Possum HC2006 SERO! Telephone

Firmware Upgrade and Software Manual
firmware version 2.00+

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Updating Sero! Firmware

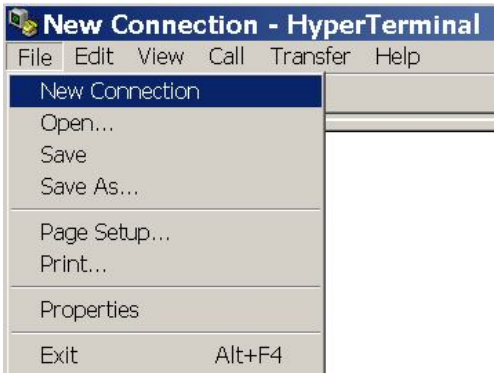
For updating firmware and transferring setup files between PC and phone a Windows application called Hyper Terminal is used

This is supplied standard with windows XP but is omitted for Vista and Windows 7
It can be acquired from the web address below

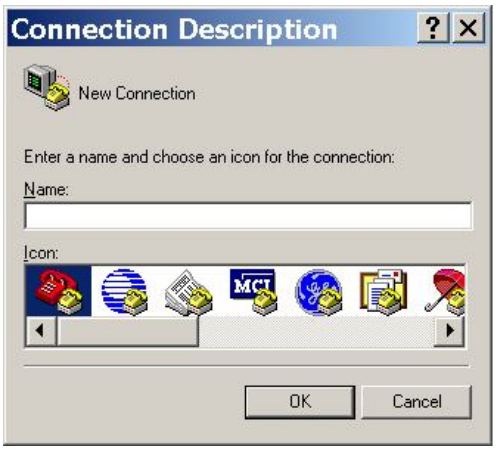
http://www.hilgraeve.com/htpe/download.html

Hyper Terminal Connections: Creating a New connection with Sero

1. Unplug all external USB devices from the PC
2. Prepare the phone for normal operation
3. Disconnect the phone from the telephone line, then mute the warnings
4. Connect the USB lead to the phone
5. Connect the other end of the USB lead to the PC
6. Open Hyper terminal software (from Accessories>Communications)
7. In Hyper Terminal Select File>New Connection from the toolbar



8. The connection window opens

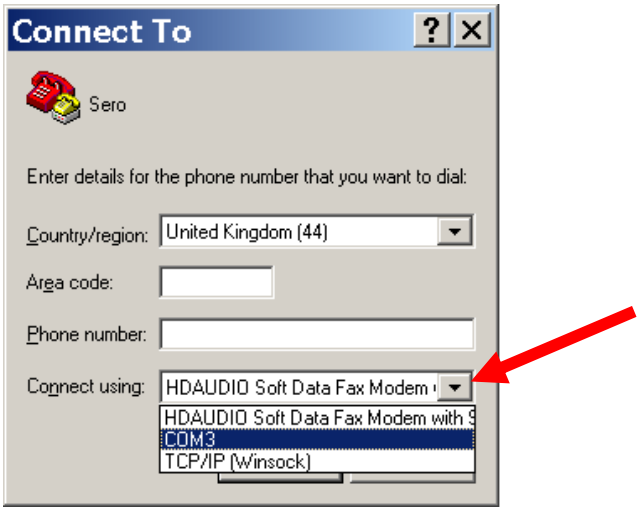


9. Name a connection and click on an Icon to show as a connection

10. Then Click on 

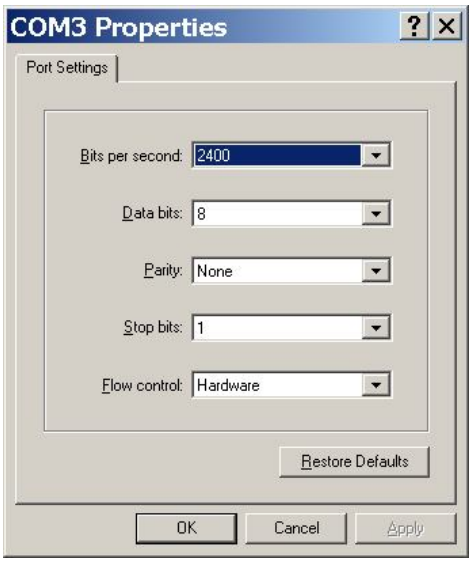
11. The “Connect To” window is then displayed

12. From the “Connect using” drop down list choose the highest available comport

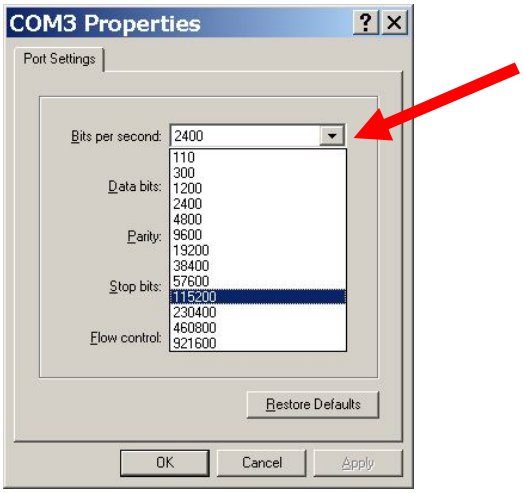


13. Then Click on 

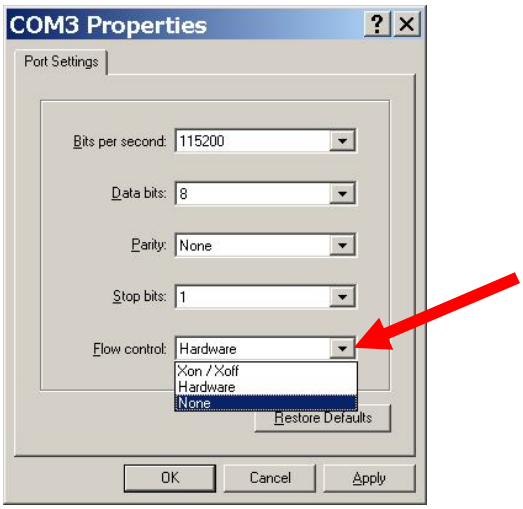
14. The Comport Properties is then displayed



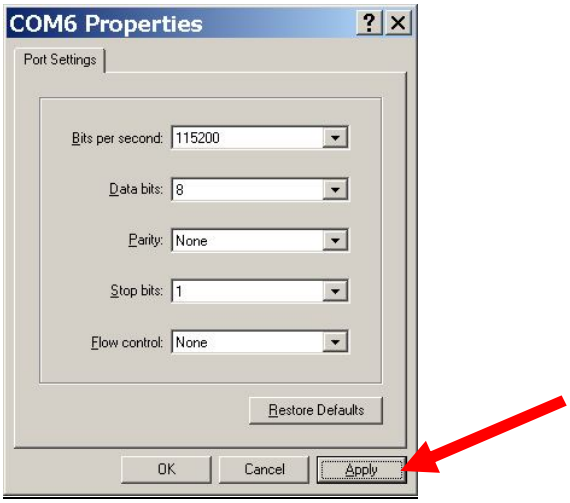
15. Change the “Bits per second” to 115200 from the drop down list



16. Then in the flow control drop down list choose “None”

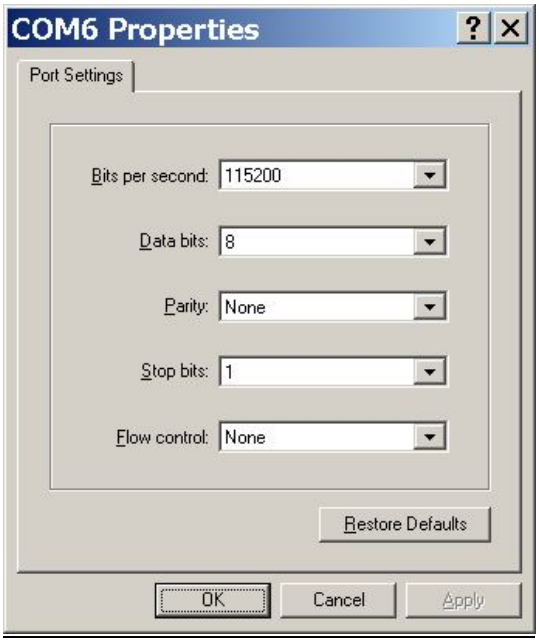


17. Then click on 



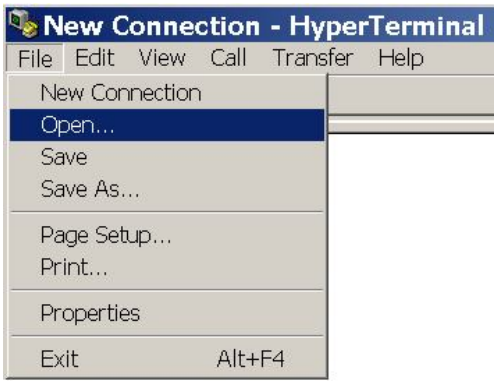
18. Then click on 

to finish

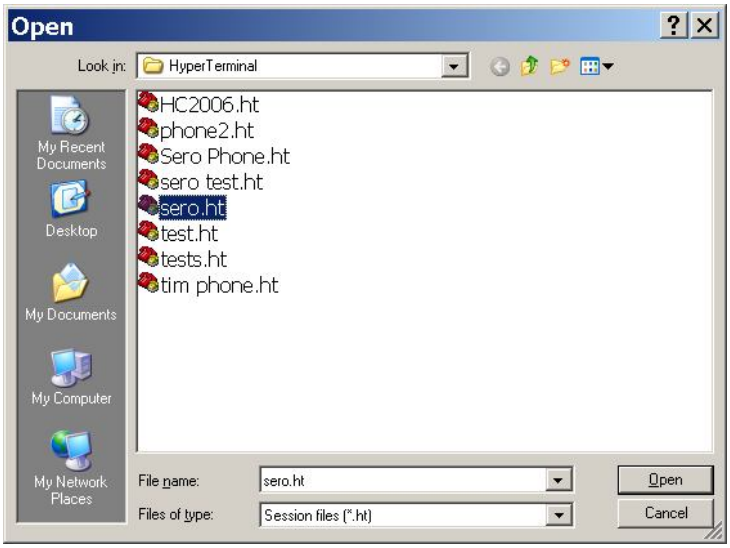

COM6 Properties
Port Settings
Bits per second: 115200
Data bits: 8
Parity: None
Stop bits: 1
Flow control: None
Restore Defaults
OK
Cancel
Apply

Hyper Terminal Connections: Opening an existing Sero connection

1. Unplug all external USB devices from the PC
2. Prepare the phone for normal operation
3. Disconnect the phone from the telephone line, then mute the warnings
4. Connect the USB lead to the phone
5. Connect the other rend of the USB lead to the PC
6. Open Hyper terminal software (from Accessories>Communications)
7. From the Hyper terminal Toolbar select File> Open



8. Then choose the hyper terminal sero connection required and select 



Updating Sero Firmware…

Updating firmware is required when new functions or operations have been added or changed
To update the firmware, you require a PC with HyperTerminal and FTDI USB drivers installed. The drivers for the SERO! are the same as those required for the Primo!.

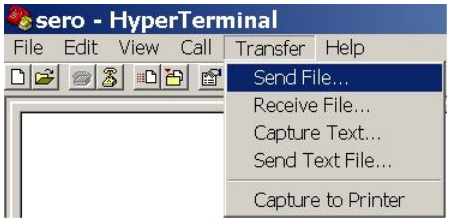
⚠ ***IMPORTANT: If updating firmware from version 1.01 to version 2.00 or later, before starting, please also see the following section for specific notes on field update of client equipment.***

⚠ *Note that the SERO! display is blank during the update process.*

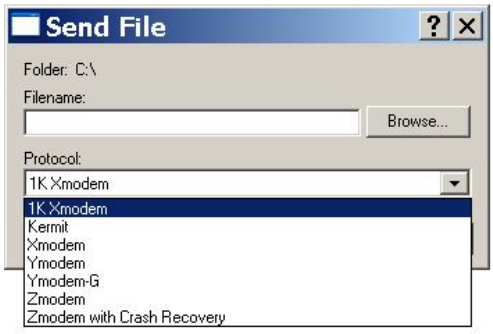
1. Disconnect the phone from the phone line, and power it from the mains adapter.
2. Ensure that HyperTerminal is NOT running.
3. Plug in the USB cable to the PC. If this is the first time a SERO! is connected, Windows will install a driver. If the driver is not already present, it can be obtained from Windows update. Await install complete before the next step
4. Open HyperTerminal and create/load an existing connection for the SERO! (as described above). If this is the first time a SERO! is connected, a new, high-numbered COM port number should be present – use this port. Otherwise, all SERO! phones should appear on the same COM port.
5. Reset the SERO! by pressing and releasing the  and  buttons simultaneously.
6. Upon releasing the buttons, you should see a short message in the HyperTerminal window. Press 'y' to answer yes to the prompt 'Upload Firmware?'.

⚠ **You then have a short time (*30 seconds*) to complete the next 8 steps.**

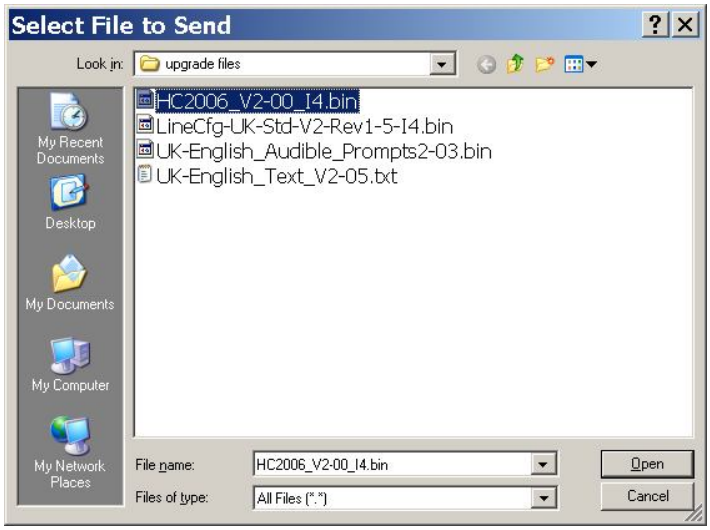
7. From the HyperTerminal menu, select 'Transfer', then 'Send File



8. In the Send File dialogue box, select '1K Xmodem' for the protocol in the drop-down list.

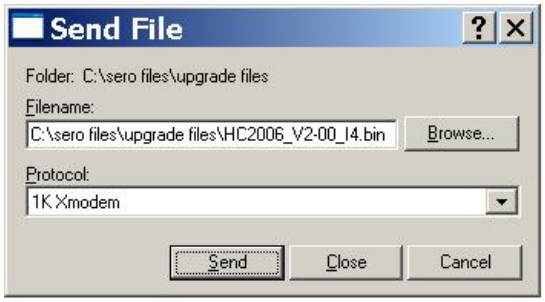


9. In the 'Send File' dialogue box, click on  to select a firmware file from a folder
10. select the file 'SERO!Vx-y.bin' by clicking on the file to highlight it

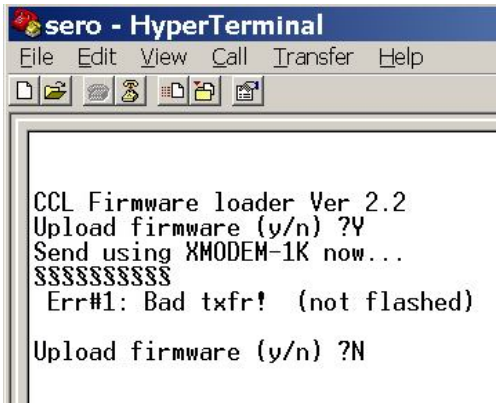


11. it then select 

12. Then in the send file dialogue box select 



13. Transfer will start after a few seconds. If Transfer does not start with about 30 seconds, it may be that the transfer timed out, in which case the error below shows



14. Repeat from step 7, unless the phone display is active. If so, repeat from step 5.
15. If an error occurs, repeat transfer after checking that the file you are sending is correct and complete. Sending invalid firmware may stop the phone working, but firmware update is still possible using the emergency update procedure.
16. If the transfer completed O.K., the phone will run the new firmware automatically.

WARNING: Firmware loader version 2.2 had a limitation that restricted the firmware file size. If, at the end of transfer, the block count is higher than 172, the upgrade will fail and will fail to run or be unstable. In this case, use the ICD2 programmer to upgrade both the firmware and boot loader .

When updating firmware, it is normally necessary to update the prompt file. See the section 'File Transfers'.

Emergency update Procedure…

If the phone software is corrupted, the phone may not work at all or crash repeatedly. The firmware loader should still work but accessing it is slightly tricky.

Do not use this procedure if the phone works.

Procedure will not work if the phone has never been programmed with firmware.

1. With the phone disconnected from the line and power supply, remove one battery.
2. Power the phone using the mains adapter.
3. Follow steps 1…3 above to start HyperTerminal with the phone powered up. Note: the USB drivers will still install, even if the phone is not programmed with firmware.
4. Reset the SERO! by bridging jumper P6 (located at the front of the main PCB) momentarily.
5. If the phone prompts for the sending of the file, answer yes, then go to step 6 in the procedure above.
6. If this fails, double check USB ports etc. and repeat.
7. If still no go contact Possum Ltd and arrange a customer return, as this will need a microchip programmer

Updating SERO! firmware v1.01 to V2.xx

Although the details of the general firmware update are given in the previous section, these notes show the process specific to version update of client equipment, where the existing client settings are to be retained.

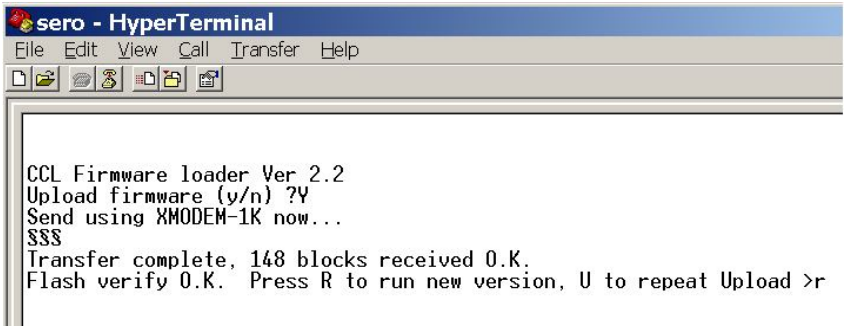
Version 1.01 firmware (*as loaded on phone with serial number <1500 when new*) has a limitation in that it cannot back-up or restore the phone settings, outgoing messages or help message. However, version 2.xx firmware must re-format the SD card, thus wiping all data on it. To successfully update a SERO!, while preserving *all* data and settings, the following procedure must be followed:

1. Ensure that the phone is disconnected from the telephone line, and is powered from the mains supply.
2. Update the firmware following the procedure given in the previous section, ensure you use the correct firmware (HC2006_V2.00_I4.bin)

   Note: <u>DO NOT</u> reset or power cycle the phone after firmware update!

3. Immediately after the firmware is updated the Hyper terminal window will display the following message "***Flash verify OK Press R to run new version. U to repeat upload >***" as shown below

4. Press character 'R' (not case sensitive) on the PC keyboard, to run the firmware on the phone



5. After the new firmware is loaded, and when it starts, the SERO! will show on the screen:

   Firmware Upgraded!
   Backup ALL data
   Then, press 'R'.

6. Now Close Hyper Terminal
7. Start the SERO! Backup and Restore software
8. Perform a full back-up,(*see: SERO! backup and restore software*)
9. Then close the SERO! backup software
10. Press the 

key on the SERO! keypad
11. The phone resets and requests system files in turn

    Linecfg: Invalid = new line config required
    txt prompt err! = new text prompt file required
    No rec, prompts = new audible prompts file required

12. Reopen Hyper Terminal and create/load a connection with the phone (see creating a sero connection)
13. Load the updated files, **See File Transfers –sending files to the phone**

    - LineCfg-UK-Std-V2-Rev1-5-I4.bin (line config)
    - English_Audible_Prompts2-03.bin (voice prompts)
    - UK-English_Text_V2-05.txt (text prompts)

    These files should be appropriate for the firmware version, and locale (*country*).
    Note that phones with a serial no <1500 use a different line configuration file to those with serial No 1500>.
    Only the correct line configuration file will be accepted.

14. After transfer of all files is completed , close HyperTerminal
15. Restart the SERO! Backup and Restore software application
16. Do a complete restore (*the SERO! automatically converts the restored files*)

17. Close the PC software
18. The SERO! will now be updated with all data intact
19. Note however that version 2. firmware has a number of new features and settings, which will be set to factory default values. Review settings to make any changes necessary
20. Reconnect the phone line and make a test call. It may be necessary to adjust hands-free volume, or change the hands-free mode. Hands-free mode 1 is now the recommended setting for most situations

File Transfers

For important safety reasons, the SERO! must be disconnected from the phone line before a connection is made to the USB port.

With the phone running normally, it is possible to send and receive various data files. This can be done using HyperTerminal under windows, with FTDI USB drivers installed. The PC USB drivers for the SERO! are the same as those required for the Primo!.

If the USB drivers are not present, an internet-connected PC may be able to load them from Windows Update. Otherwise, download the latest drivers from:

http://www.ftdichip.com/Drivers/VCP.htm

All transfers use the 1K-Xmodem protocol.

The phone will 'freeze' during data transfers; it cannot answer or make calls. Any announcement in progress will stutter or pause for the duration of the transfer.

Sending a file to the phone…

1. Prepare the phone for normal operation (*i.e. insert batteries, fit keypad, connect handset, then connect the mains adaptor and switch on at the mains, then set date and time*)
2. Ensure that the SERO! is NOT connected to the telephone line
3. Ensure that Hyper Terminal is NOT running
4. Connect the USB cable to the rear of the SERO!
5. Plug in the USB cable to the PC. If this is the first time a SERO! is connected, Windows will install a driver
6. Open HyperTerminal and create a new/open an existing connection (*see Hyper Terminal connections*) for the SERO!. If this is the first time a SERO! is connected, a new, high-numbered COM port number should be present – use this port. Otherwise, all SERO! phones should appear on the same COM port.
7. At the PC keyboard, press **{**
8. Then type the appropriate command to send to the phone (*see "send file command list" below*)
9. Then close the command with **}**

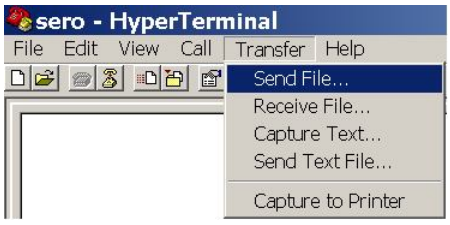
   The phone does not 'echo' back the characters sent until the closing '**}**' is typed. If the phone does not recognise the command, an error '{!c=xx}' message is shown.

   With the command recognised one **§** character will display on the hyper terminal screen and will increase to several **§§§** characters as time increases before transfer

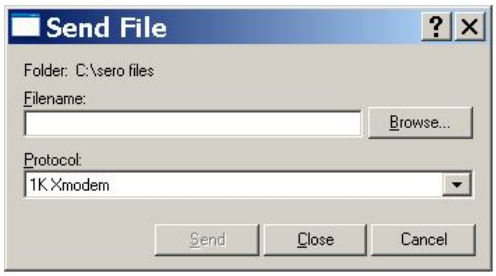
   The phone will also display a  symbol

You then have a short time (30 seconds) to complete the next 5 steps.

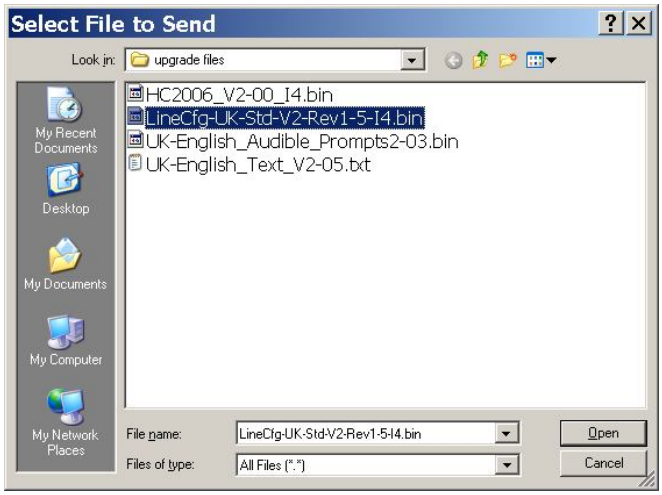
10. From the HyperTerminal toolbar menu, select 'Transfer', then 'Send File…'.



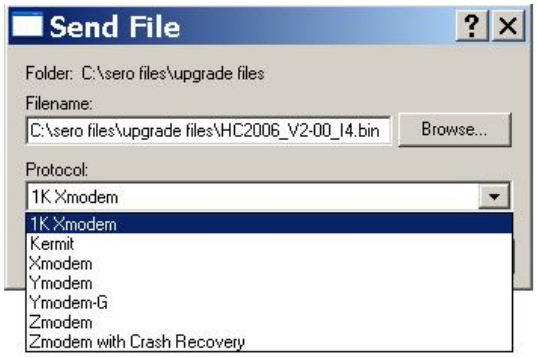
11. In the ‘Send File’ dialogue box, click on Browse... to select a file from a folder



12. In the appropriate folder click on the file to select it (it highlights) then select Open



13. Then from Protocol drop-down list choose ‘1K Xmodem’



14. Then select Send button

15. Transfer will start after a few seconds. If Transfer does not start with about 30 seconds, it may be that the transfer timed out. Repeat from step 5.

16. Once the file is transferred, the phone loads it automatically. e.g. changed prompts take immediate effect (as screen is updated). If the phone has incorrect or missing files this will show on the display, load these files as described above

Send File Command List (i.e. PC to Phone)

All commands are case sensitive! upload' means *send to phone*

{l}	Upload line configuration.
{t}	Upload the text prompts.
{v}	Upload the voice prompts and spoken warning recordings.
{g}	Upload outgoing message (OGM) recordings.
{h}	Upload recorded phrases.
{m}	Upload help call message recording.
{p}	Upload phone book and associated name recordings.
{s}	Upload all settings.
{x}	Upload Possum use only data file

Receiving a file from the phone…

1. Prepare the phone for normal operation (*i.e. insert batteries, fit keypad, connect handset, then connect the mains adaptor and switch on at the mains, then set date and time*)
2. Ensure that the SERO! is NOT connected to the telephone line
3. Ensure that HyperTerminal is NOT running
4. Connect the USB cable to the rear of the SERO!
5. Plug in the USB cable to the PC. If this is the first time a SERO! is connected, Windows will install a driver
6. Open HyperTerminal and create a new/open an existing connection (*see Hyper Terminal connections*) for the SERO!. If this is the first time a SERO! is connected, a new, high-numbered COM port number should be present – use this port. Otherwise, all SERO! phones should appear on the same COM port.
7. At the PC keyboard, press **{**
8. Then type the appropriate command to send to the phone (*see "send file command list" below*)
9. Then close the command with **}**

   The phone does not 'echo' back the characters sent until the closing '**}**' is typed.

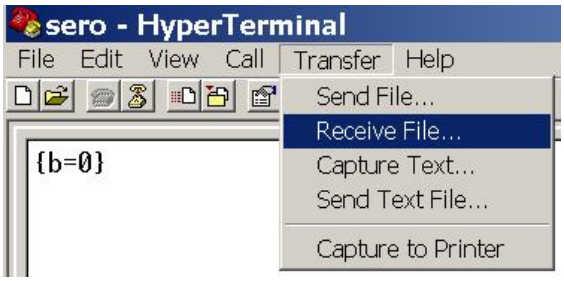
   If the phone does not recognise the command, an error '{!c=xx}' message is shown.

   With the command recognised one **§** character will display on the hyper terminal screen and will increase to several **§§§** characters as time increases before transfer

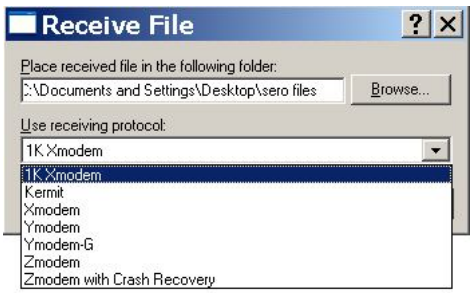
   The phone will also display a  symbol

 **You then have a short time (*30 seconds*) to complete the next 8 steps.**

10. From the HyperTerminal Toolbar menu, select 'Transfer', then 'Receive File…'.



11. In the Receive File dialogue box, select '1K Xmodem' for the protocol in the drop-down list.



12. Click on browse and locate the directory to which to save the file to. Then select 'Receive'

13. You must then provide a name for the file. Enter a name then press OK

14. Press 'Receive' again in the Receive File dialogue.

15. Transfer will start after a few seconds

16. When complete the transfer window (above) disappears as does the  symbol from the display of the telephone
17. If transfer does not start after about 30 seconds, it may be that the transfer timed out. In which case an "Error 17" will appear in the terminal window. If this is the case repeat from step 7.

Send File Command List (i.e. Phone to PC)

All commands are case sensitive! '*download*' means *receive from phone*.

{a}	Download phrase recordings
{b}	Download phonebook and associated name recordings
{C}	Download line configuration data
{e}	Download all settings (*all categories*)
{G}	Download outgoing message (OGM) recordings
{M}	Download help call message recording
{o}	Download voice prompts and spoken warning recordings
{X}	Download Possum use only data file

File transfer commands…

File transfers use 1k-Xmodem with CRC or checksum. These commands send a good acknowledge packet the start xmodem transfer immediately. For the purposes of this list, '*upload*' means *send to phone*, '*download*' means *receive from phone*.

{a} Download phrase recordings
{b} Download phonebook and associated name recordings
{C} Download line configuration data
{e} Download all settings (*all categories*)
{G} Download outgoing message (OGM) recordings
{M} Download help call message recording
{o} Download voice prompts and spoken warning recordings
{X} Download Possum use only data file

{g} Upload outgoing message (OGM) recordings
{h} Upload recorded phrases
{l} Upload line configuration
{m} Upload help call message recording
{p} Upload phone book and associated name recordings
{s} Upload all settings
{t} Upload the text strings
{v} Upload the voice prompts and spoken warning recordings
{x} Upload Possum use only data file

Error codes for xmodem transfers (not boot loader)…

1 no response, or host not sending XMODEM-1K
2 block sequence error
3 block true and inverse do not match or timeout on block number
4 timeout while receiving data block
5 host cancelled transfer

Information commands…

{E} Show current register settings for the echo canceller
{f} Return the firmware version in the form:
{f=0,*mm*,*ll*}
Where: *m* is firmware major version (9=pre-release)
l is firmware minor version
{I} show description of line configuration and test string files loaded
This command returns the two description strings as shown in 'Show Information'.
{n} Return unique hardware ID and version in the form:
{n=0,*xxxxxxxxxx*,*v*}
Where: *x*.. 10 hex digit unique ID (Issue 5 and later only, otherwise ID=0)
v hardware revision (PCB issue)

Miscellaneous commands…

{d} Set all settings back to factory default values
{i0|1} Set standard (0) or alternate (1) line impedance – settings are dependant on the line configuration. Any change is saved, takes effect from *next* call made/received.
{Kx} Send key code 'x' as though that key was pressed (or event had occurred). Primarily for engineering use, but allows start up prompts to be acknowledged to allow automated firmware update, for example.
{L} Write changed echo canceller settings to the line config. file, to make changes permanent.
{r} Reset / restart.
{S} Set a new value for an echo canceller register (during a call).
Register number is selected by bits 1..3 (development use only).

{V} Set speaker gain for current hands-free mode (development use only)

{zdef} Erase personal data / wipe; erases:
Phrases, OGMs, Phone book, Call & Redial logs, Help call message and Answer phone messages (but *not* the settings – see {d}).

{zzz} Erase the SD card completely, erasing ALL settings, user, and country-specific data.
This command *cannot* be undone.

{Zxy} Set the line impedance and matching (accepted for issue 5+ PCBs only).
Where: x sets the line impedance (digit 0..4) (see line cfg for details)
y sets the side tone level (digit '0' or '1') where 0=low, 1=normal.
The low side tone level is used for hands-free operation and maximises duplex performance.
Intended for use *during* a call for comparison purposes – has no permanent effect.

Sero! Backup & Restore software

What is the software?

SERO! backup and restore software is an easy to use windows based application (written by possum) that enables persons in the field supporting the telephones to backup (*save*) the information that has been setup on the telephone for a specific user, to a PC, and restore that information to another SERO! telephone in the event of:

- The telephone fails for what ever reason, then another phone can be restored with the same user data very quickly
- For the purposes of duplicating the phone for a multiple phone installation in the same property, where phonebook, phrases and settings are to be identical
- Before upgrading the firmware from version 1.01 to version 2, (*as part version 2 upgrade process includes reformatting the internal SD card* [in so doing deleting user data] *to facilitate the new functionality and hardware*)

Prerequisites (before installing the software)…

The software requires **Microsoft .NET version 3.5** or later, and this will be installed automatically, providing the PC is not 'locked down' by group policy (*from your IT department*) or other limitations… and an internet connection is available. The required .NET, together with the latest 'service packs' can also be obtained and installed via Microsoft Update. In addition, USB drivers are required, and these must be the 'combined VCP and D2XX' driver, version 2.04 or later, available for all current MS Windows versions. The same USB driver is used for both Primo and SERO!, however PCs previously used for Primo backup will likely need the driver updating for use with the SERO! backup software.

The current driver can be obtained from the supplier's web site:

http://www.ftdichip.com/Drivers/D2XX.htm

The latest 'WHQL' certified driver for the version of MS Windows in use should be selected.

Note: If an older 'VCP' only driver is installed, the PC software will show an error message and stop. However the older driver is perfectly satisfactory for 'manual' file transfers using HyperTerminal. The new combined driver works well for both programs.

The software is compatible with both Windows XP and Windows Vista operating systems

Compatibility with Other Software Products…

Certain software used for programming **'Neat' (possum Info pager)** RF modules and '**Gewa'** Infra Red modules also install similar USB drivers, however, at the time of writing, they install an old version of the driver, and may cause the existing driver to be replaced with an old, incompatible version.

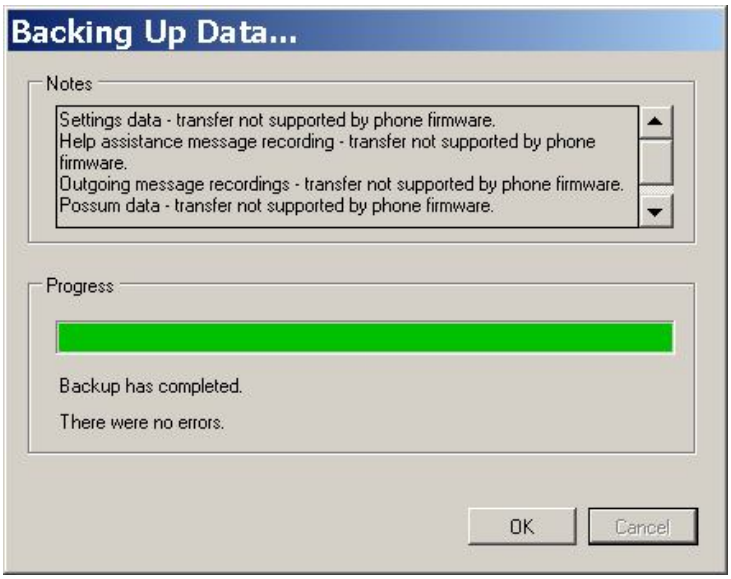
Simply re-install the latest driver, which is backwards compatible and will work with both Possum and Neat software and Gewa .

Back-up Software Limitations…

The PC software supports SERO! telephones with both 1.01 and 2.x version firmware, however phone firmware version 1.01 has limitations; specifically, the phone settings, outgoing messages and help message cannot be backed up or restored. This is a limitation of the phone, not the PC software. The back-up software always backs up all possible data for any given phone firmware.

During the back-up and restore processes any errors or warnings are shown in the progress dialogue box.

The following advisory messages will appear during back-up of a version 1.01 phone:



These messages advise on the limitations of the *phone* firmware – they do not indicate an error or that the back-up failed. If upgrading a phone from firmware version 1.01 to version 2.xx, upgrade the firmware *before* back-up, as this ensures that no settings will be lost.
Note that a back-up from a version 1.01 firmware phone can be restored to a version 2.xx firmware phone.

⚠ ***Restoring a back-us made from version 2.xx to version 1.01 will not work***

Preparation (before using the software)…

1. Prepare the phone for normal operation (i.e. insert batteries, fit keypad, connect handset, then connect the mains adaptor and switch on at the mains, then set date and time)
2. Ensure that SERO! is not connected to the telephone line
3. Ensure that Windows HyperTerminal is not running.
4. Connect the USB cable to the rear of the SERO!
5. Plug in the USB cable to the PC. If this is the first time a SERO! is connected, Windows will install a driver.

Starting the software…

1. From the windows start menu open the SERO! backup and restore software. The software will look for the connected SERO! phone.

2. The software and phone will link automatically and the phone will be displayed to show connection:

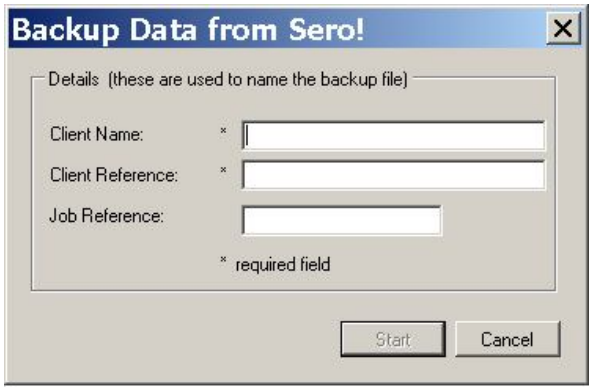
3. 'IF' connection does not occur the following message will show:

4. Check connections including USB and power to the phone then select "Try Again…"

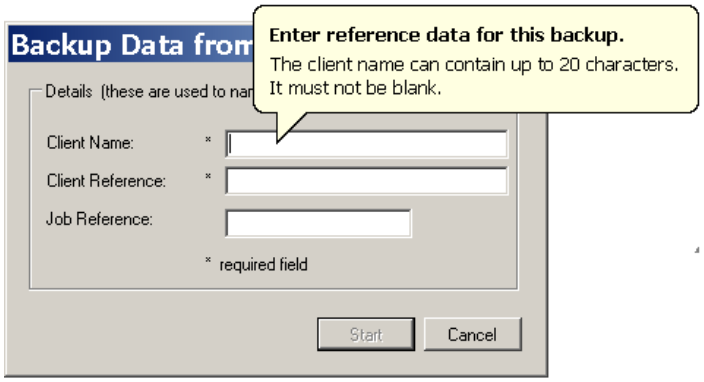
Backing up the phone….

1. Connect the phone and start the software as described above
2. Press the backup button 

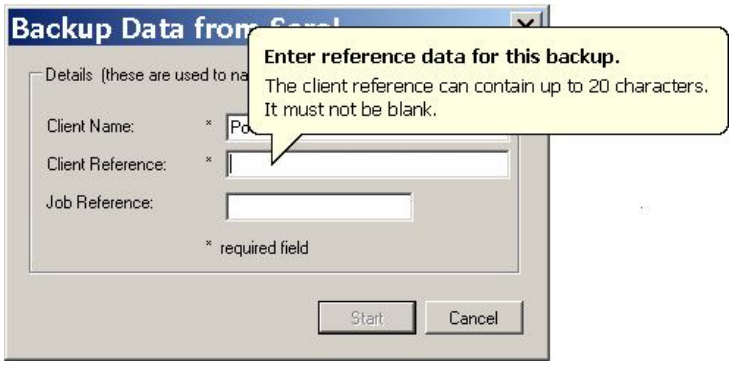
3. A Data entry box appears, enter information as follows

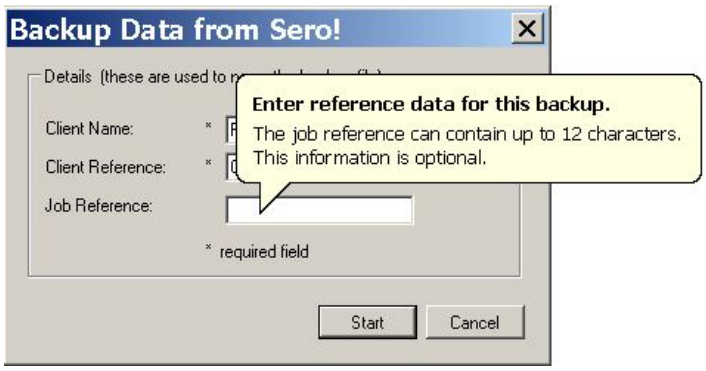


4. Enter the client name:

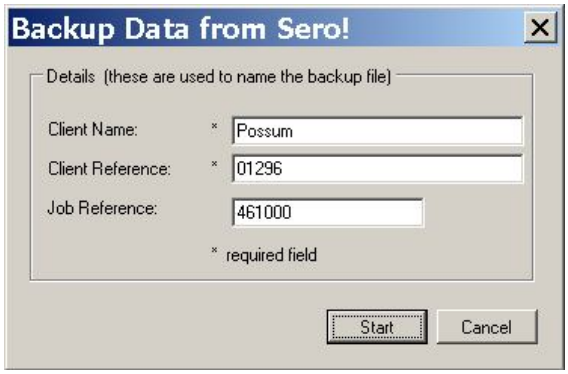


5. Next enter the client reference (*usually a client Number or patient number*)…

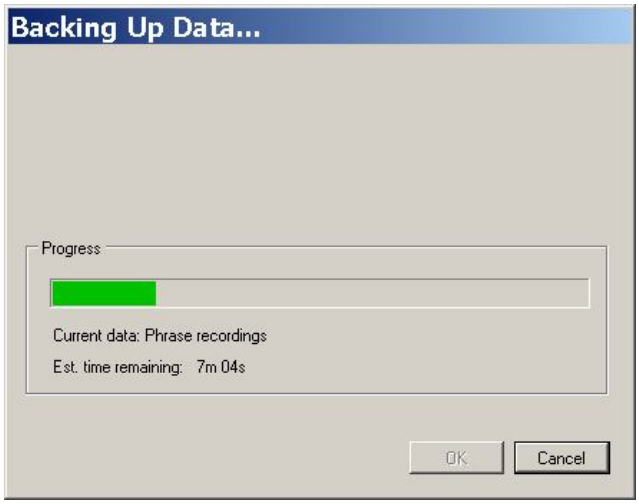




6. Then press Start to begin backing up

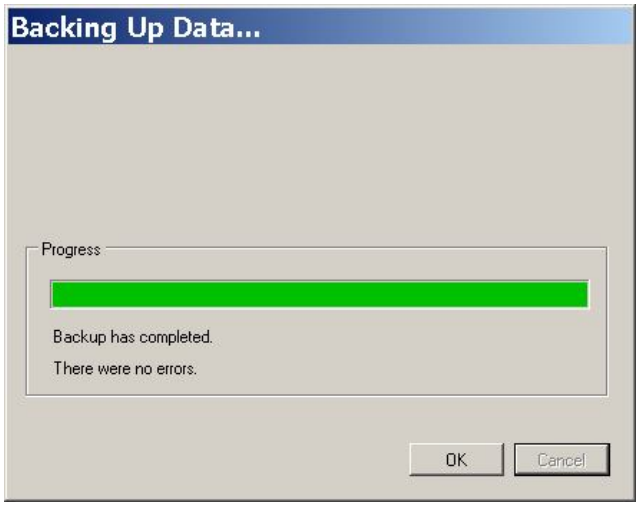


7. during backup the progress screen will show



8. To stop backup and quit press Cancel at any time

9. When backup has been completed select 

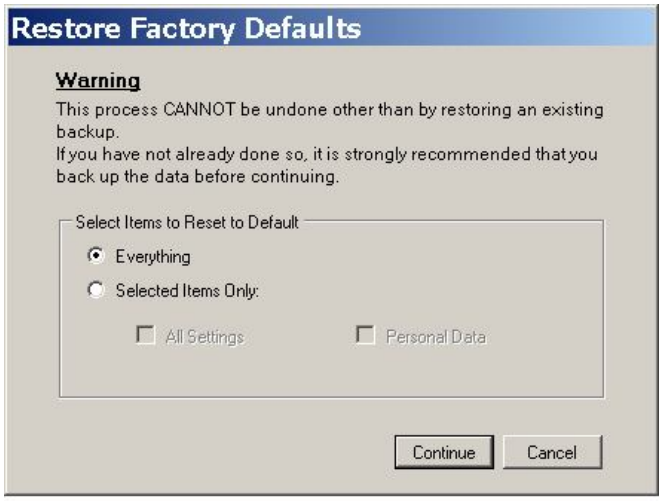


The file will be save to the location in ***"My Documents\Sero backup"*** folder

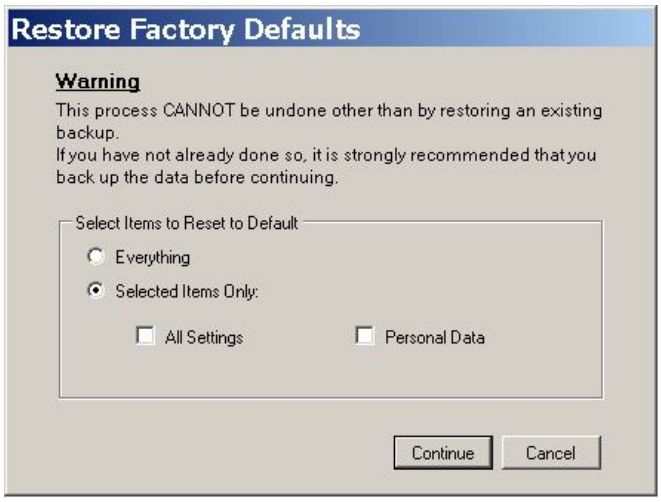
Resetting SERO back to Factory Defaults…

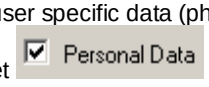
1. In the sero software toolbar select "Device-Clear User Data"

2. You are then given two options:

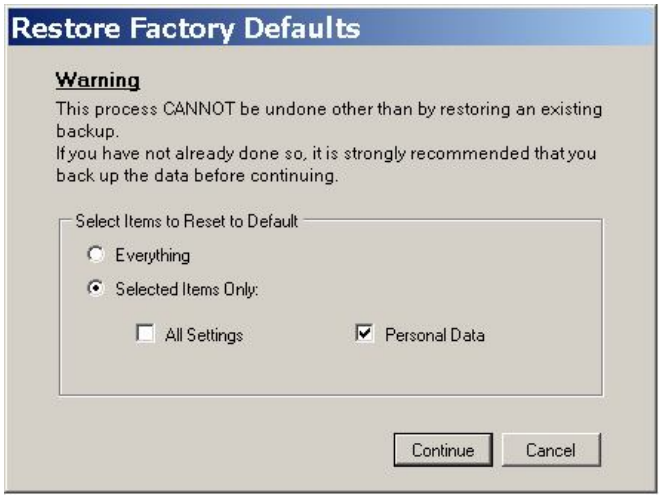


3. choose either “Everything” or “Selected Items Only”
4. choose “Everything” to clear all user data (*phonebook, phrases, OGM’s recorded help message*) as well as restoring all settings to factory default values
5. choosing “Selected Items Only” gives two further options; either to clear user data or reset all settings

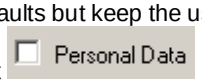


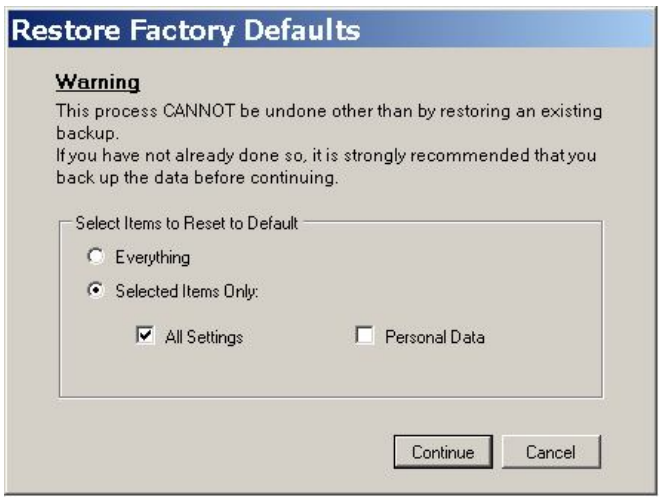
6. To clear only user specific data (phonebook, phrases, OGM’s recorded help message) but leave settings unchanged, set 

and unset 



7. To restore settings to factory defaults but keep the user data on the phone

   Set  and unset 



8. To initiate the reset select  ,

   The process will then occur immediately. There will be no more warnings and it cannot be undone

Restoring files to SERO!….

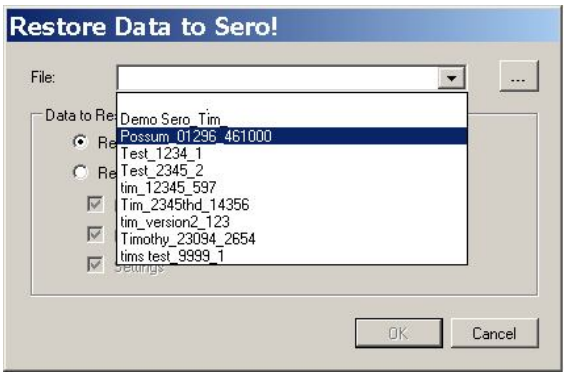
1. Connect the phone to the PC and start the software as described above

2. Ensure there is a connection, a phone symbol will appear

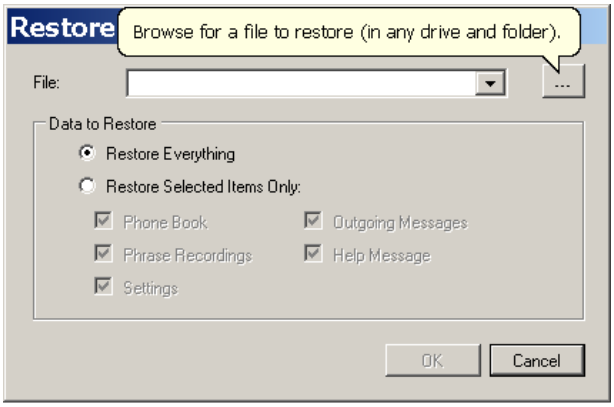
3. Select restore 

to view restore options

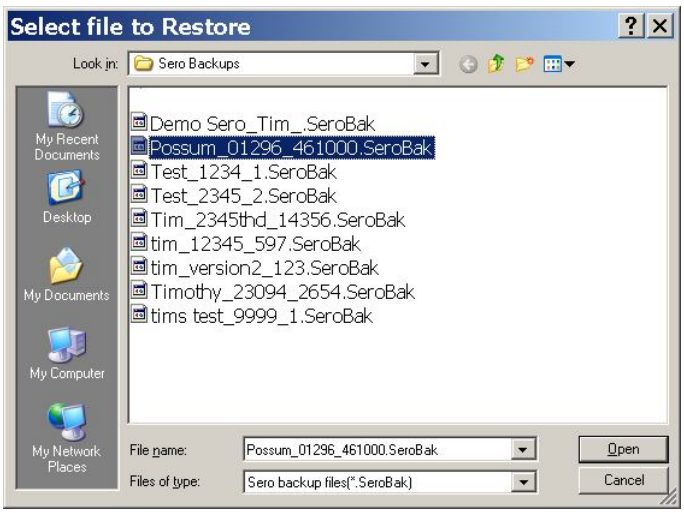
4. Firstly a file needs to be chosen to restore. To choose a recent backup select one from the file drop down list. The drop down list shows the last 10 backups



5. To choose an earlier file or file from any folder select 



Choose the file from the folder then select 



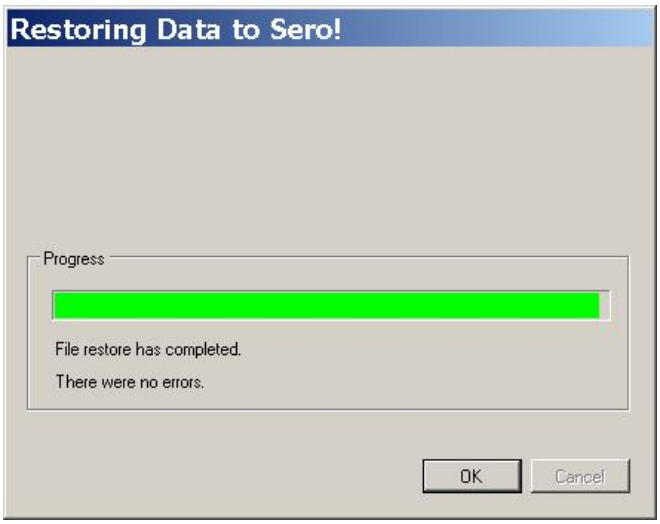
6. Next choose whether to restore a whole backed up file (*settings phone book, phrases etc…*)

or choose selected Items only of parts of a back-up…

With selected Items chosen, check (tick) the items to restore to the phone

Note: Settings, Outgoing Messages, User Help Message cannot be restored back to a phone running version 1.01 firmware these will have to be set manually on the phone itself

7. Once the items/file have been chosen to restore select OK to start the restoration process
8. During restore a progress windows shows,
9. When restore has completed press OK to finish



Viewing backed up Sero files…

It is possible to easily view files that are in the default backup folder from within the sero backup restore software application

1. To view these files, from the sero backup software toolbar select File, View files…

2. The default folder then opens