Planning Support Systems

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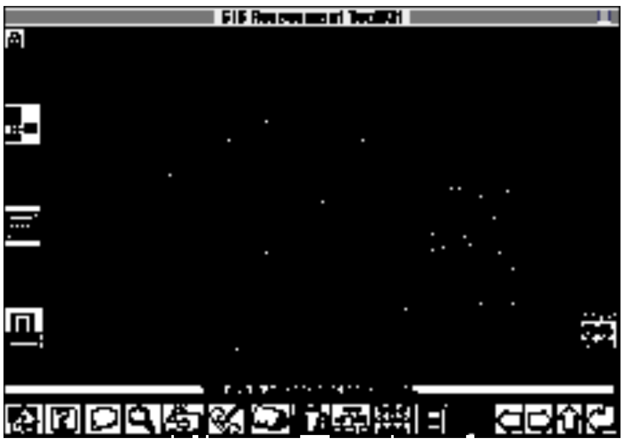
GIS User Needs Assessment Support System

Welcome to the "GIS User Needs Assessment Support System" hypercard software.



This tool was developed by Pedro Ferraz de Abreu for the City of Somerville GIS User Needs Assessment Project (MIT DUSP 11.946 GIS Workshop course, Spring 91), and then refined and improved during a similar user needs assessment made for the City of Natick.

The experience accumulated during these projects highlighted the usefulness of such a tool.

Several teams gathered data from interviews and available documentation. Inevitably, this meant the acquisition of different views, sometimes contradictory (in reality or in appearance), on the same entities. For instance, some maps had different alias in different departments, and it took a while to conclude that they were indeed the very same maps (and not typing errors, or different versions). In order to enable a common, consistent picture to emerge, the teams had to interchange reports, and merge their information. This often involved several iterations of reports and summaries, with a lot of redundant information.

The initial motivation for the development of this prototype was to facilitate this process and render it more efficient. Later on, it became clear that by having all essential data structured in a kind of a data base, it was possible to use the tool for some preliminary analysis.

The main intended uses for this planning support system are the following:

- Facilitate data registry from interviews and documents, eliminating redundant typing;

- Facilitate the merging of the collected information, maintaining data consistency;

- Generate written reports;

- Be an easy and pleasant way to browse through the gathered information;

- Generate tables and information flow diagrams (maps and data bases) for preliminary analysis.

The following chapters are organized as a user guide for this software.

<u>Introduction</u>

This system is made of the following stacks:

- GIS Assessment ToolKit (main stack);
- GIS Assessment FTP (Communications).

Prototype Summary Card

Name: GIS User Needs Assessment Support System

Author: Pedro Ferraz de Abreu

Contact: pfa@athena.mit.edu

Platform: Macintosh, Hypercard 2.1

Requirements: None

Location: CRLServer

Keywords: Data Base, User Needs Assessment

The GIS Assessment Toolkit stack is composed of the following environments (or backgrounds): Assessment, People, Departments, Maps, DB (Data Bases)

Bugs

This is still a Beta version. Bugs are likely to exist, although there is already a significant amount of time invested in creating a solid and consistent environment. Your input will be very useful for further progress. Please report any comments or bugs to:

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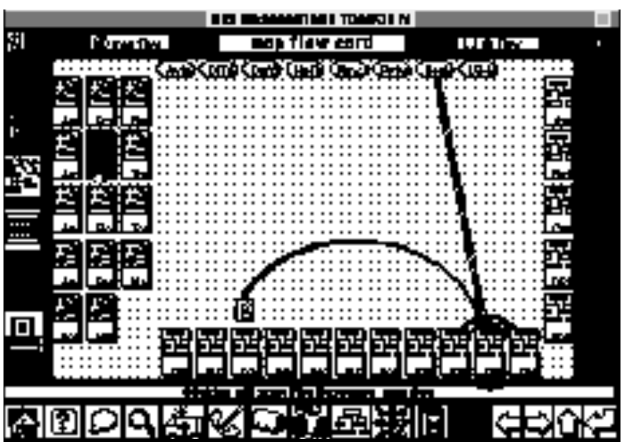
pfa@athena.mit.edu

Thank you.

Assessment background

This background is the main entrance to the GIS Assessment ToolKit. It is also were you have the features to generate global reports, tables and map flows, involving multiple background data. You can accede to it from anywhere in this ToolKit, by clicking the "bulb" icon. See also "Export Data" and "Reports".



Data Backgrounds

There are 4 types of data backgrounds, or card records: Data bases, Departments, Maps and People.

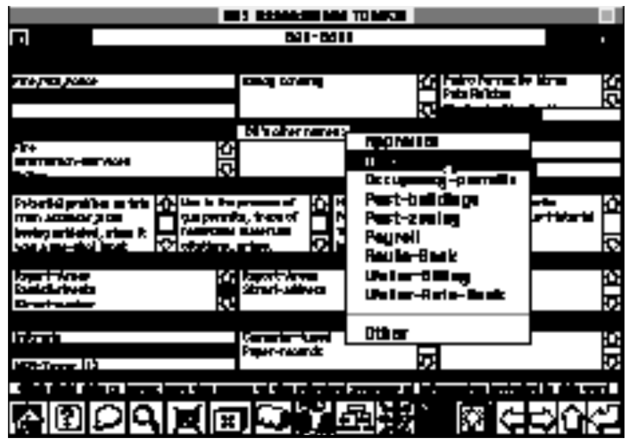
The choice of data fields is based on Profs Joseph Ferreira's and Lyna Wiggins's "Interview Guide", and the feedback from the student teams of the GIS studio course at MIT.

Data Bases background

This background contains the essential information on each relevant Data Base in use by the Agency or Government being assessed.

The term Data Base refers to any structured information record, be it on computer or not (like paper records).

A computer system with maps stored in digital form should be considered also a Data Base. The format is one card per Data Base. The first card contains an index, automatically updated each time you add or delete a card. To locate a Data Base's card, you can either use the "Lens" (find) icon, or just click the name on the index card.



There are two types of fields:

- With insertion by popup menus;
- With manual insertion.

The first type of fields are permanently locked, to protect data consistency; you only insert or delete through the popup menus. When a new element is entered (or deleted), if it is cross-referenced to another background, this bkgnd will be automatically generated or updated.

The second type of fields are unlocked so that you can insert text manually. If you click on a text item in a locked field, the Toolkit will attempt to locate the card corresponding to the clicked element. See also 'Insert Data'.

You can go to this stack by clicking the "Data Base stack" icon. To identify this icon, use "Interface help".

Departments background

This background contains the essential information on each relevant Department of the Agency or Government being assessed.

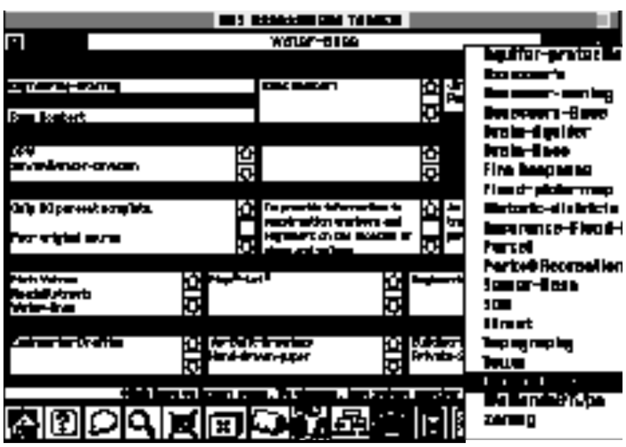
The format is one card per Department. The first card contains an index, automatically updated each time you add or delete a card. To locate a Department's card, you can either use the "Lens" (find) icon, or just click the name on the index card.

You can go to this stack by clicking the "Department stack" icon. To identify this icon, use "Interface help".

Maps background

This background contains the essential information on each relevant map type in use by the Agency or Government being assessed.

The format is one card per map type. The first card contains an index, automatically updated each time you add or delete a card. To locate a map's card, you can either use the "Lens" (find) icon, or just click the name on the index card.



You can go to this stack by clicking the "Map stack" icon. To identify this icon, use "Interface help".

People background

This background contains the essential information on people interviewed in the Agency or Government being assessed.

The format is one card per person. The first card contains an index, automatically updated each time you add or delete a card. To locate a person's card, you can either use the "Lens" (find) icon, or just click the name on the index card.

You can go to this background by clicking the "People" icon. To identify this icon, use "Interface help". See also 'Insert Data'.

Changing menu lists

The stack's functionality is supported by data structures such as lists of departments, map names, data base names, hardware, software, etc. Those lists can be seen in pop-up menus that show when you click (holding mouse down) on some field titles, in order to select and insert one or more elements of these lists into the appropriate fields.

The idea is to minimize typing, and particularly to make sure that there is data consistency among all cards and backgrounds. For instance, if one user inserts a map name with a different spelling, or names the map following a different convention, many problems arise, besides possible duplications on update operations and failed searches.

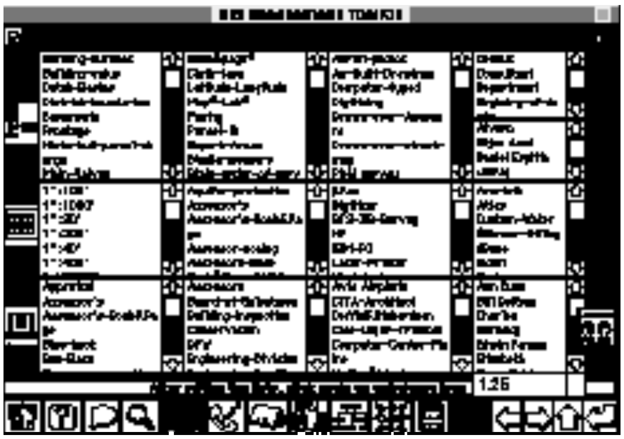
You can add new elements to the lists, by selecting the list element 'Other'; this will bring a dialog box where you can type the new element name. You can also edit directly the menu lists.

The manipulation of these data structures should be handled with care, especially delete operations, and should done by people that know exactly what they are doing. Since it is nevertheless at anyone's reach to modify these structures, use your common sense and please don't experiment with this feature.

Remember that change an element in menu lists (to correct a mistake, for instance), is always equivalent to delete current element and add new element.

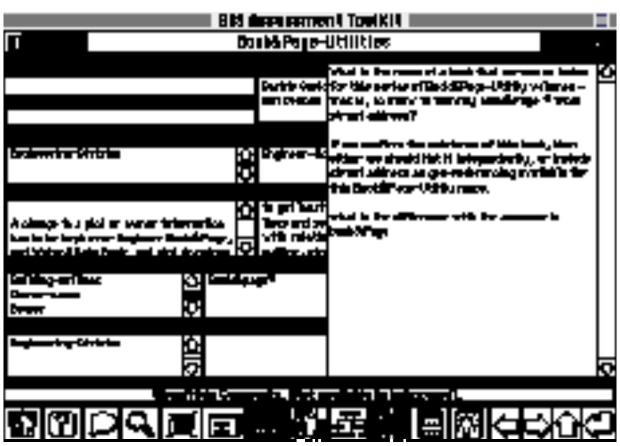
If you must delete (or change) some element of the popup menu lists, always delete first from the cards (data fields) the item you are about to remove or change from the data structure lists. Keep in mind that the deleted item will remain in the fields in all cards in the stack, even if it is removed from the popup menu; and that after removal from the menu lists, it will be impossible to delete the old items in card fields by the normal process (selecting them from popup menu), forcing a morose manual change of the 'locktext' status field by field, card by card.

To edit menu lists, click on "ambulance" icon, from the Assessment background. Use "Interface help" if needed. See also 'Insert data'.



Commenting

Most cards have a comment field, where you are encouraged to add your own notes and additional information about the data you inserted into the card. Be brief and don't forget to click on "Last update" field, as well as adding your name to the "Data collected by" field - if it is not already there. To identify the "notebook" icon, use "Interface help".



FTP stack

This stack is accessible from the "Assessment" Background. It allows you to login to an account in any computer in the arpanet, and other networks, besides the local ethernet network - for instance, athena workstations. Once you are logged in, you can access remote directories and files, including send and receive operations from/to the remote machine to/from this stack. You always have access to the Macintosh files. You need to know the machine (host) name, a user name, and respective password. Athena workstations are more subtle to reach, since your global athena user name and password will not work unless it is locally registered, that is, it is not possible to use 'Athena' as the machine (host) name, you must use a specific athena workstation name.

Your Mac must have an ethernet board installed. If you don't know your Mac status, just try to use the FTP stack; it won't make any harm if it is not connected - it just won't work and will tell why. More detailed help is available, clicking on the "stack help" icon (stack with question mark) within the FTP stack. This stack is based on the work done by Douglas Hornig at Cornell University, and others (click "cloud" icon for more credit information).

Insert data

To insert data in a field, 'fly' first the mouse over the field (drag the mouse over keeping the mouse button up). If the cursor becomes an "I", instead of a 'hand', click inside the field, and then type. If the cursor remains a "hand", click on the field title above. This will call a popup menu. Keep the mouse button down, and drag the mouse to the item in the menu you want to insert, and then release the mouse button. If you release the mouse button outside the popup menu, nothing will happen (it is a good way out if you change your mind). If you don't find the desired item to insert in the popup menu, select "other"; you will be prompted to insert the new item. Keep in mind that this new item will become a part of the popup menu list. Always use short words, and if you must use a linked multi-word, link them with hyphen (-); **Do not use** '/', because it is a reserved special character in menu lists.

To delete an insertion, just re-select it again from the popup menu. To edit/modify an insertion, delete the old and add a new. To delete an item from the popup menu list, use the "ambulance" icon from the Assessment background (See "Changing menu lists"). Use this feature with extreme care; always delete first from the cards the item you are about to remove or change from the data structure lists. Read why in chapter "Changing menu lists".

Import data

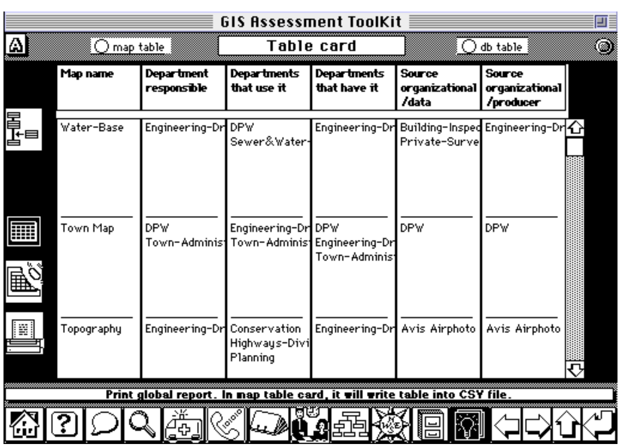
Feature that allows to transfer data from "clone" stacks of the GIS Assessment ToolKit. This allows several people to have personal copies of this stack, and then transfer new data into a common collective version of the GIS Assessment ToolKit. You must use caution to be sure that you are not overwriting information that someone else inserted in the meanwhile! **Check always before you import cards**.

You can transfer card by card or group of cards, indicating the name(s) of the person, department, map or db to be imported. If a card with the same entity exists already in the target stack, you must delete first the obsolete card.

This feature is available from within index cards of each background. To import an entire clone stack, use 'Import' icon in first card of Assessment bkgnd. To locate the 'Import' icon - at the right side of the index card - use Interface Help. See very important information on "Export Data".

Export data

A feature to allow exporting data to Excel will be available soon. For now, you can export tables and reports to µsoft Word files (ASCII/TEXT format, readable by any word processor) from the index cards of each background (table cards in Assessment bkgnd).



To export card records to other ToolKit, you must go to the target ToolKit and import the card(s) from there (from the index cards, see 'Import Data'). The issue is that if there are several copies of the same ToolKit, in order to integrate them it is mandatory to check for duplications and inconsistencies. IT IS NOT OK to just cut cards from one stack and paste them into another! Among other things, Hypercard sees these pasted cards as a different background, and this is a messy situation, hard to correct.

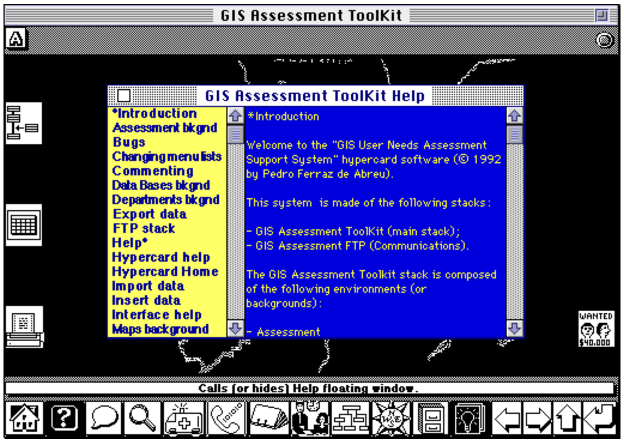
Reports

To write reports to a file, or to send them directly to a printer, go to the index card of the relevant background (clicking on "Up" arrow), and then click on "File" or "Print" icons (left side of index card). This feature allows for either "unit reports" (e.g. one data base, or one map type), or "multiple unit reports", in which one can select any subset of units. The option to write to a file will create a µsoft Word text file (ASCII text format, readable from any word processor). You can access this file immediately, the normal way (clicking on file name). For a global report with multiple backgrounds, you must go to the Assessment bkgnd, by clicking on the "Bulb" icon.

Help

You can access a floating 'Help window' from any background of the GIS Assessment ToolKit. This window contains all the information of this article. You can place this window anywhere by dragging the title bar, while navigating through different parts of the main ToolKit stack.

Use interface help to identify the "Call Help" icon. See also "Hypercard Help".



Hypercard help

If you are a newcomer to hypercard, or need more general information, you can access hypercard help stack from the pull-down menu "Go", always present (Hypercard Help stack(s) must be present, of course). You can also obtain more information on Hypercard by going to Hypercard Home. See also 'Interface help'.

Hypercard Home

You can accede to hypercard home by clicking on the "Home" icon. You can also accede from anywhere in hypercard selecting "Home" from the "Go" pull-down menu on top of the screen.

Interface help

All backgrounds have a local interface help, for those of you that can't figure out the meaning of each icon, or the function of a field, etc. Each time you 'fly' the mouse (keeping the mouse button up) above hypercard objects, - icons, fields, buttons - a rectangular field right above the bottom icons will show an explanation of their function.

In general, you don't need the top-bar menus to operate the GIS Assessment ToolKit; it is actually safer to avoid using menu commands, in order to keep data consistency under control.

Moving around

To navigate through cards and stacks, you can use the navigation icon buttons at your disposal:

- "Right Arrow" icon, to go to next card;
- "Left Arrow" icon, to go to previous card;
- "Up Arrow" icon, to go to index or first card of current background;
- "Return" icon arrow, to return to previous card (last place you visited);
- To go to a specific background, click on corresponding icon.

You can always identify any icon by using the interface help feature, at any time.

Each background is further identified by two visual clues: a) the icon of the background remains hilited and b) at the top left of the card, a single letter identifies the bkgnd (A - Assessment; B - Data Bases; D - Departments; M - Maps; P - People). Clicking on the "Home" icon will bring a dialog option: either take you to Hypercard Home or Quit Hypercard, closing the application.

To quit hypercard without further delay, click on the round button on top-right of all cards.

Reset ToolKit

You can reset any ToolKit stack, in several degrees:

- Delete individual cards (delete icon in all cards);
- Delete all cards of a data background (reset - or 'danger' - icon in all bkgnd index cards);
- Delete all data cards in the whole stack (reset - or 'danger' - icon in first card of Assessment bkgnd).

This way, you can create a new ToolKit environment from an old one, by saving a copy and reseting the copy. You can either change the menu data lists manually, using the 'ambulance' icon from the Assessment background (See 'Changing menu lists'), or you importing them from another stack using 'Import' icon in first card of Assessment bkgnd.

Version

To check the current version of a stack, click on the "Balloon" (cloud) icon. It returns also the name of the active stack, disk space available, and an updated e-mail address for bug reporting. You may also check the credit list, identifying names of the external functions and commands used, and their respective authors.


Show credits
OK

Appendix: Data Record fields

Fields of bkgnd "People"

People name
Phone, Fax, email
Department Name
Department Address
Reports to
Staff
Main functions
Years in function, Years in job, Computer time
Software in use, Hardware in use
Names of Data Bases used
Type of maps used
Source of interview data, Data collected by,
Last update
Comments

Fields of bkgnd "Departments"

Department name
Department Address, Phone, Fax
Department belongs to
Divisions
Head of Department
Head reports to
Staff
Main functions
Computer User, Not a User, No information
Total number
Software in use, Hardware in use
Names of Data Bases used
Type of maps used
Problems
Source of interview data, Data collected by,
Last update
Comments

Fields of bkgnd "Maps"

Map name
Map's other names
Accuracy, Scale, Features, Geo-referencing
Main functions
Person in charge, Department responsible
Departments that use it, Departments that have it
Update procedures, Last map update
Source organizational/data
Source organizational/producer
Source physical
Problems
Source of interview data, Data collected by,
Last update
Comments

Fields of bkgnd "DB"

DB name
DB's other names
Features, Geo-referencing, Size
Main functions
Person in charge, Department responsible
Departments that use it
Update procedures, Last DB update
Source organizational/data
Source organizational/producer
Source physical
DB field diccionary
Software in use, Hardware in use
Problems
Source of interview data, Data collected by,
Last update
Comments