



Fulcrum

Software Requirements
Specification for Version 0.6



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2 INTRODUCTION

2.1 PURPOSE

This is the software requirements specification document for the initial production release, Version 0.6, of the Fulcrum application. The Fulcrum application is a pro-active capability which facilitates the use of a controlled machine to pivot to another uncompromised target machine that is on the same remote LAN. The application will perform a man-in-the-middle attack on the target computer. The application will then monitor the target machine's HTTP traffic and redirect the target to the provided URL when the proper conditions are met.

This document includes sections on:

1. Assumptions
2. User Stories
3. Requirements
4. Non-Functional Requirements
5. Issues
6. Risks

2.2 INTENDED AUDIENCE

This document is intended primarily for the project manager, developers, and testers of the application. Management and end-users are welcome to read the document however the format, style, and level of technical specificity are not tailored to these readers.

2.3 TERMINOLOGY

- **Pivot Machine** – The machine where Fulcrum will run.
- **Target Machine** – The machine that Fulcrum will target with its man-in-the-middle and HTTP traffic injection capabilities.
- **Deployment Preparation Machine** – The machine where Fulcrum is prepared and configured for deployment.

2.4 PRODUCT FEATURES

The product consists of three separate binaries: FULCRUM, FULCRUMSHUTDOWN, and FULCRUMENCRYPTER.

The FULCRUM binary is the primary application of the product. It is deployed to the **Pivot Machine** and is responsible for performing the actual pivoting technique.

FULCRUMSHUTDOWN is a helper utility which can be deployed to the pivot machine in order to explicitly initiate a shutdown of the Fulcrum application.

FULCRUMENCRYPTER is a helper utility used on the **Deployment Preparation Machine** to manipulate Fulcrum's configuration and log files.

Four high-level objectives were identified and prioritized for this project. In order of highest to lowest priority, they are:

1. **Correctness** – Correct Target, Correct Network, Successful Injection
2. **Stability** – Don't crash the system, the application, or the process.
3. **Stealth** – Remain imperceptible to the user, avoid Personal Security Product (PSP) Detection, avoid Intrusion Detection System (IDS) detection, and don't get caught.
4. **Usability** – Avoid human errors (easy to configure, easy to deploy), Manage Application Size (large binaries present a problem), Manage Resource Usage

3 ASSUMPTIONS

This chapter lists the known assumptions of this phase of development.

1. Generally speaking, anything beyond that which is directly required to carry out the pivoting technique is considered to be outside the scope of this application's requirements.
 - a. The application will be transferred to the pivot machine by external mechanisms
 - b. The application will be given all necessary privileges to execute.
 - c. Identification of desired targets will be performed by an external mechanism.
 - d. The architecture of the Pivot Machine will be determined prior to deployment. Deployment to the Pivot machine requires that the correct bitness of the application is used.
 - e. The character set of the Pivot Machine will be determined prior to deployment. Deployment to the Pivot Machine is contingent on compatibility between the machine and the supported character sets.
2. It is assumed that all necessary legal authority has been obtained for use this application including, but not limited to
 - a. Transfer of the application and it's supporting files to the pivot machine.
 - b. Use of the technique on the target's Local Area Network (LAN).
 - c. Monitoring of the HTTP traffic of the target machine.
 - d. Injection of HTTP response traffic to the target machine.
3. Assumptions regarding the use and users of the applications include:
 - a. The applications will be run by end-users with higher than average technical abilities.
 - b. The end-users will have sufficient time to dedicate to reading Fulcrum's user documentation and practice deployment in a test environment prior to first use.
 - c. The end-users will use the Fulcrum applications on average in a frequency measured in weeks or months. On average, they will not be using Fulcrum multiple times per day or per week.

4 USER STORIES

This section defines the users stories of the key stakeholders. Use cases will be derived from these User Stories and will be provided as tickets in the project tracking software Trac, available at <http://p2p-dev01.dev.net/trac/Fulcrum>

The user stories are ranked by criticality using the following scale:

1. Critical
2. High
3. Medium
4. Low

4.1 USER

4.1.1.1 HTTP TRAFFIC INJECTION VIA PIVOT MACHINE

Importance: 1- Critical

As a user, I want to direct a specific machine (i.e. target machine) on a LAN to a specific web URL using another machine on the same LAN (i.e. pivot machine) by injecting into the HTTP communication stream of the target without the owner/operator of either machine having any knowledge of it.

4.1.2 TARGETING

4.1.2.1 TARGET MACHINE IDENTIFICATION

Importance: 1- Critical

As a user, I want the ability to specify which machine on the LAN to target in a manner that is cannot be confused with any other machine.

4.1.2.2 CORRECT LAN VERIFICATION

Importance: 1- Critical

As a user, I need the application to automatically ensure that the pivot machine is on the correct network before it proceeds with execution.

4.1.2.3 DETERMINING IF THE TARGET IS ONLINE

Importance: 2 - High

As a user, I need to have the application automatically determine if the target machine is online before proceeding with execution of the technique.

4.1.2.4 WHEN THE TARGET GOES OFFLINE

Importance: 3 - Medium

As a user, I need the application to pause execution of the technique and wait for the target machine to come online again if the target goes offline during execution.

4.1.3 TRAFFIC INJECTION CRITERIA

4.1.3.1 USER AGENT STRING ALLOW LIST

Importance: 3 - Medium

As a user, I want to specify when a target can be directed to the URL based on the user agent string of the target machine's HTTP communication stream.

4.1.3.2 USER AGENT STRING DISALLOW LIST

Importance: 3 - Medium

As a user, I want the ability to specify when a target cannot be directed to the URL based on the user agent string of the target machine's HTTP communication stream

4.1.3.3 CONTENT TYPE

Importance: 2 - High

As a user, I need the ability to specify when a target can be directed to the URL based on content type (e.g. text/html, image/jpeg) that the target machine is expecting and can handle.

4.1.4 TRAFFIC INJECTION

4.1.4.1 URL SPECIFICATION

Importance: 1 - Critical

As a user, I need to specify what web URL the target machine should be directed to by the application.

4.1.4.2 META-REFRESH METHOD

Importance: 2 - High

As a user, I need the ability to inject traffic using the HTML meta-refresh method with a user configurable refresh time interval.

4.1.4.3 HTML FRAME METHOD

Importance: 2 - High

As a user, I need the ability to inject traffic using HTML frames where injected URL's content appears in one frame and the content requested by the user appears in a separate frame.

4.1.5 APPLICATION EXECUTION

Importance: 2 - High

As a user, I need the application to support running on both 32- and 64-bit Windows Platforms, inside both 32- or 64-bit processes.

4.1.5.1 WINDOWS EXE FORMAT

Importance: 3 - Medium

As a user, I need to be able to run the application on the pivot machine as a Windows executable (i.e. .exe format).

4.1.5.2 RUNDLL32 SUPPORT

Importance: 2 - High

As a user, I need to be able to run the application on the pivot machine using rundll32.exe

4.1.5.3 LOADLIBRARY SUPPORT

Importance: 1 - Critical

As a user, I need to be able to run the application on the pivot machine from another process using LoadLibrary and GetProcAddress with the following entry point signature: void func(void)

4.1.5.4 DURATION

Importance: 1 - Critical

As a user, I need the application to run on the pivot machine continuously until either it either successfully directs the target machine to the URL, an unrecoverable error occurs, or the application is told to shutdown.

4.1.6 APPLICATION TERMINATION

4.1.6.1 USER-INITIATED SHUTDOWN

Importance: 1 - Critical

As a user, I need to be able to notify the running application on the pivot machine to shutdown immediately.

4.1.6.2 INSUFFICIENT PRIVILEGES BEHAVIOR

Importance: 1 - Critical

As a user, I need the application to quietly end if it does not have sufficient privileges to execute the technique.

4.1.6.3 APPLICATION EXIT BEHAVIOR WHEN RUN AS A LIBRARY

Importance: 1 - Critical

As a user, I need the application to return and not exit the parent process for any reason when run as a library.

4.1.6.4 SILENT APPLICATION TERMINATION

Importance: 1 - Critical

As a user, I need the application to quietly end if an unrecoverable error occurs on the pivot machine. It must not notify the owner/operator of the pivot machine.

4.1.6.5 SUCCESSFUL INJECTION TERMINATION

Importance: 2 - High

As a user, I need the application to cleanly exit when it successfully injects the URL and the target machine issues a request for it.

4.1.6.6 MISSING REQUIRED INFORMATION

Importance: 1 - Critical

As a user, I need the application to quietly exit if it is missing required information

4.1.6.7 MISSING REQUIRED DEPENDENCIES

Importance: 1 - Critical

As a user, I need the application to quietly exit if it is missing required dependencies.

4.1.6.8 NETWORK CONNECTIVITY AT STARTUP

Importance: 2 - High

As a user, I need the application to pause the technique and wait quietly if network connectivity is unavailable on the pivot machine at application startup.

4.1.6.9 LOSS OF NETWORK CONNECTIVITY

Importance: 2 - High

As a user, I need the application to pause the technique and wait quietly if network connectivity is lost at any point during execution on the pivot machine.

4.1.7 DETECTION AVOIDANCE

4.1.7.1 ANTI-VIRUS AVOIDANCE

Importance: 2 - High

As a user, I need the application to avoid detection by security software such as anti-virus software on the pivot machine, both during execution and while at rest.

4.1.7.2 FIREWALL AVOIDANCE

Importance: 3 - Medium

As a user, I need the application to avoid detection by network monitoring software in a manner that would alarm the owner/operator of the pivot machine, target machine, or anyone else on that LAN.

4.1.7.3 PIVOT MACHINE OWNER/OPERATOR DETECTION

Importance: 1 - Critical

As a user, I need the application to avoid detection by the owner/operator of the pivot machine, including obvious changes to the filesystem, registry, or behavior of the system.

4.1.8 REVERSE ENGINEERING

4.1.8.1 ATTRIBUTION

Importance: 3 - Medium

As a user, I need the application to not be easily attributable to the parent organization.

4.1.8.2 APPLICATION PURPOSE

Importance: 4 - Low

As a user, I need the purpose of the software to be difficult to determine by the average computer user when given access to the binary.

4.1.9 PREPARATION

4.1.9.1 CONFIGURE WITHOUT A DEVELOPER

Importance: 3 - Medium

As a user, I need a manner to configure the application to run on the pivot machine without requiring a developer of the application

4.1.10 DELIVERY

4.1.10.1 NUMBER OF FILES

Importance: 3 - Medium

As a user, I need the application to be delivered to the pivot machine with as few files as possible, ideally one.

4.2 DEVELOPER

4.2.1.1 LOGGING

Importance: 2 - High

As a developer, I need the application to provide logging so that the behavior of the application can be investigated in a post-mortem manner without a debugger attached.

4.2.1.2 BREAKING CHANGES FEEDBACK

Importance: 2- High

As a developer, I need the ability to quickly and easily determine if a portion of the application was broken by changes to the source code.

4.2.1.3 PARALLEL DEVELOPMENT

Importance: 1 - Critical

As a developer, I need the application to be able to be worked on by multiple developers at the same time.

4.2.1.4 BUG AND FEATURE TRACKING

Importance: 1 - Critical

As a developer, I need a manner to quickly and easily manage and track bugs and feature requests.

4.2.1.5 PROJECT STATUS REPORTING

Importance: 3 - Medium

As a developer, I need a way to quickly and easily report development project schedules and progress.

4.3 TESTER

4.3.1.1 COMMAND LINE EXECUTION

Importance: 3 - Medium

As a tester, I need a manner to allow running the application from the command line and specify the necessary targeting information.

4.3.1.2 LOADLIBRARY EXECUTION

Importance: 1 - Critical

As a tester, I need the ability to easily run the application as a DLL using the LoadLibrary technique.

4.3.1.3 NOTIFYING DEVELOPERS OF ISSUES

Importance: 1 - Critical

As a tester, I need an easy way to notify the developers of a problem or failed test.

5 REQUIREMENTS

5.1 OPERATING ENVIRONMENT

NOTE: Although the applications may support running in operating environments beyond those listed below, only those listed are required to work and will receive testing and support.

5.1.1 SUPPORTED OPERATING SYSTEMS

The FULCRUM and FULCRUMSHUTDOWN binaries shall support the following operating systems:

- Windows XP
 - Editions: Home, Professional
 - Architectures: 32-bit only
 - Service Packs: SP0 (RTM), SP1, SP2, SP3, Latest Patch Level as of Fulcrum Release Date
- Windows Vista
 - Editions: Home Basic, Home Premium, Business, Ultimate
 - Architectures: 32-bit, 64-bit
 - Service Packs: SP0 (RTM), SP1, SP2, Latest Patch Level as of Fulcrum Release Date
- Windows 7
 - Editions: Home Premium, Professional, Ultimate
 - Architectures: 32-bit, 64-bit
 - Service Packs: SP0 (RTM), SP1, Latest Patch Level as of Fulcrum Release Date

The FULCRUMENCRYPTER binary shall support the following operating systems:

- Windows XP
 - Editions: Professional
 - Architectures: 32-bit only
 - Service Packs: SP3 w/ Latest Patch Level as of Fulcrum Release Date
- Windows Vista
 - Editions: Ultimate
 - Architectures: 64-bit
 - Service Packs: SP3 w/ Latest Patch Level as of Fulcrum Release Date
- Windows 7
 - Editions: Professional, Enterprise
 - Architecture: 64-bit
 - Service Packs: SP1 w/ Latest Patch Level as of Fulcrum Release Date

5.1.2 NETWORKS

The FULCRUM application shall only support pivoting on networks that use IPv4 and Ethernet.

5.1.3 INTERNATIONALIZATION

The FULCRUM, FULCRUMSHUTDOWN, and FULCRUMENCRYPTER binaries shall support only the multi-byte character set (MBCS)¹ character encoding, specifically the ASCII character set.

NOTE: Although support for additional character encodings such as UNICODE and character sets² such as Windows-1252 (Western Languages), Windows-1251(Cyrillic Alphabets), and Windows-1256(Arabic) may be added in the future, they are not supported or tested in this version.

5.2 DESIGN AND IMPLEMENTATION CONSTRAINTS

5.2.1 RESOURCE USAGE

The FULCRUM and FULCRUMSHUTDOWN applications should make reasonable efforts to limit their resource usage. These applications shall limit their resource usage to a level which will not noticeably impact system performance or raise suspicion of the owner of the Pivot Machine. The resources include:

- CPU
- Physical Memory
- Network Bandwidth
- File I/O Operations
- Kernel Interrupt Handlers

The FULCRUMENCRYPTER application is not under any specific resource limitations because it is not run on the **Pivot Machine**.

5.2.2 HARDWARE

The FULCRUM, FULCRUMSHUTDOWN, and FULCRUMENCRYPTER applications should run on any reasonably modern x86-compatible hardware subject to the minimum requirements of the Supported Operating Systems discussed in Section 5.1.1. Reasonably modern is defined as

- Processor: Intel x86 compatible, Pentium 4 or newer
- RAM: 256MB total system memory or greater
- Disk: 20GB disk or greater
- Wired Network: 10/100/1000Mbps Ethernet
- Wireless Network: 802.11a/b/g/n (optional)

Alternative architectures such as IA32, IA64, ARM and other embedded system architectures are explicitly not supported.

5.2.3 EXTERNALLY SUPPLIED RUNTIME LIBRARY DEPENDENCIES

¹ MSDN: Unicode and MBCS [http://msdn.microsoft.com/en-us/library/cwe8bzh0\(v=VS.90\).aspx](http://msdn.microsoft.com/en-us/library/cwe8bzh0(v=VS.90).aspx)

² Wikipedia: Character Encoding http://en.wikipedia.org/wiki/Character_encoding

The **FULCRUM**, **FULCRUMSHUTDOWN**, and **FULCRUMENCRYPTER** binaries may require the core libraries of the operating system including but not limited to Kernel32.dll, Ws2_32.dll, Advapi32.dll, lphlpapi.dll.

They shall not require any additional externally supplied run-time library dependencies including the C Runtime Library (CRT). Any additional runtime library dependencies must be provided and resolved by the application itself.

5.2.4 THIRD-PARTY SOFTWARE COMPATIBILITY

The **FULCRUM** and **FULCRUMSHUTDOWN** binaries must not interfere, either directly or indirectly, with the operation of third-party software on the **Pivot Machine** except where explicitly required and noted in this document. This includes but is not limited to applications such as:

- Web Browsers
- Network Monitoring Tools (e.g. Wireshark)
- Graphical User Interfaces (GUI)

NOTE: Since it is impossible to test all third-party software for compatibility, a reasonable effort must be made throughout the design and development of the application to limit the possibility of adverse effects. If there are known effects or risks they should be well documented to the end-user.

6 NON-FUNCTIONAL REQUIREMENTS

6.1 EXECUTION QUALITIES

Execution qualities are non-functional requirements that can be observed at run-time.

6.1.1 STEALTH

6.1.1.1 DETECTION AVOIDANCE

The **FULCRUM** and **FULCRUMSHUTDOWN** applications must not arouse suspicious of the owner of the **Pivot Machine** or other users on the same network. These applications must meet the following requirements on the **Pivot Machine**:

- Shall limit their resource usage so as not to noticeably degrade system performance
- Shall not interfere, either directly or indirectly, with the operation of third-party software except where explicitly required and noted in this document
- Shall not create or modify GUI Windows viewable by the owner or operators of the machine.
- Shall not modify the file system in a manner which arouses suspicion by the owner or operators of the machine.
- Shall not modify the registry in a manner which arouses suspicion of the owner or operators of the machine.
- Shall not cause Anti-virus software to generate any user notifications in the form of warnings, errors, pop-up messages, or log entries.
- Shall not cause Anti-spyware or Anti-malware software to generate any user notifications in the form of warnings, errors, pop-messages, or log entries.
- Shall not cause Firewall software to generate any user notifications in the form of warnings, errors, or pop-up messages.
- Shall not cause Anti-virus software to block, quarantine, or delete the application.
- Shall not cause Anti-spyware or Anti-malware software to block, quarantine, or delete the application.
- Shall not cause Firewall software to block the application.

The **FULCRUMENCRYPTER** application is not under any specific restriction because it is not run on the **Pivot Machine**.

6.1.1.2 REVERSE ENGINEERING AND ATTRIBUTION

It is impossible to guarantee that a binary which can be executed cannot be reverse engineered. The tools and techniques used to gain insight into the purpose of an application and who the developers or operators are covers a very large set of skills.

The **FULCRUM** and **FULCRUMSHUTDOWN** applications shall make a reasonable effort to impede reverse engineering efforts of the binary and to prevent attribution of the binary to the developers or operators of the application. These efforts include but are not limited to:

- Removing debug information from the production binaries
- Minimizing human-readable string data from the production binaries
- Encrypting or Obfuscating data files (e.g. configuration or log files)
- Minimizing the type and number of entries in the Import Address Table (IAT) of the production binaries.

6.1.2 USABILITY

There are five basic areas of usability³:

- **Learnability**: How easy is it for users to accomplish basic tasks the first time they encounter the design?
- **Efficiency**: Once users have learned the design, how quickly can they perform tasks?
- **Memorability**: When users return to the design after a period of not using it, how easily can they re-establish proficiency?
- **Errors**: How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- **Satisfaction**: How pleasant is it to use the design?

As usability is the lowest priority out of the four objectives (but not unimportant!), relatively little effort should be dedicated specifically to optimizing for the user. As stated earlier, the user of the Fulcrum applications is of above-average technical competence. They typically will only use the applications in an ebb and flow manner with a period of inactivity measured in weeks or months. Therefore, the primary usability goal in this version of the application is error minimization and the secondary goal is memorability.

6.2 EVOLUTION QUALITIES

Evolution qualities are non-functional requirements that are embodied in the structure of the software.

6.2.1 DEVELOPMENT ENVIRONMENT

The development environment:

- Shall use version control to track all source code and supporting documentation changes.
- Shall use a version numbering scheme for all release binaries such that
 - Binaries compiled from different source code can be distinguished from one another by their version number alone.
 - The binary itself is sufficient in order to determine the version number

³ Wikipedia: Usability <http://en.wikipedia.org/wiki/Usability>

- The specific revision in version control of the source code that was used to build the binary can be identified using the version information.
- Shall use bug or ticket tracking software to track all features, bugs, and project milestones
- Shall maintain a minimal set of requirements to stand-up a new developer machine. For example, a new developer machine may require only an operating system, the project standardized Integrated Development Environment (IDE), version control tools, and a working copy checkout of the latest source code from version control in order to compile and run the applications.
- Shall have all artifacts and relevant project data backed up on a regular basis in accordance with the parent organizations policies.

6.2.2 DOCUMENTATION

The project should provide all necessary documentation for each stakeholder while minimizing the burden of documentation development and maintenance. The primary goal of the documentation is to facilitate communication and understanding among the stakeholders during the entire software development lifecycle. The secondary goal is to assist the necessary knowledge transfer to a new individual or stakeholder who may be brought on mid-project as an additional resource or in replacement of key personnel.

To meet this objective, the product:

- Shall provide a software requirements specification at a sufficient level of specificity to
 - Express the customer's needs
 - Allow the customer to provide agreement to a set of product goals and features
 - Allow the developers to implement an application to the satisfaction of the agreed upon requirements
 - Allow the testers to develop a test plan to verify that the implementation meets the customer's requirements.
- Shall provide a user's manual which
 - Describes the purpose and use of the application
 - Specifies the requirements and supported uses of the application
 - Provides detailed walkthroughs on how to use the application sufficient to train new users
 - Provides a quick reference for returning users
 - Enumerates any known bugs or risks
 - Provides support contact information
- Shall provide source code documentation of public APIs for developers
 - This documentation should be automatically generated from the source code itself as much as possible to minimize rework and out-of-sync documentation.

6.2.3 TESTABILITY

There are three main categories of tests that will be utilized in the development and maintenance of this product: unit testing, system testing, and user acceptance testing.

The primary responsibility for developing, maintaining, and executing unit tests will reside with the developers. The application should have unit tests for all public methods of a module where ever it is reasonably possible to do so. Each unit test should be independent of all other unit tests and should test a single specific unit for a single specific condition. The unit tests should be run in a regular, automated fashion such as on source code commits. The unit tests should also be run manually whenever necessary.

The primary responsibility for developing, maintaining, and executing the system tests will reside with the developers. These tests are to be run regularly, perhaps after the implementation of each user story. At a minimum they should be run prior to release to IV&V. The items that should be tested and any specialized instructions on how should be documented; however the majority of this level of testing will be done in an ad-hoc manner. This level of testing serves primarily as a smoke test prior to release to the testing/IV&V team.

The primary responsibility for developing, maintaining, and executing the user acceptance tests will reside with the testing or IV&V team. A formal test plan of should be created for this level of testing. There should be specific acceptance tests prepared for each user story including details such as a test description, setup, instructions, and expected results. Deviations from the expected results should be reported back to the development team.

6.2.4 QUALITY

<TODO – Something here about coding standards, modularity, code complexity (e.g. cyclomatic complexity), defect rate, etc.>

7 APPENDIX A: ISSUES

This section lists all currently unresolved requirements issues.

8 APPENDIX B: RISKS

This section identifies and quantifies any known risks that may be associated with this product development effort. This is not an enumeration of possible risks in the deployment and/or use of the product itself.

- Any change in key personnel
 - Possible Mitigation: Ensure that sufficient documentation of each phase of the software development lifecycle is created such that it would be possible for another person of similar technical expertise and background as the individual vacating the team to fill the vacancy in a reasonable time period.
- The time between the acceptance of the software requirements and the delivery of the implementation is too long. If during the development period customer needs have changed then features may be implemented that are no longer necessary or done in a manner that is no longer useful.
 - Possible Mitigation: Implement short feedback cycles measuring no more 30 days. This could be a SCRUM like process where product team meets with the customer to formally agree to a feature/bug fix list for the quarter. Internally the product team then divides this work into monthly sprints which produce completed product fixes/enhancements in a 30-day time-box. It is unknown whether formal testing should be involved at the monthly or quarterly level.
- The customer's prioritization changes outside of this specific effort, either increasing or decreasing the resources dedicated to this product and/or increasing or decreasing the urgency of delivery of this product
 - Possible Mitigation: Again, use short feedback cycles to allow this change in priority to be reacted upon as soon as possible. Additionally, make sure all bugs and features are well documented and tracked in a bug tracking system. This will allow the product team to respond to a potential increase in urgency and/or resources on the project as well as provide a continuous "pause" point if the urgency and/o resources on the project are suddenly reduced.
- Dependence on third-party software. Purchasing, bug fixing, integration, etc.
 - Possible Mitigation: ????

9 APPENDIX C: GLOSSARY OF TERMS

Term	Definition
API	Application Programming Interface
CRT	C Run-Time Library
GUI	Graphical User Interface
HTML	Hyper-Text Markup Language
HTTP	Hyper-Text Transport Protocol
IAT	Import Address Table
IDE	Integrated Development Environment
IDS	Intrusion Detection System
IV&V	Independent Verification and Validation
LAN	Local Area Network
MITM	Man-in-the-Middle
MBCS	Multi-Byte Character Set
PSP	Personal Security Product
SP	Service Pack
RTM	Release To Manufacture
URL	Uniform Resource Locator