**Fagatele Bay National Marine Sanctuary
GIS Capacity**

Binder Index

Binder Sections

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Maps
GIS Data CDs
Operating System CDs, Drivers, Emergency Repair, Rescue CDs (for the SGI)
Application Software CDs (loaded on the SGI)

Background

A GIS presence was established through two grants. In 1998, the Environmental Systems Research Institute (ESRI) provided a grant to NOAA's National Marine Sanctuary program. A PC based (Micron) GIS workstation and software (ArcView 3x) were provided. In the Spring of 2001, Professor Dawn Wright PhD of Oregon State University obtained a grant from the National Science Foundation to purchase a Silicon Graphics workstation and ArcGIS8.1 for the Fagatele Bay National Marine Sanctuary. This is currently utilized to house detailed GIS data and imagery for FBNMS. Additional data sets for the seven islands of American Samoa are also stored on this server.

In 2002, a number of issues regarding map projections and datums were resolved allowing GIS users to process information to the federal standard. FBNMS contracted Allison Graves to acquire framework GIS layers and other information for American Samoa, to organize this information and provide updates to Oregon State University. The result of this effort is the standardized directory structure and naming conventions that have been adopted for use in the American Samoa Spatial Data Infrastructure. A copy of the updated data stored on the local server in the Fagatele Bay National Marine Sanctuary office has been provided to Dawn Wright. Several graduate students at OSU have funded research projects in American Samoa and it has been recommended that the ASGIS standards be incorporated into their work.

Hardware, Software and Internet Connectivity

A Silicon Graphics PC running Windows NT 4.0 SP 6 is the current GIS Platform. The PC is configured with ArcGIS8.1 and ArcView3.2a plus extensions. The ArcGIS license is renewed annually via Dawn Wright at Oregon State University. Additional software includes Adobe Photoshop, Adobe Acrobat, MS Office 2000, Internet Explorer and Netscape. An Iomega Zip 250 is the only peripheral device connected to the workstation. No tape back up or CDRW is available. The GIS server is connected to the local area network on an Ethernet network. An Apple Airport modem provides access to the internet. Unfortunately, the AppleTalk configuration for Windows NT does not allow for file sharing between the PC and Macintosh computers in the office. No CDRW or tape back up solution exists for the FBNMS GIS Server. Currently, the popular "SneakerNet" is employed for uploading and downloading large files to the server via a cross over cable to a laptop. The FBNMS data structure is backed up on other GIS servers on island. A copy of the data has also been transferred to Dawn Wright at OSU.

File System Configuration

NTFS is the basis for the file system with a single 20 GB hard drive partition as follows:

Root Partition (C:\Drive) = 4 GB
GIS application and data partition (D:\Drive) = 15 GB
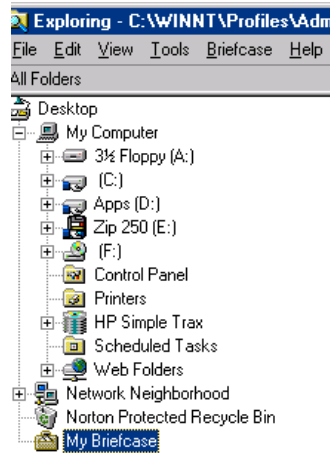
Standard Directory Structure
In 2000-2001 many new GIS data sets were developed for American Samoa.
Many legacy data sets were also upgraded to the federal projection and datum
standard for the territory (Universal Transverse Mercator Zone 2 South, North
American Datum 1983.) This data was acquired from several local agencies and
off island entities. The acquisition of this data, required an organized directory
structure. This structure was drafted and reviewed by key GIS professionals
participating in the ASGIS data working group. This review process resulted in
the adoption of an inter-agency standard for storing GIS data in American
Samoa. Since a common standard is now shared among several entities, it is
believed that this will enhance support for GIS initiatives. The following figures
describe how the American Samoa Spatial Data Infrastructure (ASSDI) standard
has been implemented by FBNMS. For additional information on American
Samoa GIS Standards please review the complete ASSDI document.

One challenge still remains in terms of data management. The need to acquire
updated GIS files is being addressed through the implementation of a local FTP
server established at the American Samoa Power Authority. However, updates
will not occur automatically. Discussions are underway to implement software
utilities that will replicate updates from the FTP server to other local GIS servers
on island.

On the SGI workstation, named "Doubloon", the D:\drive partition is the
designated storage area for the ASGIS standardized directory structure. Here
you will find the root folder, "GIS." The best way to transfer FBNMS data is to
use a cross over cable connected to another PC (see procedure below for doing
this.) Due to disk space limitations, only aerial photos of the FBNMS watershed
area have been loaded.

D:\Drive
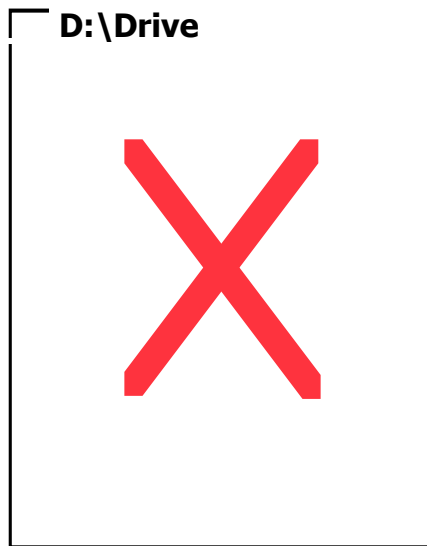
Root level data structure

Brief descriptions of each of the main folders:

Archive: repository for legacy data and projects (for example: ASG-EPA watershed study. Much of the data and maps created for this study have been superseded by more current data sets). It is a good idea to keep a copy of the digital files and maps in the archive for reference purposes.

Databank: repository for framework data. This should be considered a tool for inter-agency data sharing and standardization.

Docs: Contains any GIS related documents. For example, documents about data structure, handbooks, address schemes, hardware / network configuration, software license, MOU's, etc. (*This folder will appear within projects as well to track project correspondence, processing protocols and classification schemes benthic habitat, standardized industrial codes, land use classifications, etc.*)

Export: Data stored to be provided to 3rd party. Files to be written to CD can be *temporarily* stored here to address data requests.

Imagery: repository for all imagery, including the 2001 IKONOS satellite mosaics.

Import: Data received from a 3rd party can be *temporarily* stored in here before incorporation into the GIS data structure.
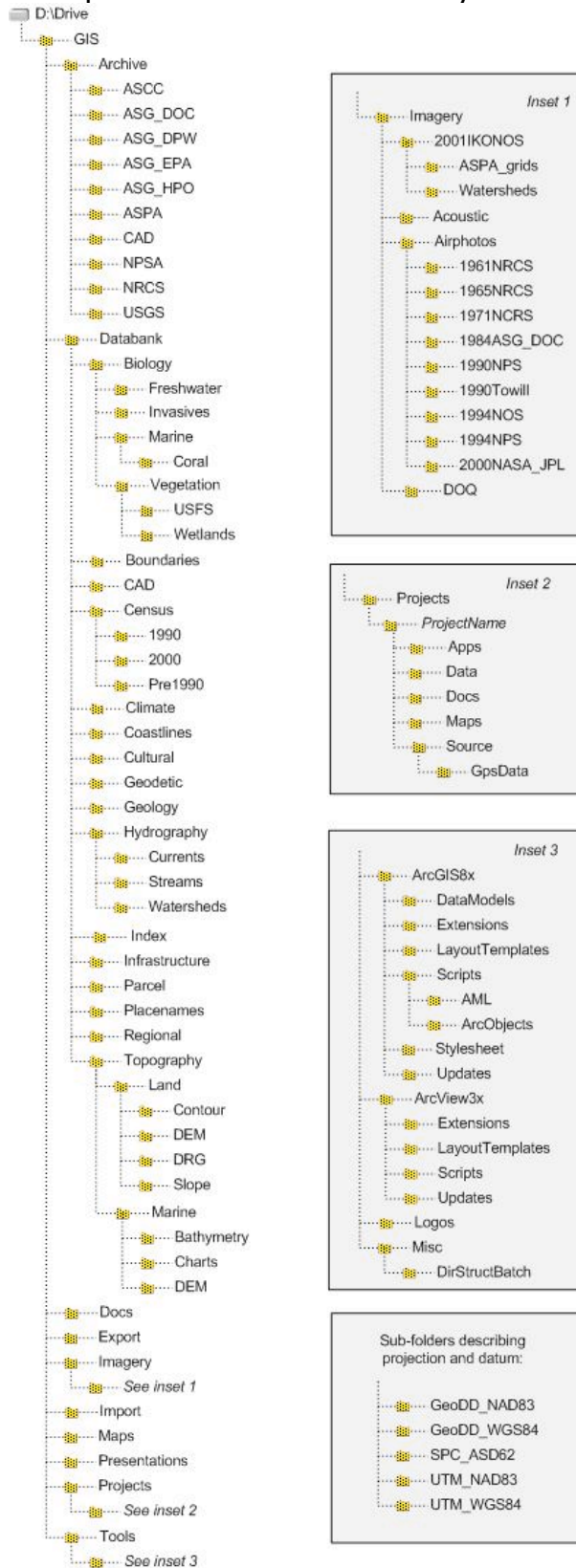
Maps: repository for final and standard map products (usually in .pdf or .jpg) from ones own agency or a 3rd party.

Presentations: repository for any GIS based PowerPoint presentations.

Project: the location of intra-agency GIS projects.

Tools: For storage of all useful tools, extensions, scripts, layouts templates, legends and avl's.

An expanded view of the directory structure is shown below:

```
D:\Drive
  GIS
    Archive
      ASCC
      ASG_DOC
      ASG_DPW
      ASG_EPA
      ASG_HPO
      ASPA
      CAD
      NPSA
      NRCS
      USGS
    Databank
      Biology
        Freshwater
        Invasives
        Marine
          Coral
        Vegetation
          USFS
          Wetlands
      Boundaries
      CAD
      Census
        1990
        2000
        Pre1990
      Climate
      Coastlines
      Cultural
      Geodetic
      Geology
      Hydrography
        Currents
        Streams
        Watersheds
      Index
      Infrastructure
      Parcel
      Placenames
      Regional
      Topography
        Land
          Contour
          DEM
          DRG
          Slope
        Marine
          Bathymetry
          Charts
          DEM
    Docs
    Export
    Imagery
      See inset 1
    Import
    Maps
    Presentations
    Projects
      See inset 2
    Tools
      See inset 3
```

Inset 1
```
Imagery
  2001IKONOS
    ASPA_grids
    Watersheds
  Acoustic
  Airphotos
    1961NRCS
    1965NRCS
    1971NCRS
    1984ASG_DOC
    1990NPS
    1990Towill
    1994NOS
    1994NPS
    2000NASA_JPL
  DOQ
```

Inset 2
```
Projects
  ProjectName
    Apps
    Data
    Docs
    Maps
    Source
      GpsData
```

Inset 3
```
ArcGIS8x
  DataModels
  Extensions
  LayoutTemplates
  Scripts
    AML
    ArcObjects
  Stylesheet
  Updates
ArcView3x
  Extensions
  LayoutTemplates
  Scripts
  Updates
Logos
Misc
  DirStructBatch
```

Sub-folders describing projection and datum:
```
GeoDD_NAD83
GeoDD_WGS84
SPC_ASD62
UTM_NAD83
UTM_WGS84
```

Networking Procedure for connecting the FBNMS GIS server "Doubloon" to another PC or laptop via a cross over cable.

1. Locate the blue cross over cable in the GIS binder. This special cable can be used to network two computers.
2. One the back of Doubloon (GIS Server) locate the network cable. Disconnect the network cable and connect one end of the cross over cable to the same port that the network cable was plugged in.
3. Connect the other end of the cross over cable to the network card on the laptop or PC that you wish to communicate with.
4. Login to Doubloon as Administrator.
5. Access the "Control Panel" from the menu on lower right hand corner of the desktop. **Start => Settings => Control Panel**
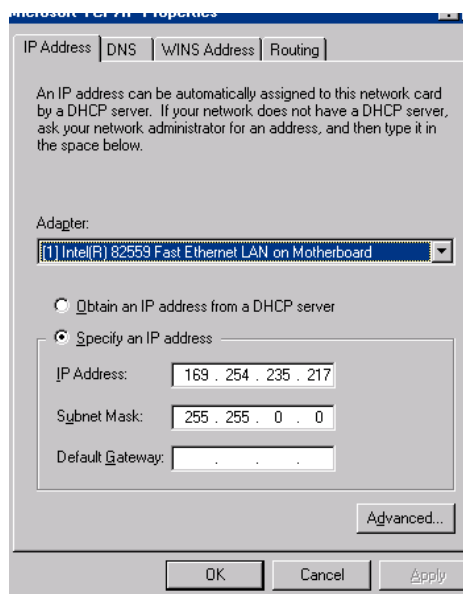6. Locate the Network icon and double click to open the network menu.

7. Notice that the first tab shows the computer name and workgroup.
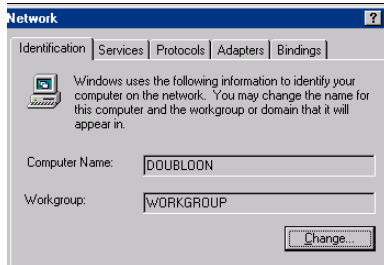

8. Click on the **Protocols** tab, highlight TCP/IP and click on **Properties.**
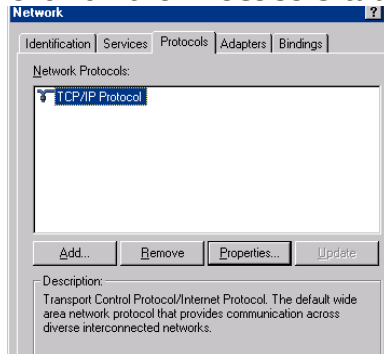
9. Change the settings from "*Obtain an IP address from a DHCP server*" to "*Specify an IP address.*" The IP number you choose should be one number higher than the computer you are trying to communicate with. In the example shown below, 169.254.235.217 was chosen because the other machine had 169.254.235.216 for it's static IP address. The **Subnet Mask** should also be set to the same number as the other PC. (If the remote computer is also setup for obtain an IP address dynamically, then use 10.1.1.2 on "Doubloon" and 10.1.1.3 on the remote computer.)

10. Locate the **Network Neighborhood** icon on your desktop. Right mouse click on the icon and choose **Explore**. Double click on **Network Neighborhood** and then **Entire Network**.
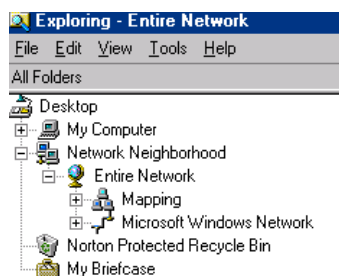
11. You should see the workgroup name of the computer you are trying to access. In the example below the workgroup is called "Mapping." The second computer should be listed under this workgroup. You will need to have a shared folder or drive to copy files across. The second computer may also require a login and password. Depending on the operating

system of the second computer, a reboot may be required to refresh network settings.

Setting Doubloon back to normal

1. Go back to the **Control Panel** and access the **Network** icon. Click on the **Protocols** tab and then click the **Properties** button.
2. On the IP Address tab, Change the settings from "Specify an IP address" to "Obtain an IP address from a DHCP server."
3. Click "Yes" on the "Microsoft TCP/IP" popup.
4. Close out of the menus and reboot Doubloon for the settings to take effect.

Key Internet Resources

Fagatele Bay National Marine Sanctuary (FBNMS) GIS Data Archive
http://dusk.geo.orst.edu/djl/samoa/

American Samoa GIS User Group
http://www.americansamoagis.com

Tutuila Benthic Habitat – online Internet Map Server (IMS)
http://sag1.nos.noaa.gov/Website/AS_Tutuila/Run.htm

NOAA Coastal Services Center Protected Areas GIS Web Site
http://www.csc.noaa.gov/pagis/

NOAA National Ocean Service Biography Program – Benthic Habitat Mapping
http://biogeo.nos.noaa.gov/projects/mapping/pacific/territories/