

communityviz<sup>®</sup>

Exploring Your  
CommunityViz  
Version 4.1 Upgrade



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# Introduction to CommunityViz Version 4.1

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CommunityViz® Version 4.1, including Scenario 360™ and Scenario 3D™, is the newest update to CommunityViz multi-dimensional GIS decision-making software. This version expands and improves the capabilities of Version 4.0 with enhancements throughout the system that include

- faster performance
- improved presentation tools, including an updated version of WebShots
- new interactive analysis capabilities
- user preference settings

This short guide, intended for people who are already using CommunityViz 4.0, provides a tour of the major new features available in Version 4.1. As always, detailed, context-sensitive help is available within the software itself to answer specific questions.

# Upgrade Summary

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Here is a summary of the new features and enhancements being introduced in Version 4.1. Read on for more details about each one.

**Faster Performance** – much faster analysis updates for many types of formulas.

**Updated WebShots** – these web-ready, partly-interactive displays are now more attractive and easier to use.

**Multimedia Alerts** – launch videos, audio clips and other media when updates to your analysis trigger events or cross thresholds.

**Selected Feature Analysis** – calculate impacts, information, and modeling results from just the features you select.

**Presentation Improvements** – charts are now easier to manage and display; organization is more flexible, and Common Impacts reports are easier to generate in real time.

**Customizable Settings** – set your preferred defaults for dozens of Scenario 360 settings including Common Impacts assumptions, Build-Out defaults, metric units, and more.

**Scenario Management Improvements** – now you can link tables and layers together across scenarios just as you do with assumptions. Also makes it faster and easier to connect with external models and Excel spreadsheets.

## **Plus...**

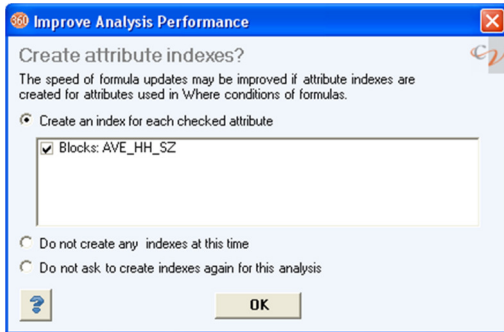
As always, the new release is full of small refinements to existing features, like a new, more robust installer, improved support for SDE layers, and new text parsing functions.

# Faster Performance

## Quicker updates and more efficient spatial functions

Version 4.1 provides much faster dynamic analysis updates compared to earlier versions of CommunityViz in most kinds of analysis. The speed improvements come partly from changes you can see as a user and partly from changes you can't see.

The changes you can see are called attribute indexes. When you first open an existing 4.0 analysis using 4.1, you will see a screen like this:



If you answer yes (which we recommend), Scenario 360 will create attribute indexes. An attribute index is an alternate path used by ArcGIS to retrieve a record from a table. It takes a little time to create, but for most types of attribute queries, it is faster to look up a record with an index than to start at the first record and search through the entire table. What this means for you is that formulas using *Where* conditions that contain attributes, such as *Sum, Where ( [Attribute:AttributeName] = ...*, will update much faster.

You will also see this same message when you create new formulas that include attribute-based *Where* conditions. And there are checkboxes

about creating attribute indexes for **TimeScope** and the **Suitability Wizard**.

Meanwhile, behind the scenes, other spatial functions have been sped up as well. Two of the most commonly used functions of all, *MinDistance* and *GetFromClosest*, are remarkably fast due to new algorithms in Scenario 360 software. *Where* conditions that use spatial tests, such as *Intersects, Contains, IsContainedIn, and IsCenterContainedIn*, are all faster, too.

What you'll notice: Some of the most commonly used formula functions are now much faster.

Version 4.1 also adds much finer controls for managing updates. For example, in the Data list available from the 360 Setup tab, Data, you'll now find columns of checkboxes that let you control updates on each layer. Similar controls are available on the Layer Properties window and for indicators and attributes. If your analysis is small and running fast, you won't need these. But if you are working on larger and more complex analyses, you'll find them very handy.

Dynamic updates	Forced updates	Formula changes
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Want to update a formula after you've modified it regardless of other settings? Use the new **Update Now** button on formula windows.

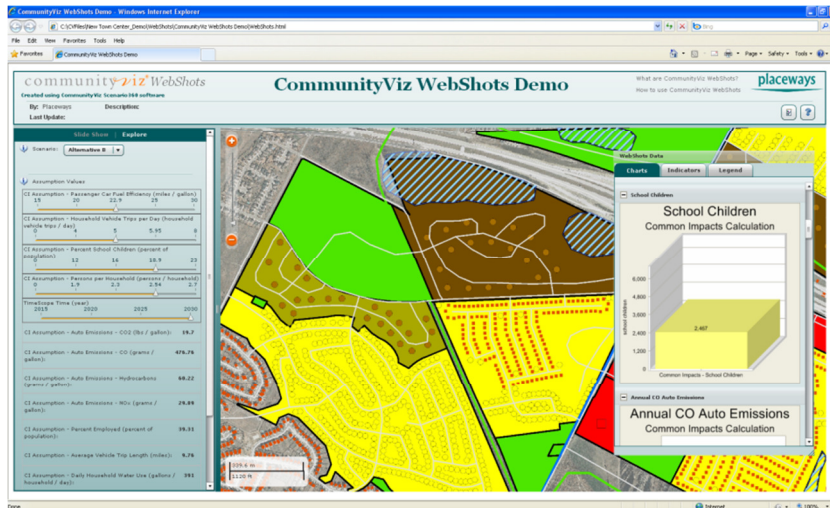
### ► Quick Start

If you are prompted with the Improve Analysis Performance window, accept the default to create attribute indexes and click OK.

# Updated WebShots

## Smoother, more intuitive displays

WebShots are a great way to share your Scenario 360 analysis on the web. More interactive and engaging than reports, they have a full-function map, scenarios, and ways for almost anyone to explore the basics of your analysis. Now in Version 4.1, WebShots displays have a fresh new design and capabilities using Adobe Flex technology. You'll also find the WebShots Wizard is faster to use.



Setting up WebShots in Version 4.1 is the same as in 4.0, only it takes less time because more default values are entered for you and the wizard has been redesigned with more tabs instead of new screens for entering descriptions. Most of the changes are in the WebShots presentation viewer, where you will find:

- A fresh new look
- Higher resolution map display
- Slider bar assumptions
- Dockable windows
- New layout for assumptions, charts, indicators, and legend

Assumptions are now always displayed as slider bars, which CommunityViz users and the public have come to associate with the interactive nature of CommunityViz. Even when an assumption value is "locked down," because WebShots displays only let you change one assumption value at a time, it appears in slider bar format.

In the viewer, notice that you can split off a separate window to show charts, indicators, or a legend. Also try zooming in tightly on the map. You'll notice great resolution, particular if you chose the "largest image size" on the last page of the WebShots Wizard.

### ▶ Quick Start


Launch the WebShots Wizard from the Scenario 360 toolbar dropdown menu, Presentation Tools, WebShots. Fill out the form (use a few very simple choices to begin), run the Wizard, and choose "Launch when finished" to see your results.

## Multimedia Alerts

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### Make events in your analysis launch media players

Imagine a CommunityViz analysis that feels more like a game: if you make changes that radically increase the school-age population, a video starts to play of a school board member complaining about the cost. If you run a suitability analysis that chooses a particular parcel, a photo of that parcel automatically pops up in your computer's photo viewer. Those are the kinds of interactions that are now available with the addition of multimedia alerts in Version 4.1.



Setting up multimedia alerts is easy. There is a simple new control at the bottom of the New Alert window available from the 360 Setup tab. Just check the

box and browse to a file you want to play when the alert is activated. You can choose to "play" videos, audio clips, images and photos, websites, slide shows, text documents, or any other file type that your computer recognizes and knows how to play. (If you can launch the file by double-clicking its name in Microsoft Explorer, you can launch it from here.)

The only "hard" part is using your imagination to take maximum advantage of this great new capability. Try combining it with the new *IsSelected* function so that selecting a feature launches a media clip.

Things to know:

- Multimedia alerts launch only when the alert is first activated after you open an analysis, or after you clear the alert and then reactivate it. This prevents annoying repetition.
- If a single event activates more than one multimedia alert, Microsoft Windows will attempt to launch one media and then immediately launch the next one without waiting for the first one to stop.

#### ► Quick Start

Set up a new alert from the 360 Setup tab, Work Flow view, Alerts. Look for the new option at the bottom of the window.

## Selected Feature Analysis

### Subset Indicators and IsSelected – new tools for “thinking locally”

Now you can easily analyze small sections of your study area without creating a separate analysis.

**Subset Indicators** provide an easy way to calculate and show smaller parts of a parent indicator. For example, you can quickly break down an indicator like Vehicle Trips per Day into neighborhoods or Transportation Analysis Zones, or you can find out which land use types are contributing the most population. It was possible set up the same calculations manually in the past, but Version 4.1 makes them easy with a new tab on the Indicator Properties window. You can even set up a chart with the click of a single option box, and any alerts you have on the parent indicator can be automatically applied to the subset indicators as well.

**IsSelected** is a unique new formula function in Scenario 360. Its simple job is to be True (1) when a feature has been selected by ArcMap editing tools, and False (usually 0) when the feature is not selected. This seemingly modest capability has big implications: now you can make formulas that do their calculations on any subset of features you select.

As you know, ArcMap provides a variety of ways to select features, like dragging your cursor on the map, using Select by Attribute or Select by Location, or selecting rows from an attribute table. The best thing is, you can choose the features you want “on the fly” as you work with your analysis. Once you select them, your new formulas can analyze them.

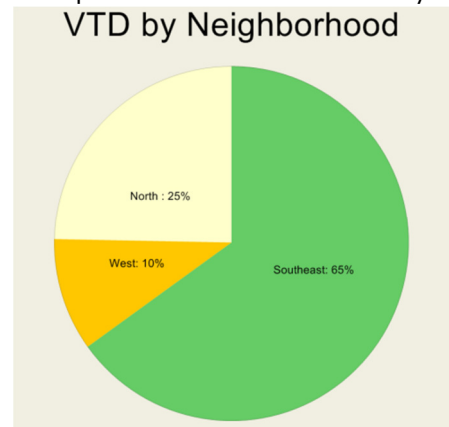
This feature makes CommunityViz analysis more interactive than ever. As you sketch and do geodesign, the analysis can now give you continuous feedback not only on the area-wide impacts of your ideas, but also particular, local impacts that you wonder about as you work.

To use *IsSelected* for analysis, you can add a Where condition of *IsSelected* ( ) to any indicator or attribute formula. You can find this condition in the Formula Editor’s Where Condition Assistant as an option under “Include a spatial test...” Or, add a new attribute called Selected to any layers whose features you’ll want to be able to select. Its formula is just *IsSelected* ( ) and its value will be True (1) if the feature is selected, and False otherwise. Use that attribute in your other formulas. Here is a sample indicator that finds the number of dwelling units in the selected Buildable Area polygons:

```
Sum ( [ Attribute:Buildable Area:Spatial Dwelling Units ],  
Where ( IsSelected ( ) ) )
```



One more very important point: *IsSelected* only updates when you click the **IsSelected** button on the Scenario 360 toolbar. This prevents constant, unwanted updates, but it’s still easy to get a quick update whenever you want it.



#### ► Quick Start

To create Subset Indicators, use the **Subset Indicators** tab on the New Indicator window available from the 360 Setup tab, Work Flow view, Indicators.

To get started with *IsSelected*, create an indicator formula using the Formula Editor that sums an attribute in a single layer. Edit the Where condition using the Where Condition Assistant, and choose to include a spatial test that is “Is Selected.”

# Presentation Improvements

## Upgrades to charts, organize tools, and reports

A battery of useful upgrades to everyday display and presentation functions.

### Charts

Charts now allow you to choose **any combination of scenarios** to compare. So you can show Scenarios A, C, and E in one chart if you want, and skip C and D. To choose which scenarios appear, use the Display Data checkboxes in the Scenario list available from the 360 Setup tab, Scenarios.


The new **Global Options** button at the top of the charts window lets you set options for all charts at once – 3D, Previous Values, and even New Window, so you can choose to open each chart in its own window.

There are more options for saving charts as **Images**.

**Saved Views** now keep track of charts in new windows.

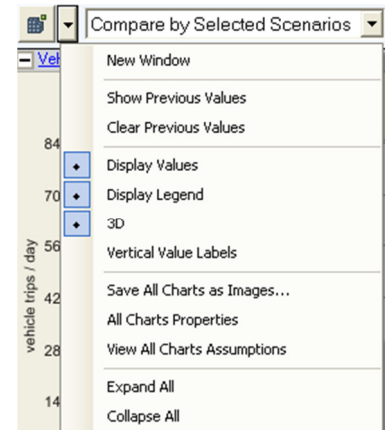
And charts now match their number of **decimal places** to those of the indicator they are displaying.

### Organize

There are new **Organize**  options that let you pick combinations of categories instead of one or all. (This feature applies to organizing other components, as well.)

### Reports

You can run a Common Impacts report now at any time, without running the entire Wizard. Click the Reports button on the Scenario 360 toolbar, choose New, and then select Common Impacts Report. (The option won't appear if you haven't run Common Impacts yet.) The report will reflect your current assumption settings and indicator values.



#### ► Quick Start

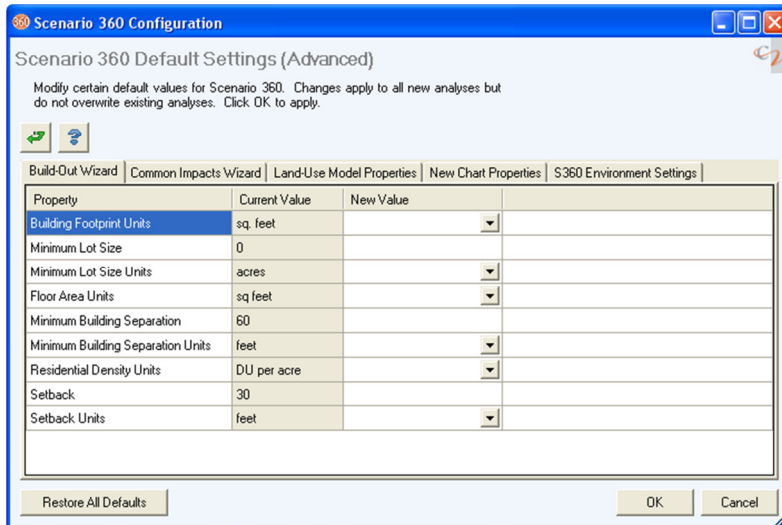
Look for the **Global Options** dropdown button at the top of the Charts window. Look for the new **Common Impacts Report** option on the Reports window. Let the other features present themselves as you come across them!

# Customizable Settings

## Set defaults for Common Impacts assumptions, wizards, metric units, and more

Set your preferences for many values and behaviors throughout Scenario 360.

From the Scenario 360 toolbar dropdown menu, choose Default Settings... You'll find 5 tab's worth of options you can set for the **Build-Out Wizard, Common Impacts Wizard, Land-Use Designer, New Charts**, and other environment settings. These preferences are stored with your computer, not your analysis, so they'll apply to any analysis you work on.



The Common Impacts settings are particularly notable. In addition to setting units like feet and dollars, you can control the details of the assumptions Common Impacts uses, including default values and even descriptions. You can also access the Common Impacts settings from the Common Impacts Wizard itself.

Also look for handy Chart defaults, like the number of decimal places and the color scheme.

### ► Quick Start

From the Scenario 360 toolbar's dropdown menu, choose **Default Settings...** Be sure to explore **Assumption Settings...** on the Common Impacts Wizard tab as well.

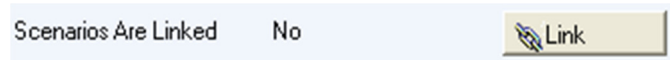
# Scenario Management Improvements

## Scenario-specific layers and attributes, and linking layers across scenarios


By linking and unlinking layers, you can make dynamic table data or features from one scenario apply to other scenarios as well.

In earlier versions of Scenario 360 you could specify **scenario-specific** assumptions or indicators in formulas by appending the scenario name to their label, such as [Indicator:Cost:Scenario A]. Now you can do the same for layers and attributes, such as [Layer:Buildings:Scenario A] or [Attribute:Buildings:Dwelling Units:Scenario A]. This feature is useful by itself, and it is even more important because of the new Linked Layers option.

**Linked layers** are dynamic layers in the Scenario 360 analysis geodatabase, but their features are the same in all scenarios. If you edit the layer in any scenario, your edits apply to all scenarios.



To link or unlink a layer, look for the Link or Unlink button on the Layer Properties screen right below the Make Dynamic button. (Access Layer Properties from the 360 Setup tab, Data, and double-click on a layer name.) You'll also see

link/unlink options on other screens and context menus. If a layer is linked, you'll see a new **Linked**  icon in layer lists.

One great application for linked layers is **lookup tables** that contain formulas. You can make a single table to use in all scenarios. If you make the table by importing it from Excel using **External Table Links**, choosing Link all scenarios will save you the trouble of creating separate links for each scenario.

Another application is sketching and geodesign in dynamic layers. For example, if you sketch in some trees and a trail in Scenario C, you might like them and decide to add them to Scenarios A and B. It's easy: just link the layer.

How linked layers differ from reference layers: linked layers are dynamic and they can contain formulas.

### Things to know:

- When you link layers, you must discard features (or table records) from all scenarios except one. You can't get those features back, so **be careful!**
- When linked layers contain formulas that point to other layers, the formulas are automatically modified to use scenario-specific references.
- You can unlink layers after they have been linked. This is about the same as making a reference layer dynamic.

### ► Quick Start

Set up an **External Table Link** to a spreadsheet you want to use as a lookup table and choose **Link all scenarios**. Or open the Layer Properties window from the 360 Setup tab, Data, double-click a layer name, and choose **Link**. Remember, any existing features in the scenarios you choose not to keep will be **permanently discarded!**

## Plus...

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### **In addition, look for these upgrades and improvements:**

- The External Table Links Wizard has a new first page.
- External Table Links now work more easily with Excel 2007.
- External Table Links tolerates more kinds of changes to external tables, such as new text fields and deletions.
- New text functions Left( ), Middle( ), and Right( ) have been added.
- SDE support has been improved.
- Support for data services including ArcGIS Server (AGS) map services, ArcIMS map and feature services, and Web Map Services (WMS) has been improved.

We hope you enjoy the new CommunityViz Version 4.1!