap

■ As described above, in 9.2 Service Pack 2 the viewer windows introduced in 9.2 have been enhanced so that you can use them to work with the contents of inactive data frames side-by-side on-screen with the active data frame shown in the main ArcMap window. This enables you to work with a schematic diagram side-by-side with the geography it represents without having to work in Layout view.

In the example below, two schematic diagrams have been created to represent the features in the data frame called Geography shown in the main ArcMap window. Each schematic is in its own separate data frame displayed inside a viewer window:



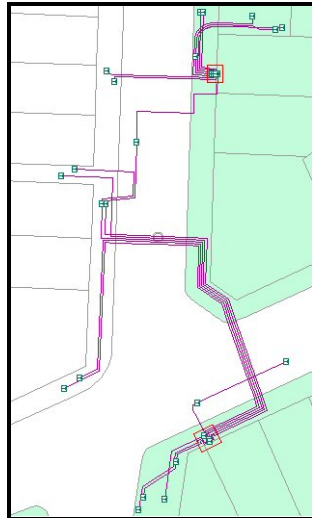
The Schematics commands and tools have been updated in Service Pack 2 so that you can use them to perform operations on schematics displayed inside inactive data frames in viewer windows.

To work with geography and a schematic side-by-side, first activate the data frame containing the data you want to see in a viewer window. Now choose the Viewer command from the Window pulldown menu to open a viewer window. Finally, activate the data frame you want to work with in the main ArcMap window. The viewer window you opened will remain on-screen, allowing you to work with both data frames. (*In the Desktop Help, see: Extensions > Schematics > Working with ArcGIS Schematics > Viewing schematic diagrams > Viewing schematic diagrams in ArcMap.*)

Schematics extension: Additional enhancements

■ **New Script element type attribute:** A Script attribute is an attribute whose values will be returned by a VB script. This type of attribute may be used instead of a Function attribute in many cases. With the previous versions, if you didn't want to use the exact values coming from a field but these field values divided by 100, or if you wanted to work with categories based on particular grouped values, you had no other choice than to develop your own function in a custom component and create a Function attribute. For such cases, the Script attribute is now an easier way to operate.

■ **New layout algorithm: Geo-Partial Overlapping Links.** As shown in the figure below, this new layout algorithm is used when links are organized in a set of parallel routes and when the offsets are too small resulting in a lack of visibility related to the scale:

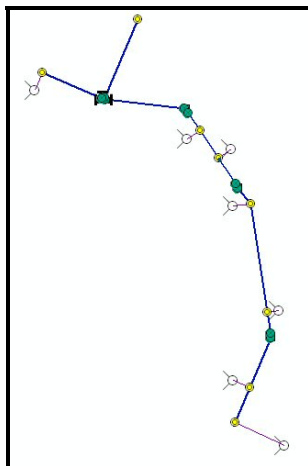


Before

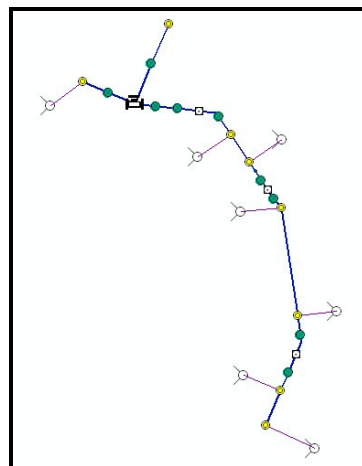


After

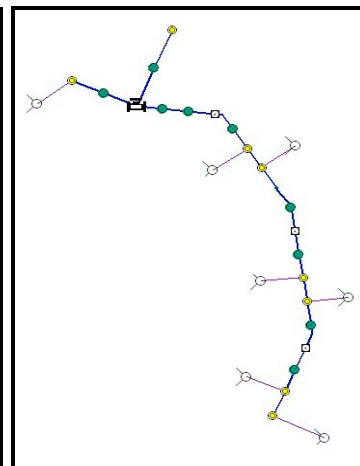
■ The Geo-Linear Dispatch layout algorithm has been enhanced by moving leaves with one link. To get the clearest diagrams, the layout is enhanced to include the leaves having one link in the repositioning process. This function is useful to manage secondary networks in the field of water, gas and electrical distribution:



Before



After (9.2)



After (9.2 SP3)

Spatial Analyst extension: Improved performance for the Combine geoprocessing tool

■ Beginning with Service Pack 2, the performance of the Spatial Analyst extension's Combine geoprocessing tool has been improved so it is up to 40 times faster than before. The Combine tool, in the Spatial Analyst Tools > Local toolset, lets you combine multiple rasters together. For example, a use of Combine on 250,000 combinations that used to take 1 hr, and now only takes 1.5 minutes. It can now also handle millions of combinations.