## APPENDIX I: CTSSE THIRD PARTY SOFTWARE

## **CTSSE Components**

The following software was incorporated into the CTSSE as functional components. Descriptions are from their respective websites:

**Ethereal** (Freeware) Gerald Combs, http://www.ethereal.com/

Ethereal is a free network protocol analyzer for Unix and Windows. It allows you to examine data from a live network or from a capture file on disk. You can interactively browse the capture data, viewing summary and detail information for each packet. Ethereal has several powerful features, including a rich display filter language and the ability to view the reconstructed stream of a TCP session.

WebReaper (Freeware) Mark Otway, http://www.webreaper.net/

WebReaper is web crawler or spider, which can work its way through a website, downloading pages, pictures and objects that it finds so that they can be viewed locally, without needing to be connected to the internet. The sites can be saved locally as a fully-browsable website which can be viewed with any browser (such as Internet Explorer, Netscape, Opera, etc.), or they can be saved into the Internet Explorer cache and viewed using IE's offline mode as if the you' d surfed the sites "by hand".

**StegDetect** (Freeware) Niels Provos, http://www.webreaper.net/

Stegdetect is an automated tool for detecting steganographic content in images. It is capable of detecting several different steganographic methods to embed hidden information in JPEG images.

**AutoMate 4** (30-day trial) Unisyn Software, http://www.unisyn.com/

AutoMate is a software tool for Windows that enables users to handle repetitive tasks by easily building custom "automated tasks". AutoMate enables users to construct automated tasks with the help of a wizard and an intuitive drag-and-drop Task Builder.

## **CTSSE Development Tool**

The following software tool was used to generate "in-house" core software:

**Borland Turbo C++ V1.01** (now Freeware) Borland, http://community.borland.com/

Released in 1991, this was Borland's first compiler that supported the C++ language. It conforms to AT&T's 2.0 specification and the development environment and command line tools run under DOS or in a DOS Window.

## **CTSSE Test Gallery Production**

The following software was used to generate test images:

Invisible Secrets 2002 (Shareware) Neobyte, http://www.neobytesolutions.com/

Invisible Secrets 2002 not only encrypts your data and files for safe keeping or for secure transfer across the net, it also hides them in places that on the surface appear totally innocent, such as picture or sound files, or web pages. These types of files are a perfect disguise for sensitive information. It provides strong encryption in the form of Blowfish (used in the testing), Twofish, RC4, Cast128, and GOST. It includes a shredder, a password manager and generator. It interfaces nicely with Windows Explorer via right-click context-sensitive menus.

JP Hide and Seek (http://linux01.gwdg.de/~alatham/stego.html) Freeware. JPHS is a Win95/98/NT stego program with a no-frills GUI that hides data in the ever popular JPG image format. JPHIDE and JPSEEK are rather special. The design objective was not simply to hide a file but rather to do this in such a way that it is impossible to prove that the host file contains a hidden file. Given a typical visual image, a low insertion rate (under 5%) and the absence of the original file, it is not possible to conclude with any worthwhile certainty that the host file contains inserted data. As the insertion percentage increases the statistical nature of the jpeg coefficients differs from "normal" to the extent that it raises suspicion. Above 15% the effects begin to become visible to the naked eye. Of course some images are much better than others when used as a host file - plenty of fine detail is good. A cloudless blue sky over a snow covered ski paradise is bad. A waterfall in a forest is probably ideal. Its small size is a major bonus

as it easily fits on a disk. It uses encryption as well, but does not mention which type. DOS and Linux version also available.

JSteg Shell v2.0 (http://members.tripod.com/steganography/stego/jstegshella.zip) Freeware. JSteg Shell is a Win95/98/NT (not Win2000) interface to run JSteg DOS, a program by Derek Upham which hides data in the ever popular JPG image format. Includes 40 bit RC4 encrytion, determination of the amount of data a JPG can hide beforehand, and user-selectable JPG options (ie degree of compression). JSteg Shell has a slick, easy to use interface that makes using JSteg DOS a snap. Jsteg Shell comes with the DOS executables, and the installer takes care of all of the setup details.