

Overview of Security Without Network Access (SWONA)

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SWONA is a software monitor for the secure installation and execution of computer products and phone apps. SWONA uses the unique characteristics of the computer or cell phone to install the developer's product to only that specific hardware configuration.

SWONA does not use encryption and is not restricted for export. SWONA does not access clearing houses to obtain licenses by internet or by telephone. SWONA produces timed licenses as specified by the developer. The license file contains blocks of plain text digits as human readable. License dates are in the format of YyyyMmDd.

After installation of the developer's product, SWONA also enforces execution of one instance of the product on one computer at one time and by one user and in one session.

The distribution media of SWONA is a CD+R and a blank DVD+RW. Included is the TrueBASIC compiler in a demo version. The installation process is described below.

This is the SWONA main processing routine that calls Developer_program from the SWONA_components library which is precompiled and hidden . The developer inserts here the source code of the product and binds it as "product.exe" for finished production.

```
PRINT
PRINT "Sample source code of product program before installation."
PRINT
PRINT "      © Copyright 2014, Colin James III All rights reserved."

LIBRARY "swona_lib.trc"

DECLARE PUBLIC Swona_components
DECLARE PUBLIC Developer_program

CALL Swona_components

END

EXTERNAL

MODULE Developer_components
  SUB Developer_program
    PRINT
    PRINT "The developer's program executes from here."
    PRINT
    PRINT "Product execution is completed; press any key to end. ";
    GET KEY zzz
    !
    ! Put product source code here between the lines SUB and END SUB.
    !
  END SUB ! Developer_program
END MODULE ! Developer_components
```

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Setup procedures for the developer to produce the installation media of a product

1. On the host computer of the developer, insert the SWONA distribution media CD-R into a CD readable drive. Copy the directory "Product Installer DVD" to the root directory of the host drive C:\. Remove the CD-R media from the CD drive.
2. On the host, insert the blank DVD+RW provided into a DVD writable drive. Format the DVD and note the letter designation of that DVD drive. Do not remove the formatted DVD. (This DVD writable drive is the source drive below in Steps 7 and 8.)
3. Go to the default host directory of "C:\Product Installer DVD". On the host, execute the program file named `tb_bronze_6007_demo_setup.exe` which installs a demo version of TrueBASIC® Bronze edition.
4. On the host, paste the source code in TrueBASIC of the target product from the developer into the existing file named "product_456.tru". The insert location is between the subroutine lines of "SUB Execute_product" and "END SUB ! Execute_product". Using TrueBASIC, bind the modified file "product_456.tru" and save it to the program file named "product.exe". (The file named "SWONA_library.trc" contains required SWONA routines that are already precompiled.)
5. On the host, copy the program files named "host_123.exe" and "install_789.exe" to the respective program files named as "host.exe" and "install.exe" for original copies.
6. On the host, execute the program named "host.exe". When prompted, input the letter designation of the DVD drive from Step 2. The text files "drive.txt" and "license.txt" and the program files named "install.exe" and "product.exe" are written to the source drive root directory of that DVD drive as designated.
7. The developer is prompted with data input instructions to produce the timed license. This writes a text file named "license.txt" to the host. It contains human readable digits for the following: the date and time the license was made; the begin or commence date of the license; the end or terminate date of the license; and validation codes. A period "." marks the end of each block of information for ease of readability. (A stand alone version of this utility to make subsequent licenses is named "license.exe".)
8. On the source DVD, execute the program file named "install.exe". This writes the program file named "product.exe" to the customer target subdirectory, predefined as C:\product\. This also copies the text files named "drive.txt" and "license.txt" to the target C:\product\. This target location is where the product for the end user is installed.
9. In the target C:\product\, for testing execute the program named "product.exe" which should run correctly after authentication of the installation and validation of the license, and enforce the use of only one instance of the product at one time on one computer.

10. The customer receives the DVD from Step 8 which includes the files named "install.exe", "license.txt", "product.exe", and instructions from the developer*. After customer installation, updated license files can be copied directly to C:\product\.

Sales:

SWONA pricing is US \$497 and PRC ¥2,997.

Support:

Support is available Monday - Saturday from 8 AM to 8 PM Mountain Time at (719) 210 - 9534 or by email at swona-support@cec-services.com. Please have the license text available to read or to send. The mailing address is Phi Logic, LLC, 3925 Elisa Ct, Colorado Springs CO 80904.

Export compliance:

SWONA does not use encryption and hence is not subject to export restrictions.

Manufacturing notes:

1. The preferred method of DVD production is to build each distribution disc separately. This is because the processing time for the above procedures is less than three minutes on a laptop DVD burner.
2. The less desirable method for DVD production uses DVD image copying software as priced by internet access and locked to an OS version. That process on a laptop takes about 13 minutes for the host DVD, and to burn each subsequent DVD copy takes about 15 minutes. Therefore if DVD production of the same production image is in bulk, commercial jukeboxes are faster than commercial DVD image copiers.

Known strategies to defeat SWONA:

The only strategies to defeat the authenticity of a product are to make a bit copy of the disk containing the installed "product.exe" or to spoof the OS serial numbers of the disks at product execution.

The only strategy to defeat the timed license of a product is to guess the combination of digits and to submit each one as an instance of the license to the program file. There are $3.7e17$ such combinations. The resources of such an effort implies that using a hardware monitor to trace and disassemble SWONA is a less intensive though costly strategy.

* Suggested instructions for the end user of the non automated use of the developer's product are:

1. On the target computer, insert the product media in a writable DVD drive. Run the program "install.exe". This writes the files to the default drive on the target computer.
2. When installed on Drive C:, go to the subdirectory C:\product\ and run the program "product.exe".
3. To upgrade a license, copy the new license to C:\product\.