

GIS Theme Manager Administrators Manual

October 2000

**National Park Service
GIS Theme Manager
V2.04**

Developed Jointly by:

**Alaska Support Office
GIS Team**



**Inventory and Monitoring
Program**



Table of Contents

Introduction	3
1. Installation	4
2. Turning on the GIS Theme Manager	4
3. Importing Theme List	5
4. Update Theme List	7
5. Creating A New Theme List	9
6. Adding a Theme to a Theme List	10
7. Editing a Theme List	11
8. Advanced Theme Codes	12
9. Changing Default Projection	15
10. Project Theme	16
11. Export Theme List	17
12. Delete a Theme List	17
13. Rename a Theme List	18
14. Duplicate a Theme List	18
15. Copy To/From Network Themeset	19

Introduction

GIS Theme Manager Background

The GIS Theme Manager was developed by the Alaska Support Office and has been used throughout the Alaska Region for 5 years. In FY 1999, the Inventory and Monitoring Program looked at the GIS Theme Manager for packaging park base cartography, vegetation, geology, and soil data. The GIS Theme Manager would be a “one stop shopping experience” for data on a service-wide basis.

The GIS Theme Manager is an ArcView extension that facilitates the organization and use of data themes. It allows users to create lists of themes that are relevant to particular projects, areas, or management issues. It catalogs the themes, so that a user simply selects a theme from a pop-up list and the GIS Theme Manager adds it to a view with a descriptive title, displays it with a legend, perhaps adds hotlinks or help files, and links it to metadata.

Theme lists may be maintained for all park users on a network location that is created by service-wide programs like the Inventory and Monitoring Program and sent to parks. Individuals may create their own personal lists for their data or specific projects. The GIS Theme Manager wizards guide users through the process allowing them to easily create, edit, copy, and delete theme lists. Users can also create a set of environmental variables for theme source paths, so that theme lists can be shared with other users who may have data stored on different drives or with somewhat different directory structures.

The GIS Theme Manager also provides extra coordinate handling capabilities. By specifying the data and view projections, the user can click on the view and return the location in latitude-longitude coordinates. One can also zoom to a latitude-longitude coordinate and display the point on the view.

Theme Lists

A Theme list is a table that contains information about ArcView themes of interest to NPS users. Each record in a table is a theme, and the fields store the information about the theme that allows it to be loaded and displayed automatically. The themes in a list can be organized by categories defined by the user. A single data source (e.g., a shapefile) can be included in any number of theme lists. Shapefiles, ARC/INFO coverages and grids, images, image catalogs, AutoCAD files, etc., can be included in theme lists.

Theme lists can be stored either locally in the ArcView installation directory structure or on a network directory. The network directory is defined by the Windows system environment variable \$USEREXT. ArcView already uses this directory as an alternate location for storing shared extensions. The local theme lists are grouped as the local theme set, and the network lists are the network theme set.

Use of a Theme List

A theme list permits the organization, location, and display of data. After a theme is incorporated into a theme list, a user can easily locate the data without knowing the filename and location. Descriptive names make it easier to remember what the data deals with. When a theme is added from a theme list, not only is the descriptive name given to the theme in the view (rather than, for instance, the shapefile name), but the legend or desired color is also automatically loaded. Definition queries, hotlinks, display scales, metadata, and descriptive text files can be incorporated without having to set them each time a theme is added; they load automatically. New or periodic users who do not know what data are available can browse through the theme lists to find data quickly and easily. Users can check the metadata for appropriateness and display the data without having to track down GIS specialists and ask, "What do we have?" and "Where is it?"

1. Installation

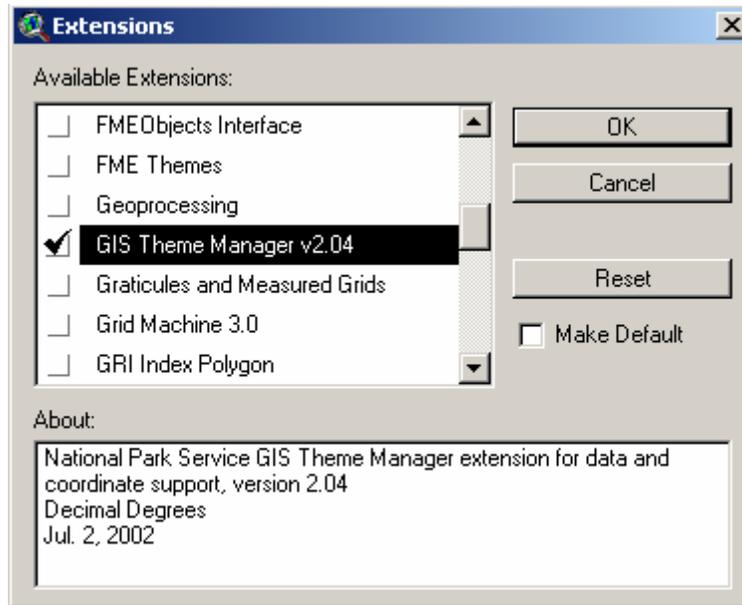
Installation of the GIS Theme Manager onto a computer takes only a few simple steps.

- Copy the gisthmgr.avx file to the extensions directory for your ArcView installation, usually at C:\esri\AV_GIS30\arcview\ext32.
- Copy the file gisthmgr.hlp to the help directory for your ArcView installation, usually at C:\esri\AV_GIS30\arcview\help.

2. Turning on the GIS Theme Manager

The GIS Theme Manager is an ArcView extension that extends the functionality of the program like an extension or plug-in for any other program.

- Open ArcView
- Click on *File* → *Extensions*. A window opens that shows all of the available extensions. Check the box next to the GIS Theme Manager extension. Click 'OK'



The GIS Theme Manager is now turned on. Throughout ArcView are several new buttons, tools, and menus. The following exercise guides you through the use of each of these.



Select the ArcView Help tool and then select any of the GIS Theme Manager options. This takes you directly to the help page for that option. Alternatively, the help file can be accessed by clicking on the *Help → GIS Theme Manager Help Topics*.

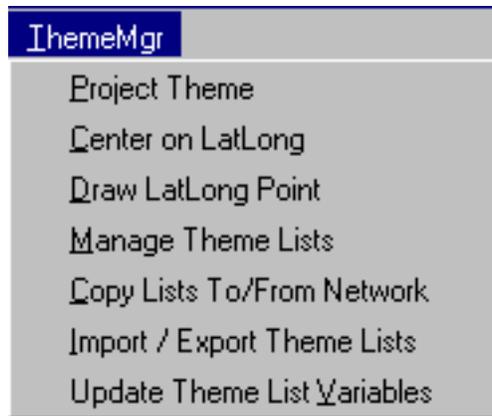
General information about the GIS Theme Manager can also be found by clicking on the *Help → About GIS Theme Manager Extension*.

General information about the Theme Manager and the parameters that you have set can be retrieved by selecting 'ThemeMgr' → 'Manage Theme List'. Click on 'Theme Manager Info...' and a window will open displaying your settings, versions, etc.

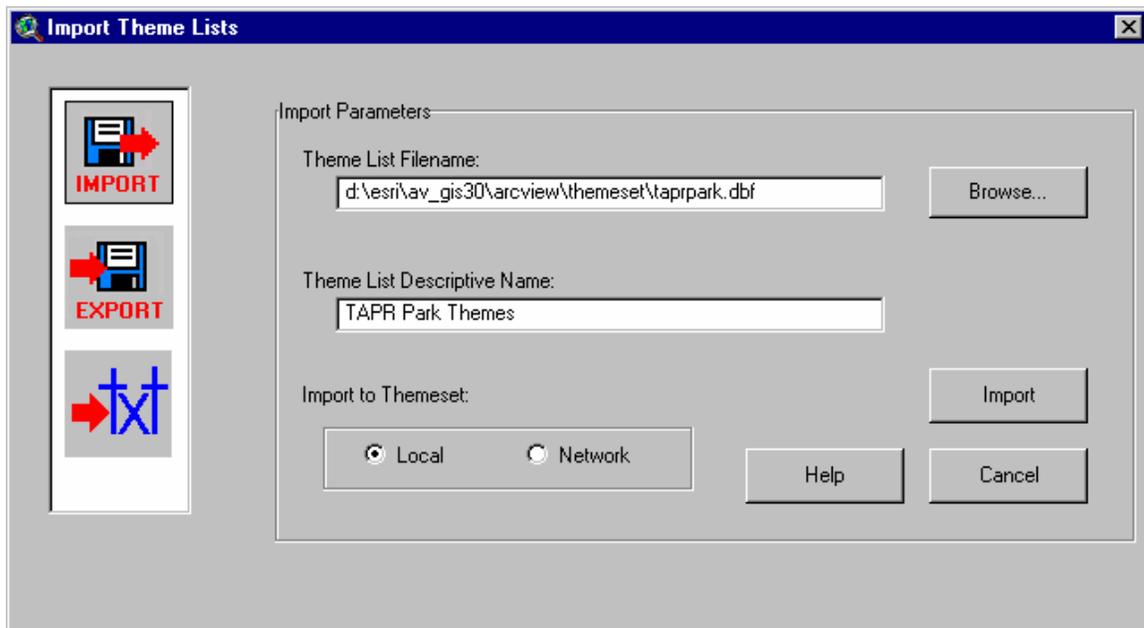
3. Importing Theme List

For the GIS Theme Manager to work, you must have at least one theme list from which to pick themes. You can create these theme lists yourself, or obtain them from I&M.

- In a new view, under the 'ThemeMgr' menu is the 'Import/Export Theme' List option. Select this option.



- In this new window, you have the option to import or export theme lists. Click on the 'IMPORT' button to ensure that it is selected. Under 'Theme List Filenames,' click the browse button and select the dbf file that contains the theme list. Under 'Theme List Descriptive Name' type in a short descriptive title for the list. Make sure 'Local' is selected and click 'Import.'



- A message pops up stating that the import was successful.

4. Update Theme List Variables

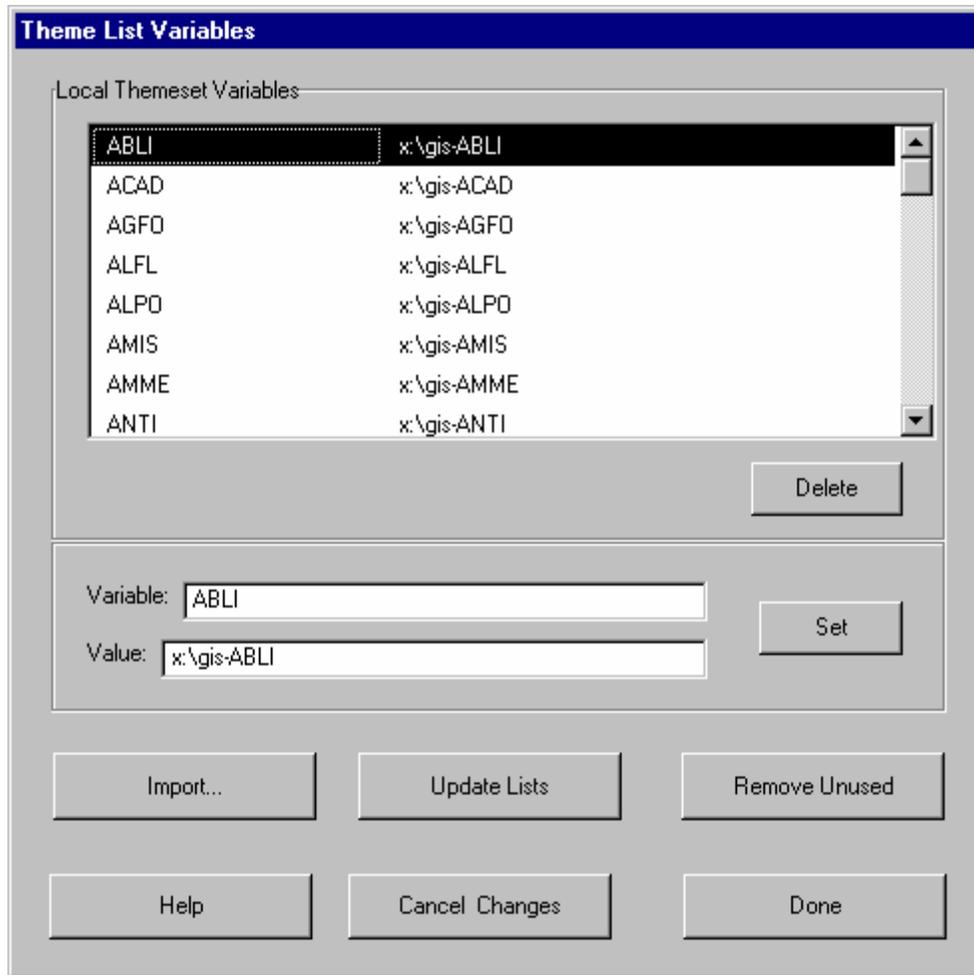
In a theme list, you can store the location of data in two ways. The first way is with literal path names (d:\gis-tapr\data\boundaries\park.shp) that display the exact location of the data but complicates the use if you change the drive letter or some other directory name. Using environmental variables solves this problem. Environmental variables allow you to change only one variable, such as the drive letter, and apply it to all of the data that are using the variable. For example, '\$TAPR' can represent 'd:\gis-tapr.' A theme can then be listed as '\$TAPR\data\boundary\park.shp.' If you change the drive that the data are on, you need to change only what the environmental variable is set to rather than all of the literal paths for themes that are moved. Note: Changing the environment variable will not affect themes already in views.

- Under the 'ThemeMgr' menu is the 'Update Theme List Variables' option. Select this option.
- If you have a network theme set, you will get a window that asks if you want to edit the variables for the local or network theme lists.

This option opens a window called 'Theme List Variables.' This window should be blank, and all of the fields should be blank because you have no variables set. The imported theme lists have no environmental variables set for the fields. If you tried to add data from the GIS Theme Manager at this point you would fail because the theme lists have literal paths and point to the data on the C drive. However, the data reside on the D or E drive (or the drive on which you installed the data). You must substitute the literal paths for variables.

If you are receiving a theme list from the I&M program, you just need to assign the variable. I&M will provide you with details on what the values are you need to enter.

- Under 'Variable' type the name of the variable used in the lists (I&M tends to use the park code for each parks list). This is the name that you are assigning to the variable.
- Under 'Value,' type in the path that the variable represents. Click 'Set'.



If you are creating you own theme lists and want to use variables to represent paths, you will need to do the following.

- Under ‘Variable’ type the name of the variable used in the lists (I&M tends to use the park code for each parks list). This is the name that you are assigning to the variable.
- Under ‘Value,’ type in the path that the variable represents. Click ‘Set’.
- Click ‘Update Lists’ and then click ‘OK’ on the message window that pops up.

You now have substituted your variable for the value you entered in all of the theme lists. This actually changed the records in the underlying .dbfs the theme lists are stored in. For example, the theme list entry was modified from c:\gis-tapr to \$stapr (\$ denotes a variable). The next step is to set this to work in different locations.

- Under the ‘Value’ field, change the drive letter to the drive on which you have the data. Click the ‘Set’ button. This may not need to be done, but if

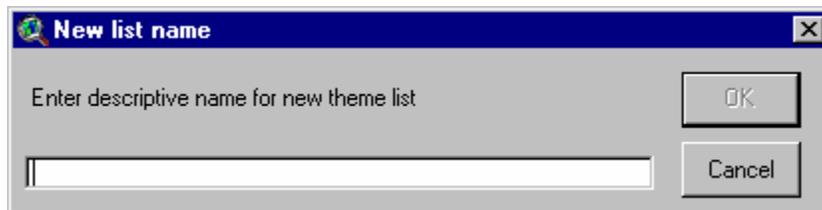
you move your data to another drive (onto the network for example), then this will need to be done.

- Click 'Close.'

5. Creating A New Theme List

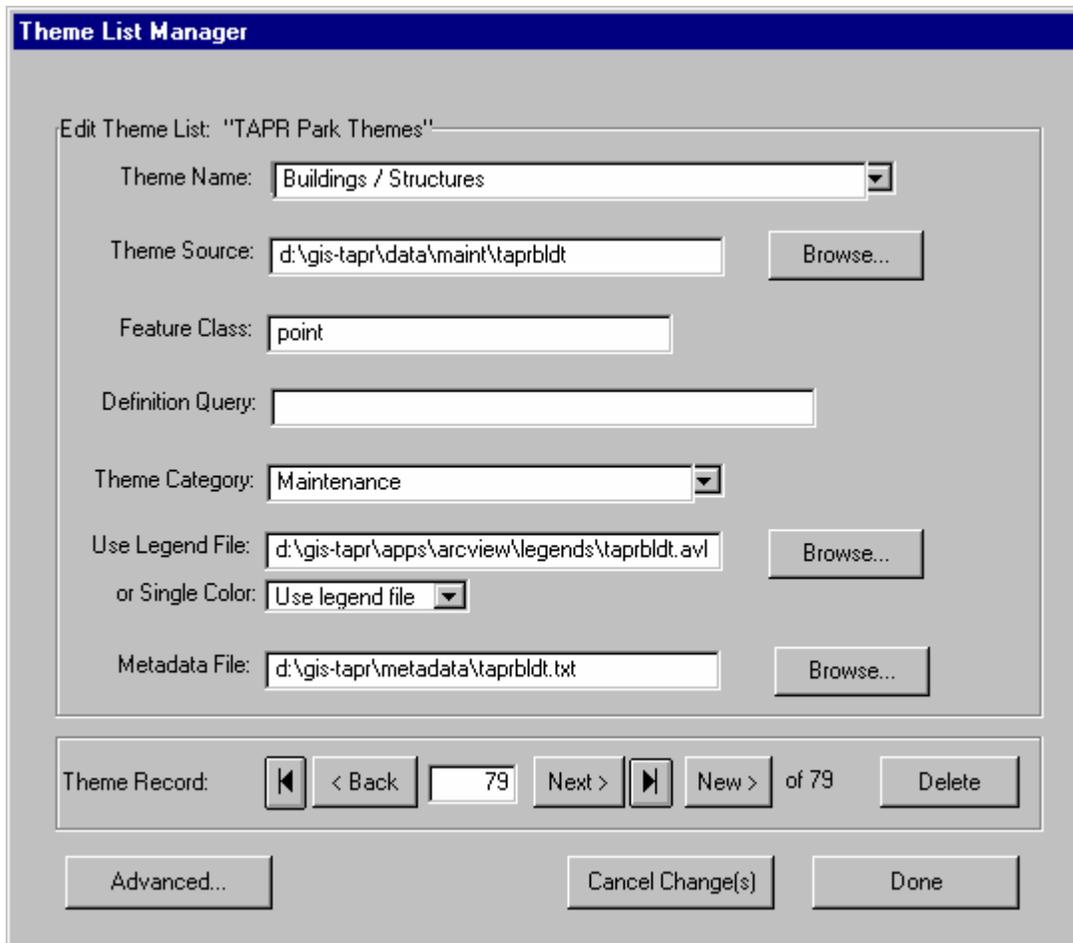
Creating a new theme list may require some time, but once it is done, it will save you a lot of time.

- In a view, add a theme, legend, and change the name to something useful.
- Select 'ThemeMgr' → Manage Theme List. It is in this window that you can create a new theme list or edit, copy, rename, and delete an existing theme list.
- Click 'New.'
- A window opens asking for a description of the new theme list. Enter a name for the theme list.



- This opens the 'Theme List Manager' window that allows you to enter the data into the new list. If you do not add records to the theme list and you close the window, a message is displayed that the list will not be saved because it has no records in it.
- Under 'Theme Name,' you can select a theme in the view from the pull down menu of available themes.
- When you select the theme name, the 'Theme Source' field displays the location of the theme. If not, you can browse to find the location of the theme.
- The 'Feature Class' field should be filled in automatically.
- The 'Definition Query' can be left blank. Use this field if you want to show only certain features in the theme. An example would be querying a US state boundary shapefile to display only Texas. [StateName] = "Texas"
- For the 'Theme Category,' select a category from the drop down list that best fits the theme you are adding. If the theme category you want to use is not listed, you can type in a new category, which will be added to the list.

- For the 'Legend File' field, click 'Browse' and find the legend file you used. If your theme does not have a legend, leave this field blank.
- The 'Or single color' field should be set as 'Use legend file' if you are using a legend. If you are just using a solid color, then you can pick it from the list.
- For the 'Metadata File' field, click 'Browse' to select the metadata record for the theme.
- When the entire window is filled out, it should look something like the graphic below, depending on your theme.

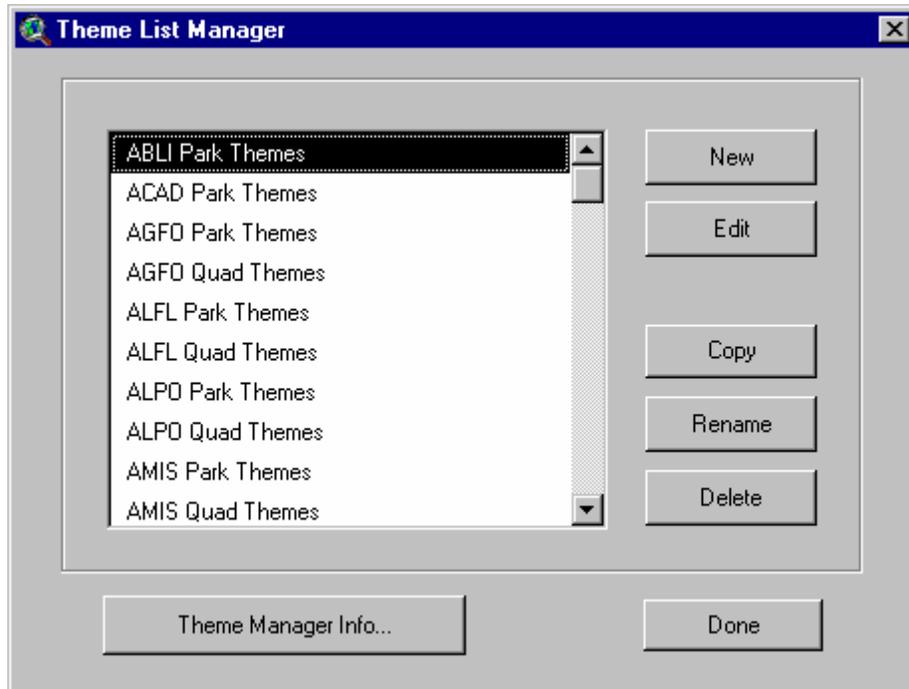


- If you want to add an additional theme to the list, you can click the 'New' button and enter the information for a new theme.
- Click 'Done' to exit the window. This prompts you to save the changes. Click 'Yes'
- You can check whether the theme was added by clicking on the 'Add NPS Theme' button. The added theme should be on the list.

6. Adding a Theme to a Theme List

If you want to add data to an already existing theme list, the process is very simple.

- In a view, add a theme, legend, and change the name to something useful.
- Click 'ThemeMgr' → 'Manage Theme Lists.' Click the theme list you wish to add the theme to and click 'Edit.'



- This will open the Theme List Manager window and will display all the information for the existing themes in the theme list.
- To add the new theme to this list, click 'New' and add the information to the record as explained in **5. Creating A New Theme List**.

7. Editing a Theme List

If you have a different legend/metadata file/etc. for a theme than that which is set in the GIS Theme Manager, the process of editing a theme list to use this new legend/ metadata file/etc is simple and similar to adding a new theme to the list.

- Click 'ThemeMgr' → 'Manage Theme Lists.' The window opens that allows you to choose the theme list that you wish to edit. Click the theme list to edit and click 'Edit.'
- Go to the theme record for the theme you wish to edit. All fields should have already been filled out. Make the changes you need simply by typing in the correct information.
- Click 'Done' and 'Save Changes'

8. Advanced Theme Codes

When you edited the theme list, there was an 'Advanced' option. This allows you to set help file links, hotlinks, and other options

- Click 'ThemeMgr' → 'Manage Theme Lists.' The window opens that allows you to choose the theme list that you wish to edit. Choose the theme list you want to edit and click 'Edit.'
- Go to the theme record you wish to add advanced codes to. All fields should have already been filled in.
- Click on the 'Advanced' button.

Linked Documents

- In the 'Help/HTML File' field, click browse and select the help file or HTML document that is used for that theme.
- In the 'Help/HTML Field Name,' select the field that has the lookup information for the theme to connect to the document.
- Click 'OK' and then 'Done.'

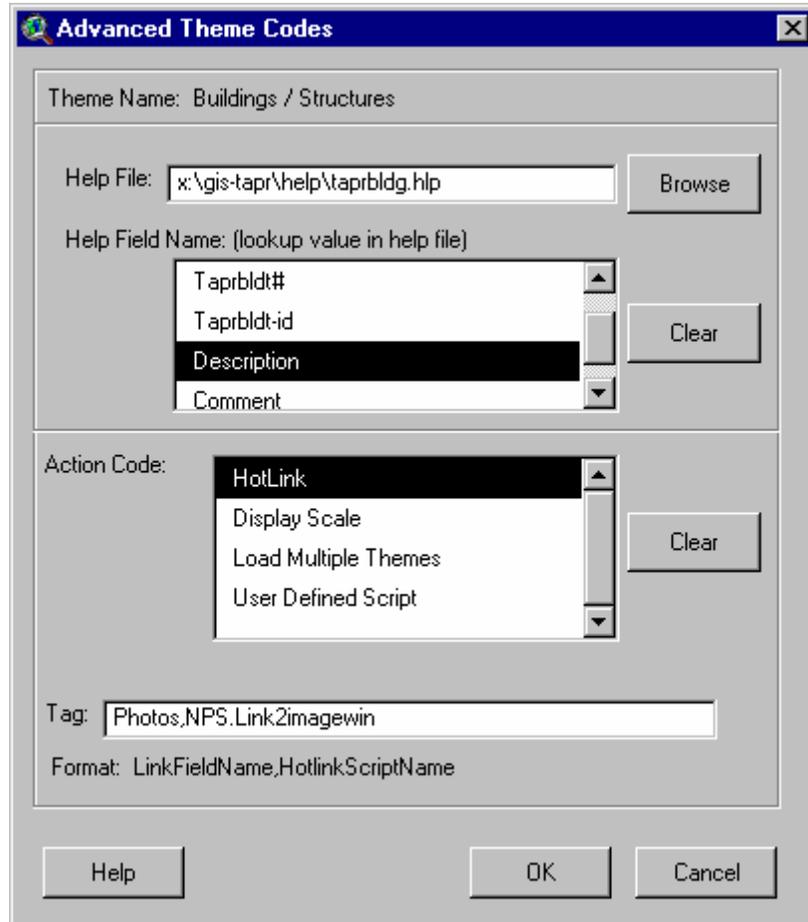
You just specified the document that opens and what field is used to link the theme to sections in the document when you click on a feature.

Hotlink

- Under 'Action Code' select 'HotLink'
- The 'Tag' field should be filled in with the theme's field that is used in the hotlink followed by a comma and then the name of the script that performs the hotlink. The scripts that are built into the browser are listed below.
Note: When linking to any type of file, the Theme Manager requires the

full directory path be included with each filename where it is specified in the .dbf. For example: 'C:\GIS\Images\VisitorCen.jpg'.

- Click 'OK' and then 'Done.'



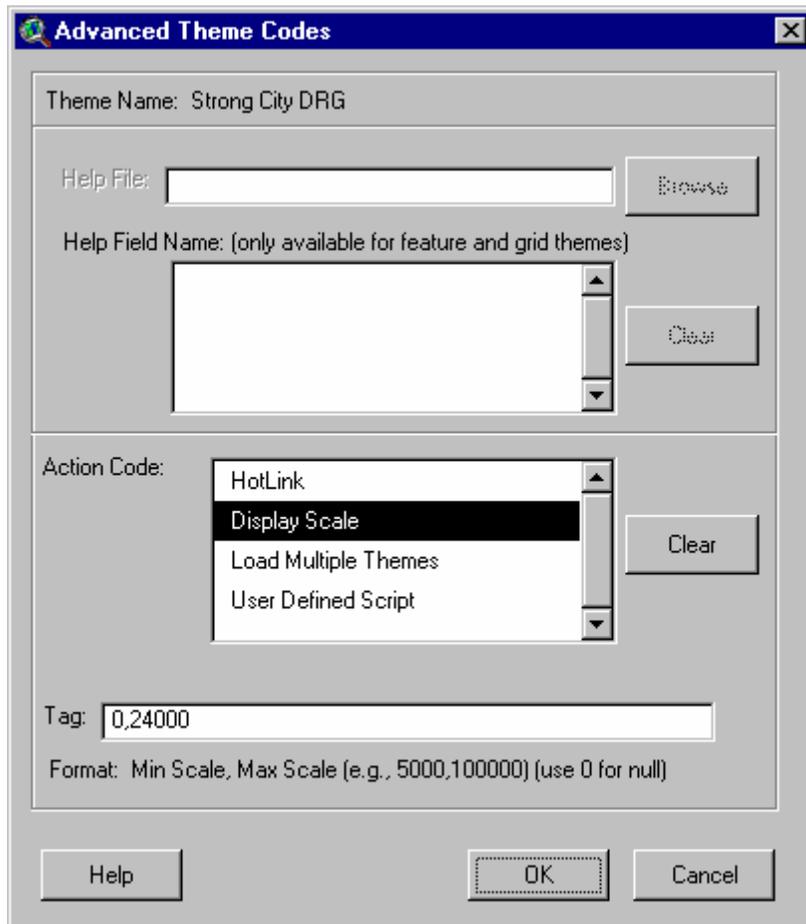
The hotlinks that are capable of being added are as follows.

Single Image	NPS.Link2imagewin
Multiple Image	NPS.Link2imagewinMany
Large Image	NPS.Link2gview (If GView is installed)
Multiple Large Image	NPS.Link2gviewmany
Text File	NPS.Link2Textwin
Multiple Text Files	NPS.Link2TextWinMany
Windows Files	NPS.Link2WinFiles
Multiple Windows Files	NPS.Link2WinFilesMany
Document	Link.Document
Project	Link.Project

Display Scale

The Display Scale option is one of the most commonly used functions of the Advanced options. It is useful for displaying themes that only are useable at certain scales, like DRGs. You often need to be zoomed in to a scale of at least 1:24,000 before you can see all of the features of 1:24,000 scale DRGs. To display the DRG at a scale of 1:24,000 or larger, use the display scale option in the Theme Manager.

- Select 'Display Scale' in the 'Action Code' box and type '0,24000' in the 'Tag' box. The first number represents the minimum scale of the display (0 for null), and the second number represents the maximum scale of the displayed theme. Entering 0,24000 means that the DRG will be displayed at all scales greater than or equal to 0 and less than 24000.
- Click 'OK' and then 'Done.'



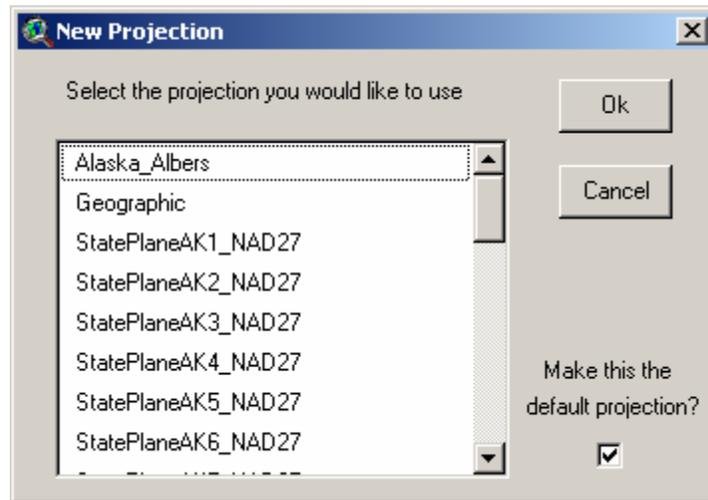
- To view the hotlinks, helpfile, or display scale settings that you just added to the theme, add the theme to the view using the 'Add NPS Themes' button.

- Activate the theme and then click on the hotlink tool. Clicking on one of the features will perform the hotlink operation.
- Click on the ‘Show Map Unit Description’ tool and then click on a feature. The helpfile will open displaying information on the feature.
- Zoom in and out to check the limits of the display scale.

9. Changing the Default Projection

In the Project window is a button called ‘Change Default Projection’  that allows the user to identify the projection system of the data. The GIS Theme Manager extension is set to Geographic projection by default. However, you may want to use another projection and datum.

- Click the ‘Change Default Projection’ button. A window appears that lists several possible projections and datums that can be used. Select the UTM Zone and Datum in which your data are stored.
- Put a check mark in the ‘Make this the default projection?’ box if you would like to set a default projection. Every view that is created will be set with your default projection.



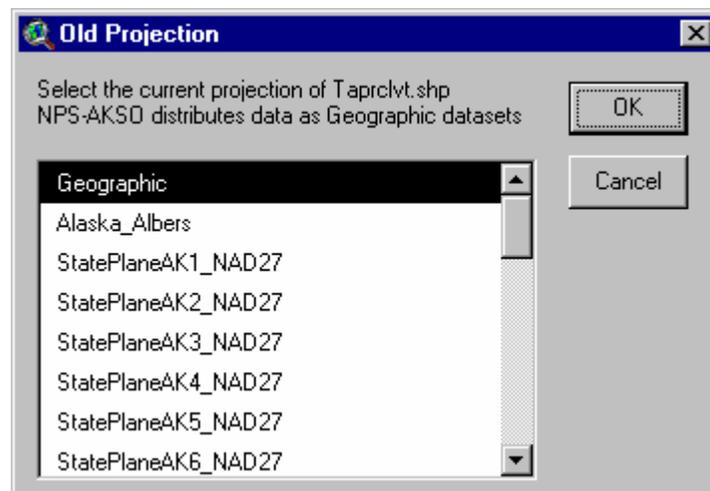
- After you click ‘OK,’ another window opens and asks whether you are using a projected view with a decimal degrees dataset. If your vector data are in decimal degrees and you want to view them being projected on the fly, you must click ‘Yes.’ Otherwise, select ‘No,’ and the program assumes that all of your data are in the UTM zone and Datum specified.
- All new views added to the project have their projection properties set according to these defaults. If the default is for a projected view, all new views have the projection set. If the default is for an unprojected view, the view map unit property will be set.

- One final window opens giving you a warning that if you already have views in your project, their projection properties will not be changed. If the view properties are incorrect, you must change them manually.
- If you have projected data in unprojected views, the new default properties are assumed for all data in the project. If you would like to use data in different projections in the same project, you must simply reset the default properties each time you switch between data. If you are clicking on a view that is projecting on the fly, these coordinate tools use the view projection properties, preferentially over the default values.

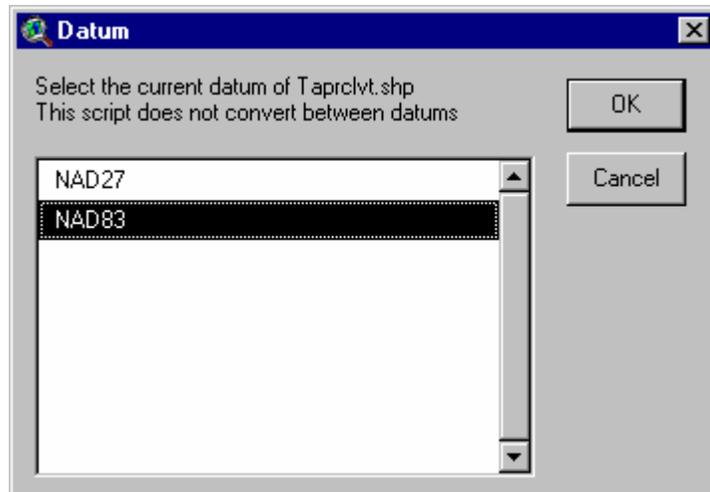
10: Project Theme

If you had a theme that was in a different projection and wanted to re-project it so that it matched the projection of the other themes for your park, the Project Theme provides a simple method. Although it does not allow you to change datums like the ESRI projection utility, its user interface is simpler.

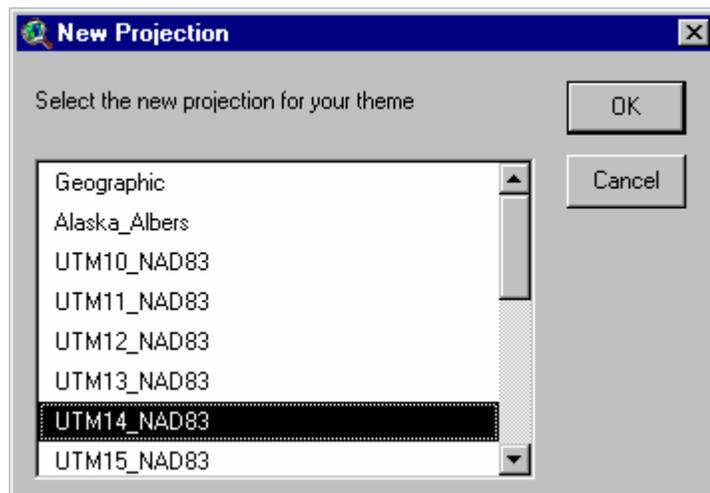
- In a new view, add the theme you wish to reproject.
- Select ‘ThemeMgr’ → ‘Project Theme.’
- A window opens that asks for the projection of the data. Select the projection your data currently is in and click ‘OK’



- A second window opens and asks for the datum of the data. Select the datum your data is in and click ‘OK’



- A third window opens and asks for the new projection of the data. Select the projection you want your data to be in and click 'OK.'



- You are then asked for the name and location of the folder in which you want to save the data.
- You are then asked whether you want to add the data to a view.

The data should now come up in the appropriate place in the view of the UTM data.

11. Export Theme List

After you have created a theme list, someone outside your park who does not have access to your computer/network may want a copy of the list. You can export a copy of your list with the Import/Export Theme List function.

- Select 'ThemeMgr' → 'Import/Export Theme List.'

- Select 'Export.'
- Choose the theme list you want to export and the location and name the file is to be saved as.
- Click 'Export' and the theme list is exported to a dbf file, ready to be imported by someone else.

A Theme list can also be exported to a text file using the same window as Import/Export Theme List.

- Select 'ThemeMgr' → 'Import/Export Theme List.'
- Select the txt button.
- Choose the theme list you want to convert to a text file and the location and name the file is to be saved as.
- Click 'Save to Text' and the theme list is exported to a text file.

12. Delete A Theme List

If you want to delete a theme list from your theme set, the process is simple.

Local Theme Lists:

- Select 'ThemeMgr' → 'Manage Theme Lists'.
- Select the local theme list that you want to delete.
- Select 'Delete'.

Network Theme Lists:

- Select 'ThemeMgr' → 'Copy Lists To/From Network.'
- Select the network theme list that you want to delete.
- Select 'Delete'.

13. Rename a Theme List

If a name you gave a theme list is not what you wanted, changing the name is easy.

Local Theme Lists:

- Select 'ThemeMgr' → 'Manage Theme Lists'.
- Select the local theme list name that you want to change.
- Select 'Rename'.
- A window opens and asks you for the new name.
- After you type in a new name, the list changes to reflect the update.

Network Theme Lists:

- Select 'ThemeMgr' → 'Copy Lists To/From Network.'
- Select the network theme list name that you want to change.
- Select 'Rename'.
- A window opens and asks you for the new name.
- After you type in a new name, the list changes to reflect the update.

14. Duplicate a Theme List

If you want two identical theme lists on the network drive, you can duplicate a theme list.

Local Theme Lists:

- Select 'ThemeMgr' → 'Manage Theme Lists'.
- Select the local theme list that you want to copy.
- Select 'Copy'
- A window opens and asks you for the name of the copy. This new theme list then appears on the network theme set.

Network Theme Lists:

- Select 'ThemeMgr' → 'Copy To/From Network'.
- Select the network theme list that you want to duplicate.
- Select 'Duplicate'
- A window opens and asks you for the name of the duplicate theme list. This new theme list then appears on the network theme set.

15. Copy To/From Network Theme set

Many parks may want to add the GIS Theme Manager to the network, so that they have to maintain only one copy of the theme lists that are to be available to multiple users. The GIS Theme Manager has built-in capabilities for managing this possibility.

If your computer has locally installed ArcView, you can have a directory on a network provide shared extensions. This function is provided by the \$USEREXT variable.

USEREXT is set as a Windows System Variable.

On Windows 2000 – go to Control Panels –System. Select the Advanced Tab, and click the Environmental Variables button. Click 'New' and enter the variable as USEREXT and the network location where you will be storing you shared extensions as the values. Click 'OK'. You do not need to restart the computer, but you must restart ArcView if it was running.

On NT –go to Control Panels - System – Environment. This provides a list of pre-existing variables. Under System Variables, click on a blank line. The variable and value fields at the bottom of the window turns blank. In these fields, type in USEREXT as the variable and the network location where you will be storing your shared extensions as the value. Click ‘OK’ to set it. You do not need to restart the computer, but you must restart ArcView if it was running.

For Windows 95/98, you must edit the autoexec.bat file. Navigate to the C:\ root directory. Right click on the autoexec.bat file, and scroll to 'Edit'. Add a new line at the bottom of the file:

Set USEREXT=t:\gis\ext (or whatever is your park's USEREXT directory). Be precise about punctuation and spacing. Save the file, close the editor, and restart your computer.

If you want to share the GIS Theme Manager lists and the extension, the program sets it up for you.

- Click ‘ThemeMgr’ → ‘Copy To/From Network Themeset.’ The first time you do this, the program tells you that you do not have an established network theme set directory and asks whether you would like to create one. If you click ‘Yes,’ a theme set directory is placed in the directory specified by \$USEREXT.
- You can now select a theme list from your local computer and copy it to the network.

The network theme lists can be accessed with the ‘Add NPS Theme’ button in the same manner as the local theme lists. The Add Themes dialog does not separate network and local theme lists; all are displayed together. If, however, you have a network and a local list with the same name, ‘Local.’ and ‘Network.’ precede the theme lists descriptions.

Theme lists on the network cannot be edited. To edit a network theme list, it must be copied from the network to the local computer where it can be edited and copied to the network computer.