



(U) Engineering Development Group

Brutal Kangaroo Program
Drifting Deadline v1.2
User Guide

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1. (U) Scope

(U) This document establishes the User Guide for Drifting Deadline v1.2.

1.1 (U) System Overview and Description of Brutal Kangaroo tool suite

(S) Brutal Kangaroo is a tool suite for targeting closed networks by air gap jumping using thumbdrives. Brutal Kangaroo components create a custom covert network within the target closed network and providing functionality for executing surveys, directory listings, and arbitrary executables.

(S) The Brutal Kangaroo project consists of the following components:

- Drifting Deadline: A thumbdrive infection tool.
- Shattered Assurance: A server tool that handles automated infection of thumbdrives and the primary mode of propagation for the Brutal Kangaroo suite. Shattered Assurance utilizes Drifting Deadline for the individual infection of thumbdrives
- Broken Promise: The Brutal Kangaroo postprocessor
- Shadow: The primary persistence mechanism. Shadow is a stage 2 tool that is distributed across a closed network and acts as a covert command-and-control network.

(S) The creation of Brutal Kangaroo deprecates the following IOC tools:

- EZCheese (Replaced by Drifting Deadline)
- Emotional Simian (Replaced by Drifting Deadline AND Shattered Assurance)

1.2 (U) Assumptions and Constraints

(S) Drifting Deadline requires the operator to be in possession of the USB drive in order to configure it.

(S) Drifting Deadline configuration requires .Net 4.5 on the computer that does the configuration.

(S) The majority of user guidance is provided by the configuration tool itself. This user guide is focused more on the back end of the program.

1.3 (U) Terms

(S) Infection: The installation of a configured Drifting Deadline onto a specific thumbdrive.

(S) Execution: The act of exploiting a target, and gaining process execution for Drifting Deadline.

2. (U) Applicable Documents

(S) The following documents pertain to this tool. In the event of a conflict between the documents referenced below, the contents of this document will be considered binding.

- Drifting Deadline v1.2 User Guide.doc (S)
- Drifting Deadline v1.2 TDR.ppt (S)

3. (U) System Description

3.1 (U) System Concepts and Capabilities

- (S) Drifting Deadline configures an executable that will be used to perform a survey and/or do file collection.

3.2 (U) Prerequisites

- (S) Drifting Deadline requires .Net 4.5 on the configuration computer.

4. (U) Operation

4.1 (U) Installation and Setup

- (S) Copy the Drifting Deadline configuration directory to the configuration machine

4.2 (U) Configuring Drifting Deadline

(S) The following instructions provide information on how to configure the Drifting Deadline tool.

(U) Double-click on BKConfigurator.exe. The user interface will appear.

4.2.1 (U) Execution Vector Configuration

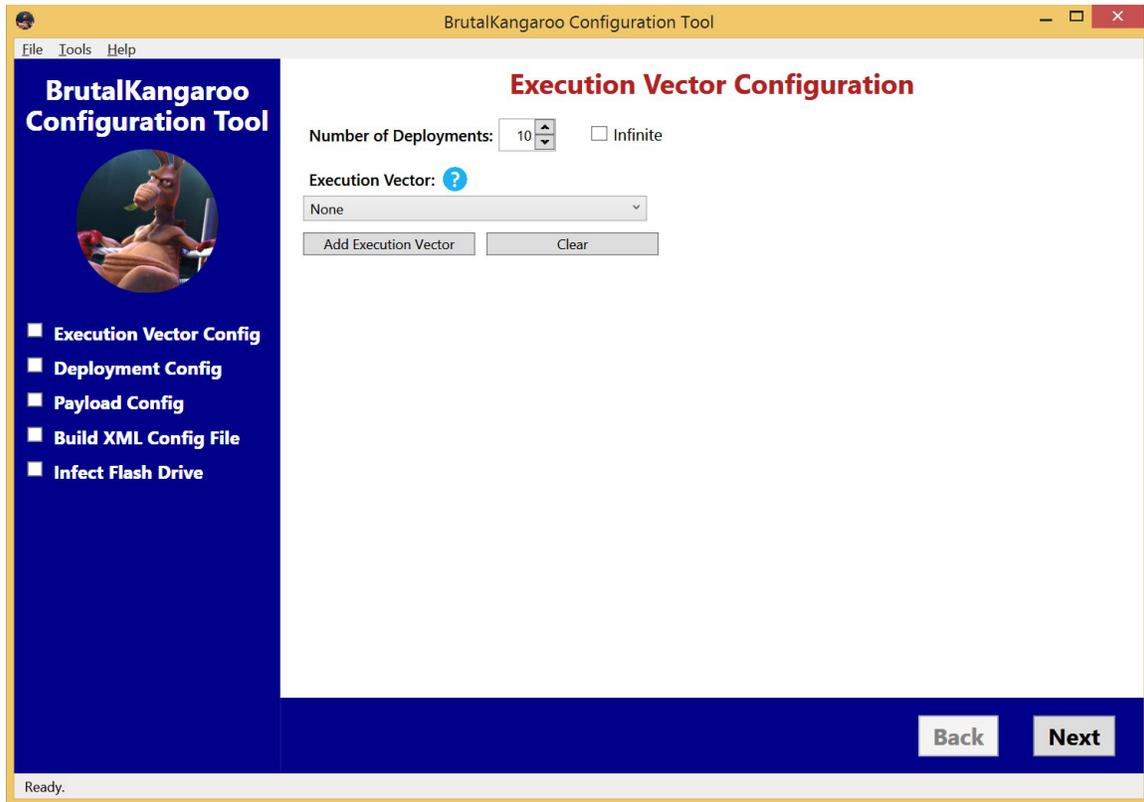


Figure 1: (U) Drifting Deadline v1.1 – Execution Vector Configuration

(S) The interface will guide the user through the necessary configuration steps, and is laid out in a way that the user must click through all the pages before configuring the drive.

(S) The first tab is the execution vector configuration page. The execution vector module controls how the tool is executed. The user must select which execution vector they wish to configure. They can choose from the following:

- None
 - No automatic execution vector, the user must double-click the final executable on the thumb drive to execute Drifting Deadline.
- EZCheese LinkFiles (Giraffe Links)
 - Uses the EZCheese / Emotional Simian link files to gain execution.
 - User has the option of configuring an x86 and x64 DLL that is auto-executed by explorer whenever the link files are viewed in Explorer.
 - User also configures the names of the link files, and which OSs to target.
 - This execution vector has been patched for all versions of Windows except for Windows XP
- Lachesis LinkFiles (Okabi Links)

- Uses the autorun.inf to gain execution as soon as the thumbdrive is inserted into the target machine
- Link files do not need to be viewed to gain execution
- User has the option of configuring and x86 and x64 DLL that is executed when the thumbdrive when the autorun.inf is launched
- Requires the drive letter that thumbdrive will be mounted on to be configured in the link file
- This execution vector is supported for target machines running Windows 7 only
- RiverJack LinkFiles (Okabi Links)
 - Uses the library-ms functionality to gain execution.
 - Link files do not need to be viewed to gain execution and can be marked with the hidden and system attributes. The library junction must be viewable.
 - Execution will not occur until library junction is viewed in Explorer.
 - This execution vector is supported for target machines running Windows 7, 8, and 8.1.

4.2.2 (U) Deployment Configuration

BrutalKangaroo Configuration Tool

File Tools Help

BrutalKangaroo Configuration Tool

Deployment Configuration

Deployment Type: ?
Full On Disk

Deploy Full On Disk Config: ?

BKCore EXE File Name: BKCore.exe

Deploy Config File Name: DeployConf.dat

Payload Config File Name: PayloadConf.dat

Blacklist (separated by semicolons):

Back Next

Ready.

Figure 2: (U) drifting Deadline v1.1 – Deployment

(S) The deployment module controls the look of the tool on disk. BK requires one EXE, one deployment config file, and one payload config file. How these files appear or hide on disk is dependent upon this module.

- Full On Disk
 - You specify names for each of the three Drifting Deadline config files. This deployment method is required if you're doing an execution vector of "none"
- Condensed on Disk
 - You specify the name of one file, which contains all three Drifting Deadline config files. You also must specify the name and path on target where the main Drifting Deadline executable must be dropped.

4.2.3 (U) Payload Configuration

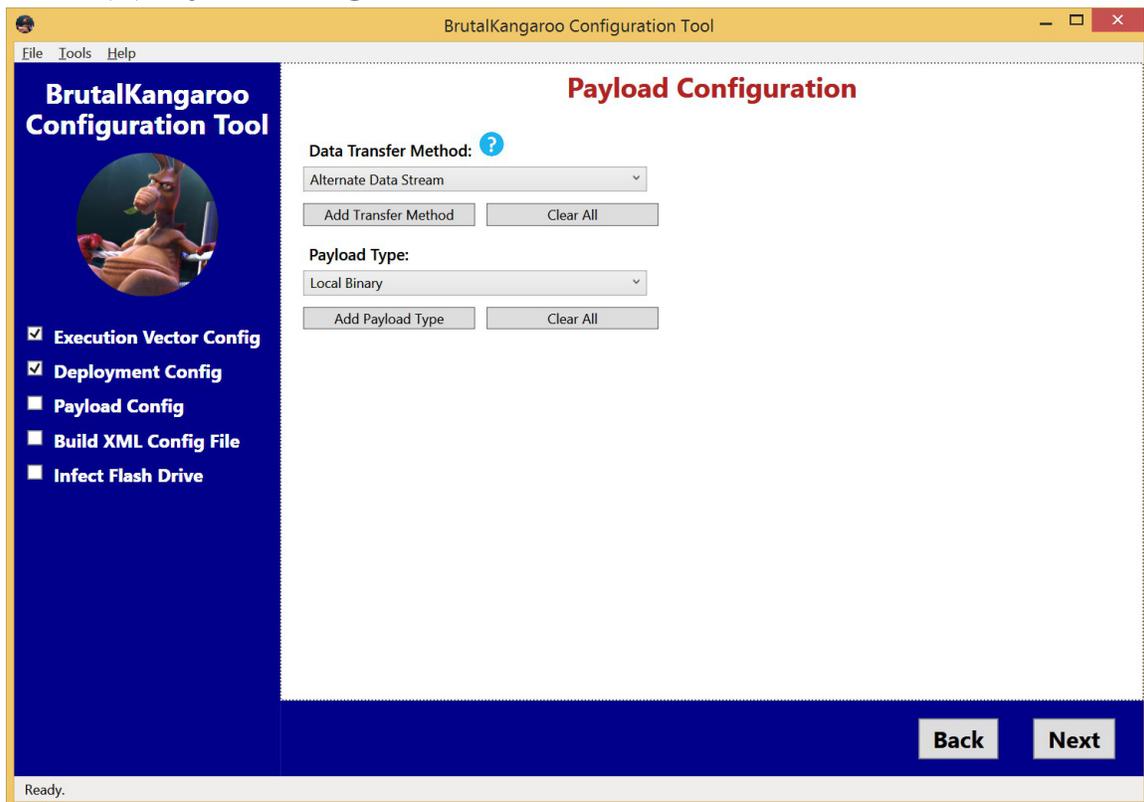


Figure 3: (U) Drifting Deadline v1.1 – Payload Configuration

(S) This page allows you to configure the data transfer module(s) as well as the payloads.

(S) The data transfer methods define how data is collected back to the thumbdrive

- Alternate Data Stream
 - Writes data back to the alternate data streams of NTFS (hidden from view)
- GLYPH
 - Writes data to a configured file on the drive
- PICTOGRAM
 - Writes data to an existing file (ideally an image file such as a jpg or png).

(S) Data Transfer options:

- Min % Free Space
 - The minimum percentage of space on the thumbdrive that must remain available for overt usage
- Max Collect Size
 - The maximum size of all collected files on the thumbdrive

(S) Payload modules:

- Local Binary
 - An arbitrary payload you wish to execute
- Survey
 - A Brutal Kangaroo system survey
- Directory Listing
 - DirWalk removable drives – T/F
 - DirWalk Fixed Drives – T/F
 - DirWalk Remote Drives –T/F
 - DirWalk CD Drives – T/F
- File Collection
 - File Patterns to collect
 - Folders to exclude
 - Minimum collect size
 - Maximum collect size
 - Minimum modified date
 - Maximum modified date
 - Minimum access date
 - Maximum access date
 - Minimum create date
 - Maximum create date
- USB Survey
 - Survey of inserted USB drives in target system

(S) Payload options:

- Local Path
 - If applicable, local path of the arbitrary payload
- Drop Name
 - If applicable, the drop name and location of the payload on target
- Command line arguments
 - If applicable, command line arguments to the payload
- Max runs
 - Maximum times the payload should execute
- Needs Admin
 - Only execute the payload if admin
- Internet Drop
 - Whether to execute payload if internet is detected
- Bitness Drop
 - Drop payload dependent on system bitness
- Execution method – See section 4.4 for more information
 - RunDll32
 - Load Library from Disk
 - Inject Fire and Forget From Memory
 - Launch EXE from Disk
 - Load Fire and Collect from Memory (BK module)
 - Drop Payload from Disk
- Blacklist
 - Blacklist processes, that if detected, prevent the payload from executing

4.2.4 (U) Build XML – Summary Page



Figure 4: (U) Drifting Deadline v1.1 – Build XML

(S) This summary page recaps all the options that the user has selected. You need to scroll through your selection to continue



Figure 5: (U) Drifting Deadline v1.1 – Save XML6

(S) Once you select “Save”, then the XML is generated for your specified configuration and written to disk. The “Regenerate Crypto Keys and Byte Signatures” is only relevant if you have loaded a previous configuration file and wish to regenerate the crypto keys or PICT byte signatures.

4.2.5 (U) Infection

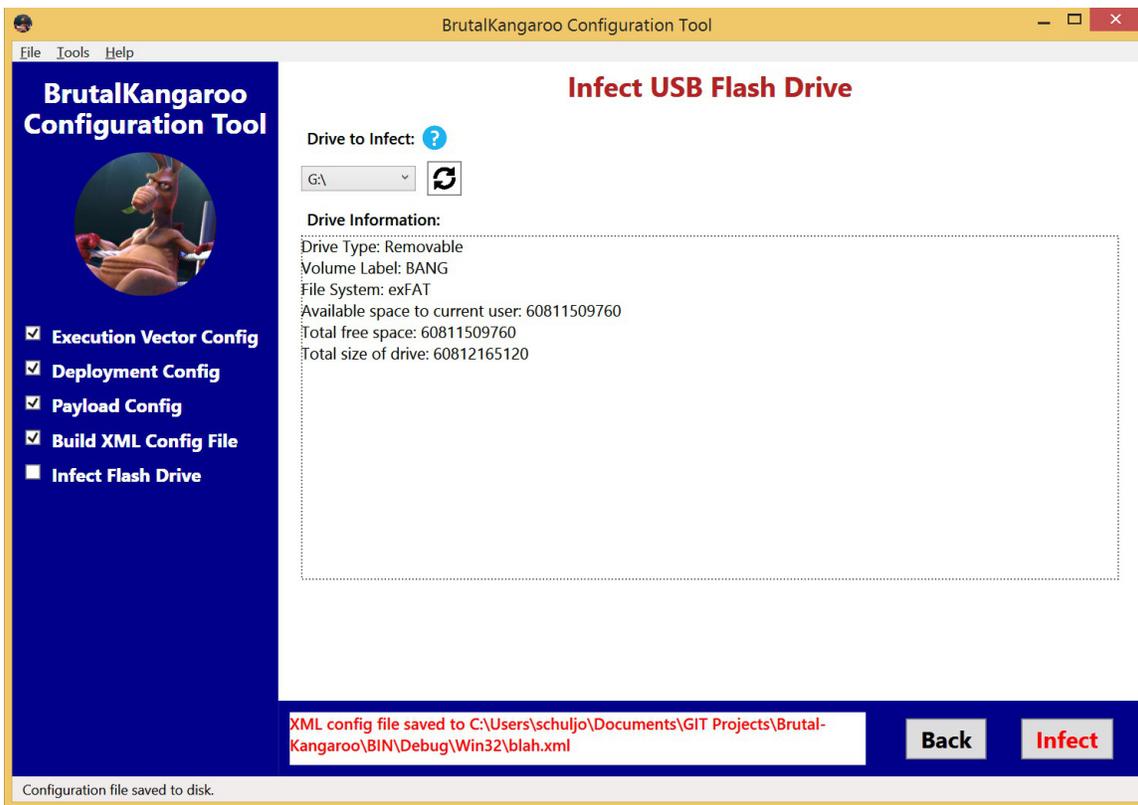


Figure 6: (U) Drifting Deadline v1.1 – Infect Flash Drive

(S) The final page of the configuration. Once you select an available thumbdrive and select “infect”, the drive is then infected with your configuration.

4.3 (U) Using the Config Console command line utility for Drifting Deadline

```

Visual Studio x64 Win64 Command Prompt (2010)
Brutal Kangaroo 0.9
Copyright (C) 2014 OSB
Usage: ConfigConsole.exe -c -x <FULL_PATH_TO_XML_CONFIG> -o
<ROOT_FOLDER_TO_WRITE_TO>
Usage: ConfigConsole.exe -p -x <FULL_PATH_TO_XML_CONFIG> -i
<ROOT_FOLDER_OF_COLLECTION> -o <ROOT_FOLDER_TO_WRITE_TO>
Usage: ConfigConsole.exe -g

-c, --configure      Configure a new tool.
-p, --process        Process a previous collection.
-g, --generate       Generate a sample XML file
-x, --xml            XML Configuration file. This is the configuration file for
the drive.
-i, --input          Input file(s). This is the file or folder to be
processed.
-o, --output         Output folder.
--help              Display this help screen.

```

(S) The entire configuration utility outputs an XML configuration file. Through the command line console application, ConfigConsole.exe, an operator can configure a drive, post process a drive, or generate a sample XML file.

4.3.1 (U) Configuring a drive

(S) ConfigConsole.exe -c -x <FULL_PATH_TO_XML_CONFIG> -o driveL will configure a drive given a Drifting Deadline XML configuration file.

(S) Ex.) ConfigConsole.exe -c -x "C:\DD_XML\SampleConfig.xml" -o f

4.3.2 (U) Post process a collection

(S) ConfigConsole.exe -p -x <FULL_PATH_TO_XML_CONFIG> -i driveL -o <ROOT_FOLDER_TO_WRITE_TO> will post process a drive given a Drifting Deadline XML configuration file.

(S) Ex.) ConfigConsole.exe -p -x "C:\DD_XML\SampleConfig.xml" -i f -o "C:\DD_Output"

4.4 (U) Execution Methods

(S) This section covers the options in “Local Binary Payload Config”, and specifies what can and cannot be executed by DriftingDeadline. Not all options are required.

Local Path: The local path to the payload on the configurator’s box. The name/location of this binary are NOT recorded into the BK payloads, but is saved in the config file for your convenience.

Drop Name: If applicable, where to drop the payload on target and what to name it. This field can take environment variables.

Command Line Args: If applicable, arguments to pass to your payload.

Max Runs: The maximum number of times you want your payload to be executed, or unlimited.

Needs Admin?: Whether the application can only be dropped if Admin. Currently, this field is not really used since DriftingDeadline contains no privilege escalation.

Internet Drop: Only proceed in executing the payload if internet is connected

Bitness Drop: Only proceed in executing the payload if the machine is a particular bitness.

4.4.1 (U) RunDLL32 (32-bit and 64-bit DLLs)

(S) Payload is dropped to disk with the given name, and executed with RunDLL32 as the “Drop Name” with the “Command Line Args” supplied. The process is executed under Rundll32, and is NOT waited for. Must handle deletion on its own.

(S) Note that “arguments” must start with the ordinal to execute. Some example args:

“#1”

“#2”

“#1 these are the args to my DLL”

....

(S) If no arguments are supplied, then it assumes ordinal 1-- “#1”

4.4.2 (U) Load Library from Disk (32-bit DLLs)

(S) Payload is loaded directly from memory into the DriftingDeadline process and never touches disk. DLLMain is executed, and waited on until completion.

4.4.3 (U) Inject Fire and Forget From Memory (32-bit and 64-bit DLLs)

(S) Payload is injected directly into explorer.exe if 32-bit OS or svchost if 64-bit, and never touches disk. DLLMain is executed, ordinal one is executed according to the specification in a new thread, and is NOT waited for.

4.4.4 (U) Launch EXE from disk (32 or 64-bit EXE)

(S) Payload is dropped to disk, and CreateProcess is executed with the binary. The dropped payload is securely deleted upon exit.

4.4.5 (U) Load Fire and Collect from Memory (BK module)

(S) Uses Brutal Kangaroo Fire and Collect Specification:

Loads DLL directly from memory and calls ordinal 1.

Ordinal 1 prototype is as follows:

```
typedef bool(*FIRE_AND_COLLECT_FUNC_PROTO) ( void* ptr, BYTE* pubKey, DWORD
pubKeySize, FILETIME colTime, BYTE* payloadParams, DWORD payloadParamSize );
```

(S) Parameters are as follows:

Void* ptr: A function pointer to a function that takes as input a buffer and size, and subsequently passes the data to a specified DataTransfer module.

BYTE* pubKey: The public key to encrypt the data with

DWORD pubKeySize: The size of the public key

FILETIME colTime: The FILETIME when the collection began

BYTE* payloadParams: parameters that the payload requires to be passed in

DWORD payloadParamSize: Size of the parameters

(S) This specification is just the most efficient for handling memory, compression, and encryption since everyone utilizes the IBuffer OSB Library. However, others are free to create their own BK Modules if they desire.

4.4.6 (U) Drop Payload to Disk (Any files)

(S) Drops payload locally on disk as specified by the user.

5. (U) Known PSP issues

- (S) Symantec Endpoint
 - LACHESIS Execution Vector Only: On autorun, generates popup stating the autorun functionality has been blocked when configured to disable autorun from removable media
- Avira Internet Security
 - LACHESIS Execution Vector Only: On autorun, generates popup stating the autorun functionality has been blocked when configured to disable autorun from removable media
- BitDefender Total Security
 - ALL Execution Vectors: Generates popup stating a malicious application has been blocked and quarantined or blocked and deleted
- Rising Antivirus
 - Prevents Launch EXE from Disk payload deployment: Generates popup blocking the execution of an executable from disk

6. (U) Drifting Deadline Configurator Help

6.1 (U) Execution Vector Configuration

(S) The execution vector module controls how the tool is executed. Each execution vector may have its own configuration. For instance, the EZCheese LinkFile execution vector gains execution through Giraffe Links (simply viewing the .lnk files in windows explorer will launch the tool), and thus, requires the user to input information about these linkfiles and the corresponding DLLs that the linkfiles launch.

(S) Currently BK supports 4 execution vectors: EZC, LACH, RVRJ, and none. EZC and LACH both rely on linkfiles to gain execution:

(S) The .lnk file(s) must be viewed in windows explorer, and the tool will be auto-executed without any further input. "None" simply means the executable must be double-clicked by the end-user for the tool to launch.

6.1.1 (U) EZCheese LinkFiles (Giraffe Links)

(S) **Target OS:** (Currently Patched as of 3/2015) Windows XP SP3, Windows Vista, Windows 7, Windows 8

(S) **Additional requirements:** Drive MUST be Removable.

(S) **How it works:** The EZCheese LinkFile exploit causes execution as soon as the link file is viewed in Explorer (LinkFiles can NOT be hidden). This linkfile vulnerability has been patched, however, so it's recommended to use another execution vector unless your target is unpatched.

6.1.1.1 (U) EZCheese Target DLL Config

(S) **Architecture:** Specify the DLL architecture (x86 / x64). Multiple link files can point to the same DLL, so at most you will need one x64 DLL and one x86 DLL.

(S) **DLL Path:** The relative path and file name for the execution DLL. This DLL can be hidden/system, and buried down in the folder structure (executed by linkfile).

6.1.1.2 (U) EZCheese Link File Config

(S) **Operating System:** The link files are dependent upon the Operating system. IF you know the specific OS you are targeting, then you should select only that OS. If you are unsure, you may want to select all OSs that may apply. NOTE: You will need a different link file for each OS-architecture combination, but you only need one associated DLL per architecture.

(S) **Link File Name:** The name of the link file that will be created.

6.1.2 (U) Lachesis LinkFiles (Okabi Links)

(S) **Target OS:** Windows 7

(S) **Additional requirements:** Okabi LinkFiles cannot link directly to the specific drive, so you will need to provide educated guesses as to which drive letter or which Physical Drive number that the thumbdrive will be mounted on. Theoretically, you could create linkfiles for every drive letter to guarantee execution. However, realistically, you can immediately eliminate drive letters such as "A:\", "B:\"... And assuming the OS is installed on C:\, then ideally you may just want to create link files for D:\, E:\ F:\, and MAYBE G:\. Additionally, you can use PhysicalDriveXX... which may actually be better since its number is dependent upon the number of physical drives actually plugged into the system instead of the total number of partitions on the system. So, you could specify linkfiles for "PhysicalDrive1", "PhysicalDrive2", and MAYBE "PhysicalDrive3". This optimizes you down to 2-3 links instead of 3-4.

(S) **TLDR:** Can't directly link to a thumbdrive, must use drive letters or physical drive numbers to link to the target drive; Must provide educated guesses as to how the drive will show up in the target system; Shouldn't be too much of an issue since the links are all hidden

(S) **How it works:** LinkFiles exploit utilizes the autorun.inf to gain execution as soon as the drive is plugged in. Therefore, the link files themselves do NOT need to be viewed in explorer and can be made hidden/system in whatever directory structure desired.

6.1.2.1 (U) Lachesis Execution Vector Config

(S) **Link Files Directory:** Relative path from the root of the thumbdrive of where the link files are to be written

(S) **Pro Tip:** Specify a hidden directory such as "System Volume Information" or another directory where the user doesn't have access or won't likely navigate to prevent discovery.

6.1.2.2 (U) Lachesis Target DLL Config

(S) **Architecture:** Specify the DLL architecture (x86 / x64). Multiple link files can point to the same DLL, so at most you will need one x64 DLL and one x86 DLL.

(S) **DLL Path:** The relative path and file name for the execution DLL. This DLL can be hidden/system, and buried down in the folder structure (executed by linkfile).

6.1.2.3 (U) Lachesis Link File Config

(S) **Link File Name:** The name of the link file that will be created. The link file will be written to the directory specified by "Link Files Directory" in the Lachesis Execution Vector Config option.

(S) **Link Target Head:** The head of the link target (could be a drive letter or hard disk partition number or even UNC path). You can specify potential drive letters, such as "E:", "F:", "G:" OR you can specify potential physical devices such as "\\PhysicalDrive1", "\\PhysicalDrive2", "\\PhysicalDrive3", etc.

6.1.3 (U) RiverJack LinkFiles (Okabi Links)

(S) **Target OS:** Windows 7, Windows 8, Windows 8.1

(S) **Additional requirements:** Okabi LinkFiles cannot link directly to the specific drive, so you will need to provide educated guesses as to which drive letter that the thumbdrive will be mounted on. Theoretically, you could create linkfiles for every drive letter to guarantee execution. However, realistically, you can immediately eliminate drive letters such as "A:\", "B:\"... And assuming the OS is installed on C:\, then ideally you may just want to create link files for D:\, E:\ F:\, and MAYBE G:\. PhysicalDriveXX do not work with RiverJack like Lachesis does.

(S) **TLDR:** Can't directly link to a thumbdrive, must use drive letters; Must provide educated guesses as to how the drive will show up in the target system; Shouldn't be too much of an issue since the links are all hidden

(S) **How it works:** LinkFiles exploit utilizes the library-ms functionality to gain execution. Through RiverJack, you configure the name and path of the library-ms junction, which subsequently points to the link files, which point to the target DLLs. Therefore, the link files themselves do NOT need to be viewed in explorer and can be made hidden/system in whatever directory structure desired. However, the library junction MUST be viewable. Execution will not occur until this directory is viewed in explorer.

6.1.3.1 (U) RiverJack Execution Vector Config

(S) **Link Files Directory:** Relative path from the root of the thumbdrive of where the link files are to be written

(S) **Pro Tip:** Specify a hidden directory such as "System Volume Information" or another directory where the user doesn't have access or won't likely navigate to prevent discovery.

6.1.3.2 (U) RiverJack Target DLL Config

(S) **Architecture:** Specify the DLL architecture (x86 / x64). Multiple link files can point to the same DLL, so at most you will need one x64 DLL and one x86 DLL.

(S) **DLL Path:** The relative path and file name for the execution DLL. This DLL can be hidden/system, and buried down in the folder structure (executed by linkfile).

6.1.3.3 (U) RiverJack Link File Config

(S) **Link Folder Name:** The name of the link folder that will be created. The link folder will be written to the directory specified by "Link Files Directory" in the Lachesis Execution Vector Config option.

(S) **Link Target Head:** The head of the link target (could be a drive letter or hard disk partition number or even UNC path). You can specify potential drive letters, such as "E:\", "F:\", "G:\". These linkfiles ***MUST*** be in alphabetical order.

(S) **Library Path:** The path and name of the mslibrary junction that will be created. User must navigate to this directory for execution.

6.1.4 (U) None

(S) **Target OS:** All!

(S) **Additional Requirements:** User ***must*** execute the program directly. ***NOT*** applicable with "Condensed" Deployment type

(S) **How it works:** No execution vector, so that action is passed to the operator. Either through trojan, an external execution vector, or user double-clicking the binary....

6.2 (U) Deployment Configuration

(S) The deployment module controls the look of the tool on disk. BK requires one EXE, one deployment DLL, one deployment config file, and one payload config file. How these files appear or hide on disk is dependent upon this module.

(S) The config files specify instructions for BK, and are encrypted to the specific drive you configure. Therefore, BK will **ONLY** execute on the drive it was initially configured on. Copying the BK files to another drive will result in the tool doing nothing.

(S) What this also means is, any changes to the drive may result in failure for the tool to run. This is both good and bad, as it enables officers in the field to make a small change to the drive that then renders the tool inert. For example, changing the volume name will disallow the tool from running.

6.2.1 (U) Deploy Full On Disk

(S) **How it works:** As the name suggests, you deploy all the BK modules on disk, and specify the name of each. The most basic option and ideal unless multiple files may cause heavy scrutiny.

BKCore EXE File Name: The name of the primary executable for BK.

Deploy Config File Name: The name of the deployment configuration file (encrypted)

Payload Config File Name: The name of the payload configuration file (encrypted)

Blacklist: Process blacklist. IF any of these processes are detected, then bail.

(S) You can use directory paths if you wish to bury some or all of these config modules on the drive. For example, you can say "Folder1/Folder2/BKCore.exe" for the EXE name. Also, file extensions do not need to match the file type. So, you can call the DLL a .dat or use whatever you like.

(S) **PRO TIP:** *If the drive is NTFS, you can prepend ':' to each of the names to force them to be written to the ADS (and therefore completely HIDDEN from disk). For example, ":BKCore.exe", ":DeployConf.dat", etc.*

6.2.2 (U) Deploy Condensed On Disk

(S) **How it works:** This option condenses everything into one crypto blob. You ***MUST*** specify an execution vector other than NONE for this to work since the main BK executable will require more than a double-click to retrieve. Additionally, the BK exe will need to be dropped to disk on target to execute, therefore, you will need to select a path and name for it. (It securely deletes itself on termination).

(S) **BKCore File Name:** The name of the BKCore file, which contains EVERYTHING.

(S) **Local Path to Drop:** The OPTIONAL local path to drop the core executable to disk. You can directly specify with a drive letter such as "C:\Temp\BKCore.exe", without a drive letter in which case it will be relative to the main drive "Temp\BKCore.exe", and/or you can use environment variables "%temp%\BKCore.exe. Additionally, you do NOT need to specify a name. In this case, it will create a temp filename. After the main program executes, this file is securely self-deleted.

(S) **Blacklist:** Process blacklist. IF any of these processes are detected, then bail.

(S) **PRO TIP:** *If the drive is NTFS, you can prepend ':' to BKCore to force it to be written to the ADS (and therefore completely HIDDEN from disk). For example, ":BKCore.exe"... Also suggested to just leave "Local Path to Drop" empty.*

6.3 (U) Payload Configuration

(S) **Data Collection Method:** The Data Collection module specifies how/where data from payloads are stored.

Min % Free Space: Minimum free space required for the drive.. If this threshold is reached, no more data will be collected.

Max Collect Size: Maximum collection size.. If this threshold is reached, no more data will be collected.

(S) **Payload Type:** Specifies a BK payload module or custom exe/dll for BK to execute. All modules have the following options:

Max Runs: Number of times to execute this specific module when BK executes

Internet Drop: Specifies whether to module will only run if internet is detected, if internet is not detected, or regardless

Bitness Drop: Specifies whether the module will only run on x86, x64, or both

Blacklist: semicolon-separated list of processes that if detected on target, will prevent this payload from launching

6.3.1 (U) Alternate Data Stream

(S) REQUIRES NTFS. Utilizes NTFS' Alternate Data Streams to store files hidden in the root partition that cannot be viewed in windows natively without a third-party application.

6.3.2 (U) GLYPH

(S) Dumps all data to a file on the drive. Specify filename with "GLYPH Config".

6.3.3 (U) PICTOGRAM

(S) This module transfers or stores data by appending the data to an already existing file such as a jpg or png. You specify the filename and a 32-byte signature (generated randomly on the fly).

6.3.4 (U) Local Binary

(S) Launches an arbitrary executable.

(S) Execution Method: how to launch the payload.

6.3.5 (U) Survey RR

(S) Performs full system survey including basic computer information, drive information, running processes, etc.

6.3.6 (U) File Collection ORevFCC

(S) Performs File Collection against all fixed drives in the system

(S) Sample File pattern matching:

```
"*.sle;*.xls*;*.big*;*.ndi*;*.ses*;*.mend*;*.xmendf*;*.dre*;*.ipc*;*.pds*;*.radlib*;*.r
mc*;*.rmo*;*.y21*;*.drmccs*;*.libmix*;*.libphy*;*.librad*;*.libmdf*;*.libmcn*;*.libg
andolf*;*.libclams*;*.libhyd*;*.libheplus*;*.mcnp*;*.origen*;*.f;*.c;*.cpp;*.dwg;"
```

(S) Sample Folder Exclusion pattern matching:

```
*\Windows\*;*.system32\*;*.program files\*;*. $Recycle*;
```

6.3.7 (U) SPOL USB SURV

(S) Performs USB survey on target to collect all inserted USB drives since the OS has been installed. The survey produces two files: One which orders by insertion date and the other which orders by the drive.

6.4 (U) Utilizing "System Volume Information" for links and/or DLL payloads

(S) To hide DriftingDeadline directly on the USB drive, you can directly utilize the locked system directory "System Volume Information" on NTFS thumbdrives that Windows uses for System Restore.

- The BK Deployment can be configured to hide all its files from the user by directly residing within the System Volume Information folder. HOWEVER, you must be *at least* one folder deep into the System Volume Information folder in order to keep its lock intact.

For example, using “System Volume Information\Logs\” directory

Deployment Configuration

Deployment Type: ?
 Full On Disk v

Deploy Full On Disk Config: ?

*BKCore EXE File Name:

*Deploy Config File Name:

*Payload Config File Name:

Blacklist (separated by semicolons):

- Linkfiles themselves need to be visible by the user to gain execution, however, the Riverjack execution vector hides these linkfiles and uses the library-ms file to point to the links. Therefore, you can hide the linkfiles for Riverjack in this same manner:

Again, “System Volume Information\Logs\”.

Execution Vector Configuration

Number of Deployments: ▲ ▼ Infinite

Execution Vector: ?
 RiverJack LinkFiles (Okabi Links) v

RiverJack Execution Vector Config: ?

*Link Files Directory:

*Link File Config:

RiverJack Target DLL Config: ?

*Architecture: v

*DLL Path:

*Link File Config:

RiverJack Link File Config: ?

*Link Folder Name:

*Link Target Head:

*Library Path:

7. (U) Infection errors

(S) If infect fails, the following are error code descriptions:

- -1: invalid drive
- -2: invalid deployment data
- -3: invalid payload data
- -4: invalid execution vector
- -5: missing deployment DLL (maybe missing 64-bit DLL)
- -6, -7: compression/encryption of data failed (invalid crypto key)
- -8: Condensed_OnDisk: Failed dumping file
- -9: Full_OnDisk: Failed dumping deployment file
- -10: Full_OnDisk: Failed dumping payload file
- -11: failed copying BKCore and patching file with config options

Any errors < -100 are specific to infecting the local drive:

- -101: failed adding DLL to linkfile (missing 64-bit files?)
- -102: invalid arguments
- -103: bad path
- -105: failed to write the DLL payload to specified path
- -106: invalid drive
- -107: failed to generate link files (invalid path?)
- -131: EZC: invalid payload path (path cant have a space in its name)
- -132: EZC: the path to the DLL was too long
- -133: EZC: Failure to generate link file name
- -134: LACH: failed to write autorun.ini file
- -135: BOOM: Desktop.ini file already exists and overwrite set to false
- -136: BOOM: failed to write autorun.ini file
- -137: RVRJ: failed to create the *.library-ms file