

ASSASSIN v1.2 QUICK START

October 2012

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Appendix A: Builder

The Builder configures Implant Executables before deployment.

1 Usage

```
implant_builder.py <options>
```

Options:

-i INPUT, --in=INPUT	Specify the directory containing blank Implant Executables. <i>Required.</i>
-o OUTPUT, --out=OUTPUT	Specify the directory to output patched executables and receipt. <i>Required.</i>
-c CONFIG, --config=CONFIG	Specify an xml-based Assassin configuration file.
-g, --generate	Generate the executables from the provided configuration immediately; do not enter builder command line.
-h, --help	Show the help message and exit.

2 Command Line

The builder command line accepts the following commands, organized by type.

2.1 Builder Commands

The builder commands are used to control the builder.

p [config='all']

Print the current state of the configuration.

config	Portion of configuration to print
	'all' - print all of the configuration
	'implant' - print the Implant DLL configuration
	'launcher' - print the launcher configuration
	'extractor' - print the Extractor configuration

x <xml_file>

Export the current configuration to an xml file.

xml_file	Filename for the exported xml configuration file
----------	--

w

Invoke the builder wizard; see section Error: Reference source not found.

Current configuration settings will be presented as defaults in the wizard.

g

Generate the configuration and build the Implant executables.

The Implant executables and build receipt will be placed in the output directory under a folder named 'Assassin-<ImplantID>'.

c

Cancel the build process. Any unsaved progress will be lost.

2.2 Build Option Commands

The build option commands are used to specify the types of Assassin Executables the Builder should generate.

```
build_outputs [options]
```

Set the build outputs for the current build. If no parameters are provided, the command will enter a subshell; see section 3.1 on the Build Outputs subshell.

options

One or more of the following build types

'all' - All available Assassin Executables

'run-dll' - Implant DLLs, 32- and 64-bit

'service-dll' - Implant Service DLLs, 32- and 64-bit

'executable' - Implant EXEs, 32- and 64-bit

'injection' - Injection Launchers, 32- and 64-bit, and

Extractor

'service' - Service Installers, 32- and 64-bit, and Extractor

2.3 Implant Commands

The Implant commands are used to modify the configuration of the Assassin Implant.

```
beacon [initial=0] [default_int=0] [max_int=0] [factor=0.0] [jitter=0]
```

Set one or more of the beacon parameters.

<code>initial</code>	Initial wait after Implant startup before beacon (<i>default = 0</i>)
<code>default_int</code>	Default interval between beacons (<i>default = 0</i>)
<code>max_int</code>	Maximum interval between beacons (<i>default = 0</i>)
<code>factor</code>	Backoff factor to modify beacon interval (<i>default = 0</i>) If beacon fails, multiply beacon interval by <code>factor</code> . If beacon succeeds, restore beacon interval to default.
<code>jitter</code>	Range to vary the timing of beacons (<i>default = 0</i>)

```
blacklist [programs=[]] [files=[]]
```

Set the target blacklist. If no parameters are provided, the command will enter a subshell; see section Appendix A:3.2 on Program List subshells.

<code>programs</code>	Set of executable names to include in the blacklist, specified as a Python list or tuple
<code>files</code>	Set of blacklist files, specified as a Python list or tuple Blacklist files are whitespace-delimited lists of executable names to include in a target blacklist.

```
chunk_size <size>
```

Set chunk size to restrict network traffic per beacon. The Implant will chunk files to `size` bytes and attempt to limit uploads to `size` bytes.

<code>size</code>	Maximum Implant upload size per beacon Setting the size to 0 will disable upload chunking.
-------------------	---

```
crypto_key
```

Generate a new cryptographic key for secure storage and communication.

```
hibernate <seconds>
```

Set the hibernate time in seconds after first execution. The Implant will lie dormant until the hibernate period has elapsed.

<code>seconds</code>	Number of seconds to hibernate after first execution
----------------------	--

```
id <parent> [child=None]
```

Set the Implant ID.

<code>parent</code>	Parent ID for implant, specified by 4 case-sensitive alphanumeric characters
---------------------	--

`child` Child ID for implant, optionally specified by 4 case-sensitive alpha-numeric characters
If the child ID is not set at build, it will be generated at first execution on target.

`max_fails <count>`
Set the maximum number of sequential beacon failures before uninstalling.
`count` Number of failures before uninstalling

`path_in <path>`
Set the path of the implant's input directory
`path` Windows path specifying location of the directory
Note: Assassin will create multiple directory levels to match `path` but will only remove `path` on uninstall.

`path_out <path>`
Set the path of the implant's output directory
`path` Windows path specifying location of the directory
Note: Assassin will create multiple directory levels to match `path` but will only remove `path` on uninstall.

`path_push <path>`
Set the path of the implant's push directory
`path` Windows path specifying location of the directory
Note: Assassin will create multiple directory levels to match `path` but will only remove `path` on uninstall.

`path_staging <path>`
Set the path of the implant's staging directory
`path` Windows path specifying location of the directory
Note: Assassin will create multiple directory levels to match `path` but will only remove `path` on uninstall.

`path_startup <path>`
Set the path of the implant's startup directory
`path` Windows path specifying location of the directory
Note: Assassin will create multiple directory levels to match `path` but will only remove `path` on uninstall.

`transports [xml_file=None]`

Set the communication transport configuration. If no parameters are provided, the command will enter a subshell; see section Appendix A:3.3 on Transport List subshells.

`xml_file` XML file containing an Assassin transport list configuration

`uninstall_date <date>`

Set the uninstall date for the Implant.

`date` Date-Time or Date, specified in ISO 8601 format
 Date-Time: `yyyy-mm-ddThh:mm:ss`
 Date: `yyyy-mm-dd`

`uninstall_timer <seconds>`

Set the uninstall timer as seconds from first execution.

`seconds` Number of seconds after first execution to uninstall

`whitelist [programs=[]] [files=[]]`

Set the target whitelist. If no parameters are provided, the command will enter a subshell; see section Appendix A:3.2 on Program List subshells.

`programs` Set of executable names to include in the whitelist, specified as a list or tuple

`files` Set of whitelist files, specified as a list or tuple
 Whitelist files are whitespace-delimited lists of executable names to include in a target whitelist.

2.4 Launcher Commands

The Launcher commands are used to modify the configuration of the Assassin Launcher.

`dll_path <path> [bits='all']`

Set the path where the launcher will place the Implant DLL

<code>path</code>	Windows path specifying the location of the Implant DLL
<code>bits</code>	Bitness of launcher to configure 'all' - configure all launchers '32' - configure the 32-bit launcher '64' - configure the 64-bit launcher

`persistence <bool> [bits='all']`

Set whether or not a launcher will install its persistence method.

<code>bool</code>	Boolean specifying if persistence will be installed 'T' - install the persistence mechanism 'F' - do not install the persistence mechanism
<code>bits</code>	Bitness of launcher to configure 'all' - configure all launchers '32' - configure the 32-bit launcher '64' - configure the 64-bit launcher

`reg_description <string> [bits='all']`

Set the cover description for the launcher in the registry.

<code>string</code>	String specifying registry description of the launcher
<code>bits</code>	Bitness of launcher to configure 'all' - configure all launchers '32' - configure the 32-bit launcher '64' - configure the 64-bit launcher

`reg_key_path <path> [bits='all']`

Set the registry key name and path for the Launcher.

<code>path</code>	Windows registry path specifying the key used to persist the Launcher. If path is the key name, 'SYSTEM\CurrentControlSet\Services\' is prepended. The launcher key must be in the Services key.
<code>bits</code>	Bitness of launcher to configure 'all' - configure all launchers '32' - configure the 32-bit launcher '64' - configure the 64-bit launcher

`reg_name <string> [bits='all']`

Set the cover display name for the launcher in the registry.

string	String specifying registry display name of the launcher
bits	Bitness of launcher to configure 'all' - configure all launchers '32' - configure the 32-bit launcher '64' - configure the 64-bit launcher
start_now <bool> [bits='all']	
Set whether or not the launcher attempts to start immediately or waits for reboot.	
bool	Boolean specifying if launcher will start immediately 'T' - attempt to start immediately 'F' - wait for reboot to start
bits	Bitness of launcher to configure 'all' - configure all launchers '32' - configure the 32-bit launcher '64' - configure the 64-bit launcher

2.5 Extractor Commands

The Extractor commands are used to modify the configuration of the Assassin Extractor.

`path_32 <path>`

Set the 32-bit launcher extraction path.

`path` Windows path specifying the location of the 32-bit launcher

`path_64 <path>`

Set the 64-bit launcher extraction path.

`path` Windows path specifying the location of the 64-bit launcher

3 Subshells

3.1 Build Outputs

The Build Outputs subshell is used to define what Implant and Deployment executables the Builder should generate.

Commands

The following commands are used to modify the build outputs:

d <index>

Delete a process image name from the program list.

index Index of the target program name in the current list

g

Generate the program list and build the patch used in the configuration field for Implant executables or tasks.

Build Types

The subshell accepts the following build types:

all	Build all available Implant and Deployment Executables
run-dll	Build the Implant DLLs, 32- and 64- bit
service-dll	Build the Implant Service DLLs, 32- and 64- bit
executable	Build the Implant EXEs, 32- and 64- bit
injection	Build the Injection Launchers, 32- and 64-bit, and Extractor
service	Build the Service Installers, 32- and 64- bit, and Extractor

3.2 Program List

The Program List subshell is used to generate a list of program image names.

Commands

The following commands are used to modify the program list:

f <filename>

Provide a file of program names to add to the current program list.

filename Program list files are whitespace-delimited lists of process image names to include in a program list.

d <index>

Delete a process image name from the program list.

index Index of the target program name in the current list

g

Generate the program list and build the patch used in the configuration field for Implant executables or tasks.

c

Cancel the list creation process. Any unsaved progress will be lost.

3.3 Transport List

The Transport List subshell is used to generate or update a transport configuration for an Assassin Implant.

Commands

The following commands are used to view or modify the transport list:

`p`

Print the current transport list.

`a`

Add a transport to the list.

The subshell will prompt the operator for each of the parameters required to create a new transport and add it to the end of the list.

`i <index>`

Insert a transport into the list.

The subshell will prompt the operator for each of the parameters required to create a new transport and insert it into the list at the specified index.

`index` Zero-based index into the transport list identifying the location of the new transport

`d <index>`

Delete a transport from the list.

`index` Zero-based index into the transport list identifying the target transport

`m <index> <new_index>`

Move a transport from one position within the transport list to another.

`index` Zero-based index into the transport list identifying the target transport

`new_index` Zero-based index into the transport list identifying the new location of the transport within the list

`f <filename>`

Provide a file of containing the xml-based specification of a transport list to add to the transport list.

`filename` XML-based transport configuration file, starting with the TransportList tag

`v`

Validate the configuration of the transport list, printing any generated warnings or errors.

g

Generate the transport list and build the patch used in the configuration field for Implant executables or tasks.

c

Cancel the transport list creation process. Any unsaved progress will be lost.

4 Output Directory Layout

- ↳ assassin_<id> - Used to group files built for the same target ID
<> = ID of target specified in Builder
 - ↳ injection - Contains all executables using the injection persistence method
 - assassin_extractor.exe - Assassin Injection Extractor
 - assassin_launcher_32.exe - Assassin Injection Launcher 32-bit
 - assassin_launcher_64.exe - Assassin Injection Launcher 64-bit
 - ↳ service - Contains all executables using the service persistence method
 - assassin_svc_extractor.exe - Assassin Service Extractor
 - assassin_svc_installer_32.exe - Assassin Service Installer 32-bit
 - assassin_svc_installer_64.exe - Assassin Service Installer 64-bit
 - ↳ non-persistent - Contains all executables that do not self-persist
 - assassin_executable_32.exe - Assassin Executable 32-bit
 - assassin_executable_64.exe - Assassin Executable 64-bit
 - assassin_run_dll_32.dll - Assassin DLL 32-bit
 - assassin_run_dll_64.dll - Assassin DLL 64-bit
 - assassin_svc_dll_32.dll - Assassin Service DLL 32-bit
 - assassin_svc_dll_64.dll - Assassin Service DLL 64-bit
 - assassin_<id>.xml - Build receipt for the Assassin executables and build process

Appendix B: Tasker

The Tasker generates task files used to command the Assassin Implant.

1 Usage

`task_creator.py <options>`

Options:

`-r RECEIPT,`
`--receipt=RECEIPT`

Specify the xml-based Assassin receipt file for the implant, used for encryption.

`-h, --help`

Show the help message and exit.

2 Run Modes

All tasks are assigned a run mode that specifies when the Implant should execute the task and how the Implant should handle the task results. Run modes may be combined to create compound modes.

2.1 Run on Receipt

When set to 'run on receipt', the Implant will process the task file immediately after it is received.

The 'run on receipt' mode is designated using the character 'r' during task creation.

2.2 Run on Startup

When set to 'run on startup', the Implant will process the task file every time the Assassin starts.

The 'run on startup' mode is designated using the character 's' during task creation.

2.3 Push Results

When set to 'push results', the Implant will upload the result file generated by processing the task file immediately after completion.

The 'push results' mode is designated using the character 'p' during task creation.

3 Batch Tasking

Assassin allows operators to combine multiple tasks into batches that are uploaded to and processed by the Implant as a unit.

Tasks within the batch are executed in sequence. If a task fails, the batch aborts and the remaining tasks are not executed.

3.1 Batch Commands

The following batch commands are used to view or modify the current transport list:

p

Print the current batch state.

i <index> <command>

Insert a command into the batch at a specific location.

The subshell will prompt the operator for each of the parameters required to create a new transport and insert it into the list at the specified index.

index Zero-based index into the batch identifying the location of the new task

d <index>

Delete a task from the batch.

index Zero-based index into the batch identifying the target task

m <index> <new_index>

Move a task from one position within the batch to another.

index Zero-based index into the batch identifying the target task

new_index Zero-based index into the batch identifying the new location of the task

f <filename>

Provide a file of containing the xml-based specification of a batch task to add to the batch.

filename XML-based task batch file

x <filename>

Export the current batch to an xml file

g

Generate the batch task and send to file (Tasker) or to the target (Collide).

c

Cancel the batch creation process. Any unsaved progress will be lost.

3.2 Supported Tasks

Assassin supports the following tasks in batched tasking:

get	put	file_walk	get_walk
delete_file	delete_secure	execute_bg	execute_fg
persist_settings	restore_defaults	set_beacon_params	set_blacklist
set_whitelist	set_transport	set_chunk_size	set_hibernate
set_uninstall_date	set_uninstall_timer	set_beacon_failure	get_status
clear_queue	upload_all	unpersist	uninstall

4 Tasks

Assassin supports the following tasks, organized by type.

4.1 File System Tasks

The following tasks are used to manipulate the file system of the implanted target computer.

```
get <run_mode> <r_file> [offset=0] [bytes=0]
```

Get a file from the target.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
r_file	Remote file to get
offset	Byte offset into file to begin collection (<i>default = 0</i>) <i>"Get from <x> bytes into file."</i>
bytes	Number of bytes to collect from file (<i>default = 0,all</i>) <i>"Get <x> bytes from file."</i>

```
put <run_mode> <l_file> <r_file> [mode='always']
```

Put a local file on the target.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
l_file	Local file to put
r_file	Remote file location for put
mode	Mode for put operation, one of the following: 'always' - always put the file on the target, overwrite (<i>default</i>) 'only_new' - only put the file on the target if it does not yet exist 'append' - append to the end of the file if it exists, otherwise create

```
file_walk <run_mode> <r_dir> <wildcard> <depth> [time_check='no_check'] [date]
```

Walk the directories on the target, collecting information on files specified by the provided parameters.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
r_dir	Root directory of file walk on remote file system

wildcard	Filter used to limit the walk collection based on filename The '*' wildcard will match any string in the filename.
depth	Number of directory levels to descend, where 0 will only collect on the root level
time_check	Type of filter used to limit the walk collection based on the files' modified timestamp: 'no_check' - do not check the file timestamp (<i>default</i>) 'less' - match timestamps less than the given time and date 'greater' - match timestamps greater than the given time and date
date	Date-Time or Date for time check, specified in ISO 8601 format Required if time_check is not set to no_check Date-Time: yyyy-mm-ddThh:mm:ss Date: yyyy-mm-dd


```
get_walk <run_mode> <r_dir> <wildcard> <depth> [time_check='no_check'] [date]
[offset=0] [bytes=0]
```

Walk the directories on the target, collecting files specified by the provided parameters.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
r_dir	Root directory of get walk on remote file system
wildcard	Filter used to limit the walk collection based on filename The '*' wildcard will match any string in the filename.
depth	Number of directory levels to descend, where 0 will only collect on the root level
time_check	Type of filter used to limit the walk collection based on the files' modified timestamp: 'no_check' - do not check the file timestamp (<i>default</i>) 'less' - match timestamps less than the given time and date 'greater' - match timestamps greater than the given time and date
date	Date-Time or Date for time check, specified in ISO 8601 format Required if time_check is not set to no_check Date-Time: yyyy-mm-ddThh:mm:ss Date: yyyy-mm-dd
offset	Byte offset into files to begin collection (<i>default = 0</i>) " <i>Get from <x> bytes into file.</i> "

bytes Number of bytes to collect from files (*default = 0,all*)
 "*Get <x> bytes from file.*"

delete_file <run_mode> <r_file>

Delete a file from the target.

run_mode Code specifying the run mode, represented by combining the following keys:
 ' r ' - run the task on receipt
 ' s ' - run the task on every Implant startup
 ' p ' - push the task results to the LP immediately

r_file Remote file to delete

delete_secure <run_mode> <r_file>

Securely delete a file from the target.

The file is overwritten with zeroes before being removed from the target file system.

run_mode Code specifying the run mode, represented by combining the following keys:
 ' r ' - run the task on receipt
 ' s ' - run the task on every Implant startup
 ' p ' - push the task results to the LP immediately

r_file Remote file to securely delete

4.2 Program Execution Tasks

The following tasks are used to execute programs on the implanted computer.

```
execute_bg <run_mode> <r_file> [args='']
```

Execute a program on the target in the background.

By running in the background, the Implant will continue to operate. The standard output and return code of the program are ignored.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
r_file	Remote program file to execute
args	Command line arguments to the program

```
execute_fg <run_mode> <r_file> [args='']
```

Execute a program on the target in the foreground.

By running in the foreground, the Implant will wait for the program to exit. The standard output and return code of the program are captured and returned.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
r_file	Remote program file to execute
args	Command line arguments to the program

4.3 Configuration Tasks

The following tasks are used to modify the configuration of the implant.

Configuration Set Tasks

The configuration set tasks are used to manipulate the configuration sets. There are three sets of configurations: running, persistent, and factory.

```
persist_settings <run_mode>
```

Save the current settings as the default configuration that will be loaded at Implant startup.

All configuration changes must be explicitly persisted, or they will revert on next startup.

```
run_mode
```

Code specifying the run mode, represented by combining the following keys:

- 'r' - run the task on receipt
- 's' - run the task on every Implant startup
- 'p' - push the task results to the LP immediately

```
restore_defaults <run_mode> <options>
```

Restore the Implant configuration to factory settings. Any changes must be persisted explicitly.

```
run_mode
```

Code specifying the run mode, represented by combining the following keys:

- 'r' - run the task on receipt
- 's' - run the task on every Implant startup
- 'p' - push the task results to the LP immediately

```
options
```

Type of configuration settings that will be restored:

- 'all' - all configuration settings
- 'basic' - basic configuration settings, including:
 - * hibernate configuration
 - * uninstallation time and date
- 'beacon' - beacon configuration settings, including:
 - initial wait, default interval, jitter, maximum interval, backoff multiple, maximum failures
- 'comms' - comms configuration, including:
 - chunk size and transport list
- 'list' - whitelist and blacklist configurations

Beacon Configuration Tasks

The beacon configuration tasks are used to modify the settings related to when Assassin beacons.

```
set_beacon_params <run_mode> [initial=0] [default_int=0] [max_int=0] [factor=0.0] [jitter=0]
```

Set one or more of the beacon parameters. Note that 0 indicates 'do not alter this value'.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
initial	Initial wait after Implant startup before beacon (<i>default = 0</i>)
default_int	Default interval between beacons (<i>default = 0</i>)
max_int	Maximum interval between beacons (<i>default = 0</i>)
factor	Backoff factor to modify beacon interval (<i>default = 0</i>) If beacon fails, multiply beacon interval by <i>factor</i> . If beacon succeeds, restore beacon interval to default.
jitter	Range to vary the timing of beacons (<i>default = 0</i>)

```
set_blacklist <run_mode> [programs=[]] [files=[]]
```

Set the target blacklist. If no parameters are provided, the command will enter a subshell; see section Appendix A:3.2 on Program List subshells.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
programs	Set of executable names to include in the blacklist, specified as a Python list or tuple
files	Set of blacklist files, specified as a Python list or tuple Blacklist files are whitespace-delimited lists of executable names to include in a target blacklist.

```
set_whitelist <run_mode> [programs=[]] [files=[]]
```

Set the target whitelist. If no parameters are provided, the command will enter a subshell; see section Appendix A:3.2 on Program List subshells.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
programs	Set of executable names to include in the whitelist, specified as a Python list or tuple
files	Set of whitelist files, specified as a Python list or tuple Blacklist files are whitespace-delimited lists of executable names to include in a target blacklist.

Comms Configuration Tasks

The comms configuration tasks are used to modify the settings related to how Assassin communicates.

```
set_transport <run_mode> [xml_file=None]
```

Set the communication transport configuration. If no parameters are provided, the command will enter a subshell; see section Appendix A:3.3 on Transport List subshells.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
xml_file	XML file containing an Assassin transport list configuration

```
set_chunk_size <run_mode> <chunk_size>
```

Set chunk size to limit network traffic per beacon.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
chunk_size	Maximum Implant upload size per beacon Files larger than <code>chunk_size</code> bytes will be broken up to fit the limit. Setting the size to 0 will disable upload chunking.

Operation Window Configuration Tasks

The operation window tasks are used to modify the settings related to the time window during which the Implant will operate.

```
set_hibernate <run_mode> <seconds>
```

Set the hibernate time in seconds after first execution. The Implant will lie dormant until the hibernate period has elapsed.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
seconds	Number of seconds to hibernate after first execution

```
set_uninstall_date <run_mode> <date>
```

Set the uninstall date for the implant

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
date	Date-Time or Date, specified in ISO 8601 format, or None to disable Date-Time: yyyy-mm-ddThh:mm:ss Date: yyyy-mm-dd

```
set_uninstall_timer <run_mode> <seconds>
```

Set the uninstall timer to seconds from time the task is processed by the Implant.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
seconds	Number of seconds after task execution to uninstall, or None to disable

```
set_beacon_failure <run_mode> <count>
```

Set the maximum number of sequential beacon failures before uninstalling.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
count	Number of failures before uninstalling

Safety Tasks

The safety tasks are used to modify the settings related to how the Implant should act when no tasks are available from the listening post.

```
safety <run_mode> <seconds>
```

Set the Implant beacon interval during idle beacons. This task will not generate a result.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
seconds	Number of seconds between beacons

```
set_interval <run_mode> <seconds>
```

Set the Implant beacon interval. This task will not generate a result.

Note that this command is used by the 'safety' command and is required by Collide. It is not recommended for use by operators; see the `set_beacon_params` task.

<code>run_mode</code>	Code specifying the run mode, represented by combining the following keys: <ul style="list-style-type: none">'r' - run the task on receipt's' - run the task on every Implant startup'p' - push the task results to the LP immediately
<code>seconds</code>	Number of seconds between beacons

4.4 Maintenance Tasks

The following tasks are used to maintain the health of the Implant and clean up the Implant at the close of its operation.

```
get_status <run_mode> <status_mode> <options>
```

Request the current Implant configuration and status information.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
status_mode	Type of configuration/status requested from target implant, one of the following: 'running' - config currently used by the implant, may not be persistent 'persistent' - config loaded and used by Implant at startup 'factory' - config Implant had at installation
options	Type of information requested from target implant, one or more of the following: 'all' - all of the status information available 'basic' - basic Implant information, including: * configuration block magic number * hibernate configuration * predicted time and date Implant will uninstall * time and date that Implant was installed/first run * time and date that Implant started 'beacon' - beacon configuration settings, including: initial wait, default interval, jitter, maximum interval, backoff multiple, maximum failures 'comms' - comms configuration, including: chunk size and transport list 'dirs' - directories created and used by Assassin 'dirs_files' - files stored in Assassin directories 'list' - whitelist and blacklist configurations

```
clear_queue <run_mode>
```

Clear all files from the Implant upload queue.

The `clear_queue` task will delete all files from the `output`, `push`, and `staging` directories on target. This may include chunks of files that have been partially uploaded.

run_mode	Code specifying the run mode, represented by combining the following keys: 'r' - run the task on receipt 's' - run the task on every Implant startup 'p' - push the task results to the LP immediately
----------	---

upload_all <run_mode>

Upload all files currently in the upload queue.

The `upload_all` task will upload all files in the output, push, and staging directories to the listening post as quickly as possible, ignoring the chunk size setting.

Warning: This is a dangerous task and may have adverse effects if the upload queue has a significant backlog. Please use the `get_status` command with the `dir_files` option to decide if the risk is acceptable.

`run_mode` Code specifying the run mode, represented by combining the following keys:

- 'r' - run the task on receipt
- 's' - run the task on every Implant startup
- 'p' - push the task results to the LP immediately

unpersist <run_mode>

Stop the Implant persistence mechanism on the target.

Side effects of this command vary depending on the mechanism used.

Injection Launcher - remove Launcher's service registry key

`run_mode` Code specifying the run mode, represented by combining the following keys:

- 'r' - run the task on receipt
- 's' - run the task on every Implant startup
- 'p' - push the task results to the LP immediately

uninstall <run_mode>

Uninstall the Implant from the target immediately.

`run_mode` Code specifying the run mode, represented by combining the following keys:

- 'r' - run the task on receipt
- 's' - run the task on every Implant startup
- 'p' - push the task results to the LP immediately

Appendix C: Post Processor

The Post Processor parses and extracts data from Assassin files of any type in any state.

1 Usage

```
post_processor.py <options>
```

Options:

-i INPUT, --in=INPUT	Specify the directory containing files for processing. <i>Required.</i>
-o OUTPUT, --out=OUTPUT	Specify the directory to output processed files. <i>Required.</i>
-r RECEIPT, --receipt=RECEIPT	Specify an xml-based Assassin receipt file or a directory of receipt files, used for decryption.
-d, --daemon	Run the post processor continually; only available on Linux.
-a, --archive	Save decrypted copies of raw input files in output directory.
-h, --help	Show the help message and exit.

2 Output Directory Layout

- ↳ <target_id> - Used to group files from the same target
 - ↳ => ID of target or 'unidentified'
- ↳ beacon - Contains all beacons received from target
 - ↳ <beacon_id> - Contains files generated from one beacon
 - ↳ => Time beacon processed as 'yyyy-mm-ddThh.mm.ss_beacon'
 - beacon.xml - XML file of beacon information
 - beacon.archive - Copy of unencrypted beacon file, created if '-a' flag set
- ↳ result - Contains all task results received from target
 - ↳ <result_id> - Contains files generated from one task result
 - ↳ => Time result processed as 'yyyy-mm-ddThh.mm.ss_result'
 - result.xml - XML file of result information
 - result.archive - Copy of unencrypted result file, created if '-a' flag set
 - ↳ data - Contains extra data generated by result
- ↳ push - Contains all files sent from target's push and output directories
 - ↳ <push_id> - Contains files generated from one push event
 - ↳ => Time push processed as 'yyyy-mm-ddThh.mm.ss_<filename>'
 - push.xml - XML file of push information
 - push.archive - Copy of unencrypted push file, created if '-a' flag set
 - <push_file> - File that was placed in push or output directory on target
- ↳ task - Contains all processed task files (never associated with a target)
 - ↳ <task_id> - Contains files generated by parsing task file
 - task.xml - XML file of task information
 - task.archive - Copy of unencrypted task file, created if '-a' flag set
 - ... - Other files generated by task (e.g. contents of put command)
- ↳ unidentified - Contains all unidentified files from target

Appendix D: Miscellaneous

1 Complex Numbers

The Assassin UI implements a system of complex numbers to provide easier reading and writing of integer values. Complex numbers use context-specific notation to modify the magnitude of each integer in the number. The complex numbers adhere to the format [`<integer><modifier_char>`]+ and are evaluated as $\sum(\text{integer} \times \text{modifier_value})$.

1.1 File Size and Offset Modifiers

The following notation is used to modify integers related to file sizes and offsets:

<u>Notation</u>	<u>Meaning</u>	<u>Value</u> (bytes)
b	byte	1
k	kibibyte (KiB)	$2^{10} = 1.024 \times 10^3$
m	mebibyte (MiB)	$2^{20} \approx 1.049 \times 10^6$
g	gibibyte (GiB)	$2^{30} \approx 1.074 \times 10^9$
t	tebibyte (TiB)	$2^{40} \approx 1.100 \times 10^{12}$
p	pebibyte (PiB)	$2^{50} \approx 1.126 \times 10^{15}$
e	exbibyte (EiB)	$2^{60} \approx 1.153 \times 10^{18}$

1.2 Time Modifiers

The following notation is used to modify integers related to time:

<u>Notation</u>	<u>Meaning</u>	<u>Value</u> (seconds)
s	second	1
m	minute	60
h	hour	3,600
d	day	86,400
w	week	604,800

Appendix E: Frequently Asked Questions

What is the right way to change the beacon interval?

Run both `set_beacon_params` and `safety` in Collide with the updated interval. If the change is meant to survive reboot, run `persist_settings` as well. If the safety is not set, the next time there is no implant tasking, the interval will be reset to the current safety value.

What can I do to get my results faster?

- Generate commands with a 'push' run mode. The implant will immediately upload the result, bypassing any files in the output queue and ignoring chunk size.
- Lower the beacon interval. This will increase the frequency at which the implant communicates with the listening post.
- Set a larger chunk size (using `set_chunk_size`).
Note: This can be done after a large command, resulting in the implant uploading multiple smaller chunks during every beacon.
- Send an `upload_all` command to the implant.
Warning: This may result in a large amount of bandwidth usage over a short period of time.

The implant is uploading too much data; how can I slow it down?

- Avoid running large commands with a 'push' run mode or placing large files in the push directory.
- Raise the beacon interval to space out upload operations.
- Set a smaller chunk size (using `set_chunk_size`).
Note: Any file in the output queue will not be re-chunked to a smaller size; since at least one chunk is sent every beacon, this may not actually slow down the rate. Use `clear_queue` and re-run lost commands if the implant absolutely, positively must slow down.

How can I get the output of a third-party tool on target?

- Configure the tool to write result files to Assassin's output directory. The implant will automatically ingest the file and add it to the upload queue.
- Configure the tool to write result files to Assassin's push directory. The implant will automatically ingest the file and upload it immediately.
- Run the tool using `execute_fg`. The implant will collect the tool's stdout and exit code before saving the result for upload. Note: Assassin blocks on `execute_fg` tasks.
- Run the `get` or `get_walk` commands on the tool's output file or directory.

How can I tell if the implant DLL is running?

If the DLL implant is running, the DLL will be present at the configured location on the file system and be undeletable. If you run `'tasklist /m <DLL name>'` from the command prompt, the module should be present in the appropriate process, typically `svchost.exe`.

If I put an upload_all at the end of a batch, why don't I get all my results right away?

All results of a batch are placed in a single result file. When the `upload_all` portion of the batch runs, the file is still open and unfinished, therefore it is not uploaded. Only results in the upload queue that existed prior to the batch execution are uploaded.

In order to immediately receive the results of a batch, run the `generate_batch` command with the push run mode flag.

If I set both an uninstall_timer and an uninstall_date, when will the implant actually uninstall?

Whichever happens first, the uninstall timer counts down to zero or the uninstall date arrives.

I ran a command that says it succeeded in the results, but it has a Windows Error Code; did the command actually succeed?

Yes. The Windows error code is the result of Windows `GetLastError` function and does not necessarily mean something unexpected happened. If the implant reports success, either the `GetLastError` result was expected or not critical.

The Windows error code is most useful for determining the cause of a reported failure from the implant.

I have a large file in the implant output directory that is not being uploaded; why?

Assassin will not store more than 16,384 files in its staging directory. The combination of a very large file and/or very small chunk size may overflow this directory limit. Assassin will leave the file in the output directory, but it will not process or upload it.

In order to retrieve the file, you can:

- Increase the chunk size such that the file will not overflow the staging directory.
- Manually break up the file such that it will be chunked piecewise.
- Use the `get` command in push mode to manually upload the file to the listening post directly.

Can I run multiple Assassin Implants on a target at the same time?

Only one Assassin Implant can run on a target per unique parent ID. If you must run multiple Implants on a single target, make sure they each have different four-byte parent IDs.

What if an Assassin Implant is started multiple times?

Assassin is able to detect concurrent instances with the same parent ID. If an Assassin Implant starts and detects that another implant with the same parent ID is running, it will exit.

How can I export a commonly used task for later use?

In the Tasker, run `generate_batch` to create your task. Before generating the task, use the `export` command as follows: `x <xml_filename> <task_filename>` to export the task to xml.

The xml file can be imported using the `import_xml` command in the tasker.

The post processor is telling me I have gaps in my results; is that bad?

It depends. It is normal for files to be processed somewhat out of order and transient gaps should be of no concern.

However, if a gap appears and persists over time, it is possible that a chunk has been lost. The chunk may have been dropped by the one-way-throw and can be found on the Collide LP. If the chunk is unrecoverable, the post processor will never finish the file.

After the post processor finishes processing the current data, the partial file may be viewed in the input directory's staging sub-directory (`/tmp/assassin_input/staging` by default).