DataCAD Boston Users Group

c/o Shu Associates Inc.
120 Trenton St.
Melrose, MA 02176-3714
(781)662-0020 Tel. & Fax
http://world.std.com/~eshu/dbug.htm
eshu@world.std.com

A Committee of the Boston Society of Architects

May DBUG Meeting
May 31, 2006
Host: Gregory Smith, GSD Associates
North Andover, Massachusetts

About 25 DBUGers gathered at GSD Associates in North Andover and enjoyed the barbecue buffet feast and convivial atmosphere on this fine late spring day. Greg Smith welcomed the group and introduced his staff and then everyone around the room introduced themselves.

Evan Shu announced that there was a good chance that June DBUG meeting would be cancelled and that an early July meeting scheduled instead to be hosted by Neil Blanchard and Manny Snyderman [now set for *Tuesday, July 10th at Signature Architects*].

Using Smart Entities to create a 3D Model. With DataCAD 12 near release, Brian Riopelle of the GSD staff gave everyone an excellent tutorial on how to use the new smart entities of walls, doors and windows. Given that he only learned the DataCAD program itself recently, his demonstrated mastery of the ins and outs of smart entities gave everyone confidence that this new protocol could be picked up fairly quickly. He used it to create a small 3D house model complete with roof and renderable textures within a few minutes. He also showed how any smart entity item could be easily changed or updated.

Here are some of his handout notes:

Things You Should Know
* DataCAD 11 is not forward compatible. If you open up a project in DataCAD 12 that you were previously working on Version 11 and save it, you will no longer be able to open up that same file in Version 11 again. You can revert back to Version 11 by clicking "Save as DataCAD 11 AEC..." under the "File" menu.

* To draw walls in 3D, the *Auto 3D* button in the Walls menu must be toggled on. If Auto 3D is not on, you are drawing 2 dimensional walls like previous versions of DataCAD.

* For Smart Walls to automatically clean, the walls must be drawn on the same layer. For example, if you put your exterior and interior walls on separate layers, they will not "clean" when they intersect.
* Be patient, and if you have an issue, look at the DataCAD forums. There's a lot of good information in the forums, and if you can't find what you're looking for, feel free to post a question.

Some Important Websites:
http://forum.datacad.com/- Check the *Announcements* forum to receive the latest updates from DataCAD, including the latest release of DataCAD 12 Test Drive.
http://www.datacad.com/products/whats_new_12.htm
- A list of some of the new features in DataCAD 12.
http://www.datacad.com/support/down/datacad_12_manual/Smart Entities_Tutorial.pdf
- a tutorial that take you through using Smart Entities.
http://www.accustudio.com/exchange/fm_texture.htm
- A website with a huge library of free textures and background images.

Using DataCAD and Excel and Adobe Acrobat for BOMA worksheets. Greg Smith then presented how his office has created a linked Excel spreadsheet that allows a facility manager to keep track of office/retail space size and availability and link it all to floor plans of the space in question.

Using the BOMA rules for calculating rentable square foot areas (with exceptions as directed by his client!), GSD Associates created an Excel chart (see below, this Excel file is available on the DBUG website at <http://world.std.com/~eshu/dbug.htm>) that listed all the

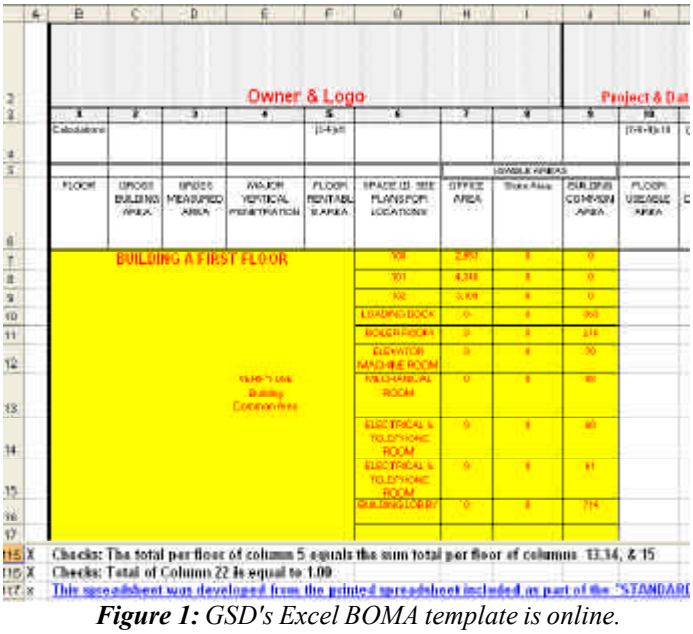

Figure 1: *GSD's Excel BOMA template is online.*

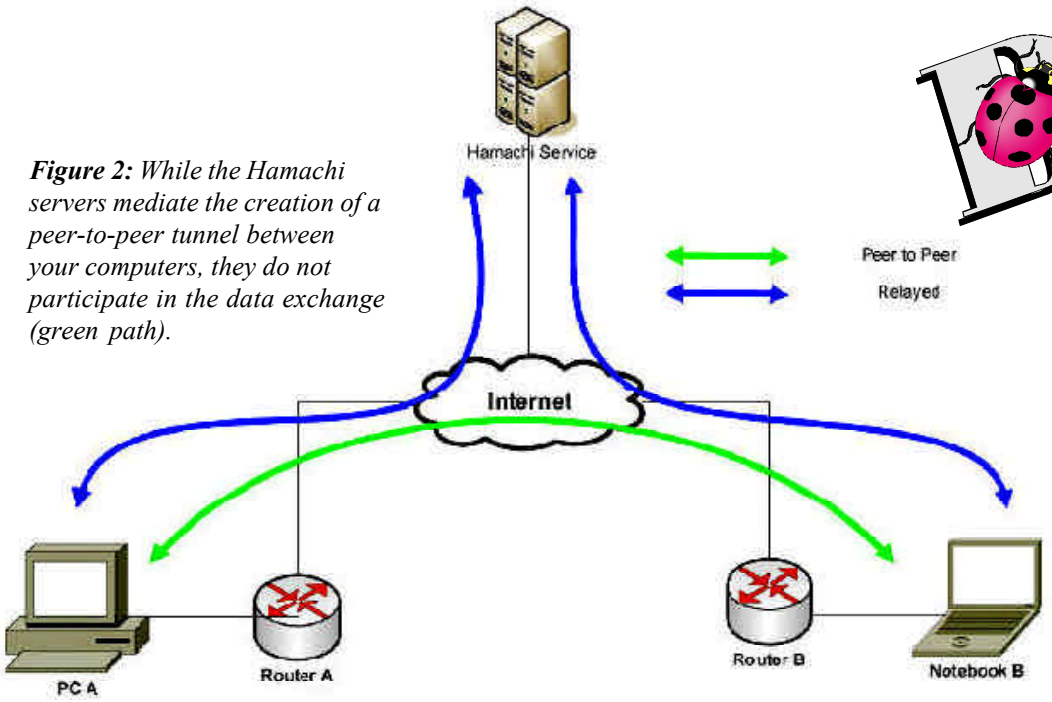

Figure 2: *While the Hamachi servers mediate the creation of a peer-to-peer tunnel between your computers, they do not participate in the data exchange (green path).*

various spaces and color coded for lease availability, etc. The columns and notes show how to progress for gross building areas and subtract common and penetration areas to arrive at basic rentable areas, along with ratios of usable to rentable.

Any space item was then hyperlinked (CTRL-right click on item name) to a PDF file of the space in question, which when clicked would open up using Adobe Reader or Acrobat.

The PDFs were created in DataCAD by plotting each GoToView of any retail space (with Plot Preview on), then using the Save As function from the Preview Window to save the floor plan in question a PDF file. Furthermore, to complete the circle of linkage, the DataCAD plans were hyperlinked (CTRL-right click) back to the Excel spreadsheet, so updates could be easily made working back and forth between the two.

Setting Up at VPN. Michael Smith gave the last presentation of the evening on how to set up a *Virtual Private Network* using the *LogMeIn Hamachi* software, which is absolutely free (no banner advertising either)! He loaded the Hamachi software from scratch to the GSD station and logged into his own office network, showing how easily it all is accomplished. The software allows you to log into multiple networks simultaneously, have live chats with other network users, and block an unwanted connection. *Here below are excerpts from Mike Smith's excellent notes on the software.*

What is a VPN? Basically, a Virtual Private Network (VPN) is a private network that uses a public network (usually the Internet) to connect remote sites or users together. Instead of using a dedicated, real-world connection such as leased line (T1, etc.), a VPN uses "virtual" connections routed through the Internet from the company's private network to the remote site or computer.

How Does The LogMeIn Hamachi VPN Work? <*www.logmeinhamachi.com*>. LogMeIn Hamachi is a virtual private network system, comprised of **mediation servers** managed by LogMeIn Hamachi, and end-node **clients** running the Hamachi software. *The Hamachi servers provide the mediation services required for establishing direct peer-to-peer tunnels between client*s. Every client creates and maintains a control connection to the mediation server. The connection is used for learning the client's location, tracking its online presence and assisting a pair of clients in establishing a VPN tunnel. If the connection becomes idle, it is re-activated with a small "keep alive"
packet to ensure that any intermediate firewalls do not shutdown the connection due to inactivity. When the control connection is established, the client goes through a three step initialization process:
1) Login, Probing, and Synchronization:
•The Login step authenticates both the client to the server, and the server to the client.
•The Probing step determines the topology of client's internet connection, specifically it detects the presence of NAT and firewall devices that may be present on the route between the peer and the Internet.
•The Synchronization step brings the client's view of its networks in sync with the server and marks it as online. It also initiates the setup of VPN tunnels as dictated by the client's network memberships and the online status of its peers.

When a peer of any given network goes online or offline,

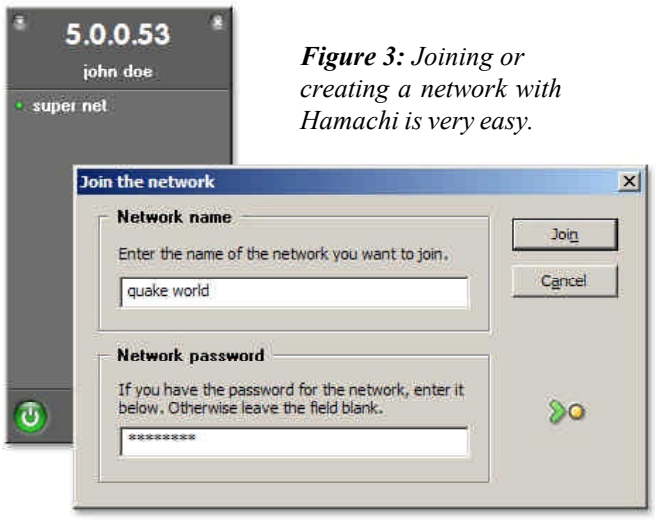

Figure 3: *Joining or creating a network with Hamachi is very easy.*

the server directs other network peers to either create or tear down the tunnel to the former. If a control connection with the server is unexpectedly lost, the client retains all of its tunnels and begins to actively check their status. When the server loses a client's connection, it informs the client's peers and they also start tunnel status checks. This enables Hamachi tunnels to withstand short periods of complete server unavailability.
*In English, pleas*e: The key concept is that Hamachi sets up and verifies a secure connection, called a "tunnel," between 2 or more computers (called "clients"). Once that tunnel is established, Hamachi is essentially out of the picture. All data is passed directly between the clients, and no traffic flows through Hamachi or their servers. And it works through various firewalls and broadband routers (aka NAT devices).

Is a VPN Secure? The "tunnel" itself is like a private, well, tunnel, between computers. Here is what the company had to say when I asked them if any of our the computers on the network could be hacked into while connected:
"Hamachi can only connect to other users in your networks, and traffic between users can be blocked at any time. Because of this, there is no possibility of an outside attack. Also, unless your peers are unable to make a peer to peer connection (only 5% chance), no data will go through our servers after you are authenticated and the tunnels between your peers are built, essentially eliminating the possibility of a man-in-the-middle attack. We use 256 bit encryption on all communications for your security as well."
To read the specifics, see the web link at the end of this handout: "Hamachi_Security_White_Paper.pdf."

Can I Work on My Files Directly Over the VPN Connection?
We have been doing so on smaller files. Opening larger files takes longer; sometimes a very long time. That might just be a connection speed issue. You'll have to try it yourself to see. The benefit to opening files across the VPN is that if someone tries to open the file you are working on, they will get the same "in use" message that they would if you were in your office working on the computer. If it's too slow for direct work then you will need to "check out" or download files to your local computer to work on them. But temporarily moving an Xref'd file would cause the XRef not to show up in other drawings. Most programs, like DataCAD, will let you open a "Read Only" file, but won't tell you it's "Read Only" until you try to save it, so that can be dangerous if you've already been working on the file. We haven't come up with a foolproof solution yet.

How Difficult Is It To Set Up? There is NO configuration required! It is dirt simple to set up. It takes about 3 minutes to set up on any computer; another 2 minutes if you have to change your Windows file sharing setup, and another 2 minutes if you have to modify your software firewall.

How Much Does Hamachi Cost?
It's FREE! There is a paid version with more administrative tools that are probably useful for larger offices, but for most small businesses, the free version is probably good enough. But even the paid version is very reasonable. A 1 year subscription for 5 licenses would be about $200.

What Platforms Does Hamachi Run On?
Hamachi will work on any computer that can install the software. So if you want access from a client's computer, or a friend or family member's computer, you can do so. And when you are done you can uninstall the software and leave no trace. Hamachi is currently available for Windows 2000, XP, 2003, and Vista. Console versions of Hamachi are also available for Linux and OS X.

References
http://www.logmeinhamachi.com
https://secure.logmein.com/products/hamachi/Hamachi_Security_White_Paper.pdf
https://secure.logmein.com/products/hamachi/howitworks.asp
http://computer.howstuffworks.com/vpn.htm

With the VPN presentation complete, the evening's program fare matched the quality of the pre-program barbecue and the group dispersed happily with both appetites well satisfied.

-- Notes by GSD staff, Michael Smith & Evan H. Shu