Instructions for setting up an Egg using Windows

Hosting an egg requires little time after it is set up and running, but doing the setup does require some time and careful attention to details. There are some technical issues that may require expert help. These instructions give the details, and if you follow them, the process should go well. If you have questions or do not understand the instructions, please send a note to me at rdnelson@princeton.edu before proceeding. I can help with most problems.

The software is compatible with Windows 2000, XP, NT for sure. I have not tested Windows Vista, but it probably is compatible. It will work with older versions, but there are some differences. If you are using Windows 98, ME, or any other Windows OS, see the special instructions below – and let me know so I can be helpful.

In all cases, it is necessary for the computer to run continuously, or as near as possible. We need continuous data because Global events can happen any time. You can use the computer for other things, like writing documents or browsing the web. It does not have to be dedicated to the Egg hosting.

You must have your computer clock set correctly, and must use an automatic service to keep the time synchronized to Internet time. If you don't know how to ensure this, let me know. I can give you instructions. The egg network has to be synchronized – an un-synchronized egg can only add noise, because the "signal" is composed of inter-REG correlations.

A. Downloading the software

1. Create a new directory in your C: disk called GCP. Its full path will be [C:\GCP](C:\GCP)
2. Go to http://noosphere.princeton.edu/software.links.html
3. Find the Windows software links at the bottom of the page
4. Download the Egg.exe file into C:\GCP (right-click and save link)
5. Also download EGGConfig.exe (it is only used if you need to change setup items later)
6. Print or download these Instructions (for convenience)

B. Installing the program

1. Before starting, be sure you know your Egg ID number, the type of REG, and which COM port you will use.
2. Attach the REG/REG device to the COM port, also called the Serial port.
3. Run the EGG.EXE program from C:\GCP. Do this **after** reading the instructions below.

You can double-click on the program from an explorer window or run it from a Command Prompt window. Or do Start->Run->C:\GCP\Egg. You should do this with Administrative privileges because it creates a "Service" which will run in the background (in Win 2000, XP, etc.) You won't see it doing anything since it is in background[*]. It will restart automatically when you reboot the computer.

When you run the EGG program it will ask you 3 setup questions. Answer them exactly as described below. Don't use quotes or break up the name of the COM port.

The Setup Questions:

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[*] The program will write to a log file in C:\GCP called "EGG.log". There you can get confirmation that the program is running and data is being collected and sent to the Basket program running on the server in Princeton. If there are problems, the Egg.log may have useful error messages. You can send this file to me if you need help interpreting it. You can see the current status of your egg in the table at http://noosphere.princeton.edu/status/basketstatus.html

1. Your EGG ID number. This is the 4-digit number given you (and usually written on the REG). It uniquely identifies your Egg.
2. The type of RNG/REG. This is a single digit, usually 2 (This identifies an Orion RNG. The Mindsong type would be identified with a 1, but they are no longer being manufactured.)
3. Which COM port you've connected the REG to. This will usually be COM1, written that way exactly. It will not work to write only the 1 or break up the name as COM 1. It has to be COM1. Rarely, a computer will have two COM ports, and it is possible to use the second one if you identify it properly as COM2. If you have only USB ports, it is possible to get a serial-to-USB converter, but using it will require special expertise to change port assignments in Windows.

Doing these steps will create a service called "EGG Service", and start it running. You will probably need to have Administrative privileges to successfully create the service. Once these questions have been answered, they are not asked again – unless you run EGGConfig.exe, which re-asks all the questions. This allows errors to be corrected; otherwise you will not need the EGGConfig.exe program.

* The program will write to a log file in C:\GCP called "EGG.log". There you can get confirmation that the program is running and data is being collected and sent to the Basket program running on the server in Princeton. If there are problems, the Egg.log may have useful error messages. You can send this file to me if you need help interpreting it. You can see the current status of your egg in the table at http://noosphere.princeton.edu/status/basketstatus.html

C. Making the Internet connection work.

Your computer should be connected to the Internet continuously. (It is possible to use dialup, which will not be continuously connected, but the connection must be made at least once per day, and this means it *must be done automatically*. You should let me know if this is the way you intend to connect to the Internet.) We will assume that you are connected continuously or automatically.

Please send me the IP address of the Egg computer. This is sometimes hidden by network settings, but you can find out what it is by going to this URL: http://whatismyipaddress.com/

FIREWALLS: The Egg program uses a special protocol to send the data. It uses UDP packets, which are different from the packets used for browsers and email. The Egg program uses two particular communication ports, number 2510 and 1105. Both of these ports need to be open for transmission of UDP packets. Sometimes firewalls or routers may not be set by default to allow UDP packets, so you will have to find the setup menu for your router or firewall and specifically open port 2510 and 1105 for UDP transmission. We have had a few cases where the UDP was blocked by the ISP providing Internet service. If this is your situation you will have to request the specific ports to be opened. It is a good idea to check on this question before you begin the process of hosting an egg.

The following notes provide some details about how things work, and include a description of a disconcerting problem that may occur where the egg appears to the computer as if it were a mouse, resulting in your cursor jumping around. If you see this, read the "Crazy mouse" section below.

SOME NOTES ON BACKGROUND DETAILS:

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Description of the file system:

The data files are stored in a directory - usually C:\GCP\EGG\Data, and
given a name which is the date they are representing. The file name is
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in the format "yyyymmdd.egg". "20020118.egg" would be today's file. Each
file is 86,400 bytes long - the number of seconds in a day. Each byte
represents the "count" for that particular second of the day. The file
initializes full of "NO_DATA" values, and the actual data overwrites the
NO_DATA when it is available.

SYNCHRONIZING YOUR COMPUTER'S CLOCK (this is for windows 2000. More recent Windows
like XP and Vista have a "Date and Time" management menu in which you will find an
"Internet Time" tab. Use that to specify automatic synchronization of your clock.)

The Windows 2000 command to set the time calibration is:

From a Command Prompt (DOS) window type:
        net time /setsntp:noosphere.princeton.edu

That will cause the computer's time to synchronize with noosphere (the GCP server).

From then on, Windows 2000 will synchronize the time with that computer at
necessary intervals.

To see how it is currently set type:
        net time /querysntp

For more Information on the command, in the Command Prompt window you
can type:

NET TIME /?

CRAZY MOUSE INFORMATION: Soft rebooting and crazy mouse pointer

The following notes provide instructions for booting and soft rebooting Windows
systems with an Orion RNG device connected. A more technical and permanent
workaround is given at the end of this document, but it requires care.

When the PC is soft rebooted (not powered off), power remains applied to
the modem-control pins that turn the REG on. This causes data to continue
to be emitted while Windows is starting up.

Problems may arise because Windows determines that there must be a mouse
attached to the COM port that the REG is attached to. It then automatically
tries to treat the COM port as a mouse (Windows 2000), or tries to load the
necessary mouse drivers (Windows NT).

If you wish to SOFT-reboot the system, unplugging the REG will allow Windows to
start up without being confused by the unknown device on the COM port. Once Windows
has started, re-insert the REG and the EGG will start collecting as it should.

When you bring the machine up from a completely powered-down state, the REG is not
activated until the EGG Service starts running and turns the REG on - and
everything works normally.

There is no EGG data collected during a system restart, and the data file will be
filled with the standard NO_DATA value. No corruption will occur, just missing
data.

If you need to start or stop the EGG Service, go to the Services display within the Control Panel, and choose Start or Stop on the "EGG Service" service.

Instructions for re-installation or installation of a new version for Windows NT/2000. This will be similar for XP and Vista, but you can use the Control Panel and Services menu:

  - at a Command Prompt type> net stop "egg service"
  - copy the enclosed EGG.EXE to C:\GCP - over the existing EGG.EXE
  - at a Command Prompt type> net start "egg service"

  You may also use the "Services" window to start and stop the "EGG Service",if that is easier for you.

If it becomes necessary to reconfigure your egg, for example to use a different COM port, you can use the program EGGConfig.exe, which is available at http://noosphere.princeton.edu/winegg/EGGConfig.exe, or via the Windows links from the software page. The program allows you to change the registry values for the EGG program. EGGConfig.exe will re-ask the 3 setup questions so you can change their values.

USING WINDOWS 98/95/Me Instructions for Windows Egg software, by Paul Bethke

I have not tested the program on W95. I *have* run it on W98. There are two routines that the documentation says do not work under W95, but I have reason to believe they might work just the same.

Anyway, the difference between running on W95/98/Me and NT/2000 is that it cannot run in the "background" on the "lesser" versions of windows – there is no background.

The way it works on Windows 98 is:

        1) Create a directory C:\GCP
        2) Download the EGG.EXE file into C:\GCP
        3) Run the EGG.EXE program from C:\GCP. (in a MS-DOS window)

The program should still ask the question about the EGG ID# and the type of REG.

In theory, you could put EGG.EXE in the "Startup" folder of your Windows 95 menu, and it would re-start when your system started or when you log in if you are using passwords.

Once the egg is running, it will store yyyymmdd.EGG files in C:\GCP\EGG\Data, and will write a EGG.LOG file in C:\GCP. You can examine the EGG.LOG file to see any informational messages. The MS-DOS window itself should not receive any messages.

--- Crazy mouse driver issue next page---

WORKAROUND for the mouse driver problem ** requires care and computer knowledge **
!Only do this if you are not using a "serial" mouse – one plugged into a COM port!

If you use a serial mouse, switch to a PS/2 or USB mouse on the EGG computer.

1) Stop the "EGG Service" service to release the COM port

   - Stop the EGG service
        a) Bring up "Start->Administrative Tools->Services"
        b) Right-click the "EGG Service" service
        c) Choose "Stop"

2) Reproduce the problem in a controlled environment

   - Bring up the Device Manager window
        a) Right-click "My Computer" and choose "Properties"
        b) Choose the "Hardware" tab
        c) Press the "Device Manager..." button
   - Record what the current "Mouse" is
        a) Expand "Mice and other pointing devices"
        b) Note what mice are currently defined
   - Cause the problem manually
        a) Right-click on the current mouse
        b) Choose "Scan for hardware changes"
        c) After Windows installs a driver for the "new mouse", disconnect the REG.
        d) If it doesn't load a new driver, repeat the scan until it does

3) Disable the new mouse driver

   - Right-click on the new mouse listing and choose "Disable"
        I have seen Windows 2000 think that the REG is:
           - Microsoft Serial Mouse and Microsoft Serial BallPoint Mouse

4) Restart the "EGG Service" service

   - Reconnect the REG
   - Restart the EGG service
        a) Bring up "Start->Administrative Tools->Services"
        b) Right-click the "EGG Service" service
        c) Choose "Start"

Once the serial mouse driver has been "Disabled", Windows 2000 will not
attempt to install that driver again. I have rebooted many times after this
process and have not had the problem. Prior to disabling that driver, I
would see the problem about 50% of the time using the Orion REG, and
have yet to see it with the Mindsong REG. (Odd, huh?)

I think Windows 2000 looks for a very specific sequence of consecutive
bytes to determine that there is actually a mouse connected. The "detection"
process lasts about 1 second. With the higher data rate of the Orion, I
suppose it is more likely that the sequence of bytes will occur than
with the Mindsong at about 1/3 the data rate. ??

I hope this works for you as it did for me. This is the Windows 2000 fix only. It
may work for XP. Win 95/98 does not exhibit this problem. Contact Paul Bethke for
further information (via rdnelson@princeton.edu)